Washington News

Library
S.M.S. Medical College
Jaipur
Acc. No. 1364
Date 21/2/09

House Committee Studies Medical Education Aid • •
Republican Plank Urges Medical Education Grants • •
Council Meeting on Laboratory Facilities Grants • •
AEC Reviews Progress in Atomic Medical Research • •

FEDERAL AID TO MEDICAL EDUCATION

A House committee is laying the groundwork for action in the next Congress on federal aid to medical education. With both the administration and the House Interstate and Foreign Commerce Committee showing interest in the subject, it should hold a high place on the health agenda of the session beginning in January. The committee staff, acting at the direction of the full committee, has written more than 50 organizations asking them for factual data bearing on medical education. The committee wants facts on the financial needs of medical schools and on the supply and demand for medical applicants and graduates "rather than arguments intended to support or oppose any particular form of federal aid." The committee staff letter adds that "this information should be available in useable form at the beginning of the 85th Congress to form the basis of the committee's further consideration of legislation to authorize federal aid to medical education."

President Eisenhower, in signing a recent measure for construction grants for nongovernmental research laboratories, said the measure was deficient because it did not include teaching grants. In medical and dental schools, he noted, space for research and teaching functions is so closely interrelated that no clear line can be drawn between them. The President then expressed hope that the next Congress would broaden the law to include grants for training facilities "which are essential in this period of rapid expansion of medical research." Secretary Folsom of the Department of Health, Education, and Welfare subsequently expressed disappointment also and promised the administration will continue to press for medical education legislation.

Under the heading of supply of students, the House committee is asking for information on (1) national training capacity of medical, dental, osteopathic, and public health schools, (2) training capacity by region and state, (3) utilization of foreign medical schools, (4) trends in supply of applicants, (5) admission policies, and (6) duration and cost to student of medical education. On the supply and demand of graduates, the committee cites (1) present and prospective numbers of medical school graduates, (2) licensure of graduates of foreign medical schools, (3) net increment in relation to population, and (4) examples of unmet needs in public programs, institutions, professional specialties, and rural areas. Concerning medical schools themselves, the committee asks these questions: (1) present costs and financing of operations of individual institutions, (2) effects of medical school financing on university financing, (3) expansion plans of individual institutions, and (4) state, regional, and private national programs and plans for helping medical schools and students.

MEDICAL SECTIONS OF REPUBLICAN PLATFORM

Health and medical sections of the Republican party's platform call for federal assistance to medical schools for construction and equipment, legislation for reinsurance and pooling arrangements to speed the expansion of voluntary health insurance, and vigorous development of atomic energy for medical purposes. The platform notes that the Eisenhower administration this year urged passage of the aid to medical schools bill but that Congress failed to enact it. Health and medical sections of the platform read as follows:

"The Republican party believes that the physical, mental, and spiritual well-being of the people is as important as their economic health. It will continue to support this conviction with vigorous action. . . . Republican action created the Department of Health, Education and Welfare as the first new Federal department in forty years, to raise the continuing consideration of these problems for the first time to the highest council of Government, the President's Cabinet. . . .

"We have fully resolved to continue our steady gains in man's unending struggle against disease and disability. . . . We have supported the distribution of free vaccine to protect millions of children against dreaded polio. . . . Republican leadership has enlarged Federal assistance for construction of hospitals, emphasizing low-cost care of chronic diseases and the special problems of older persons, and increased Federal aid for medical care of the needy. . . .

"We have asked the largest increase in research funds ever sought in one year to intensify attacks on cancer, mental illness, heart disease and other dread diseases. . . . We demand once again, despite the reluctance of the Democrat Eighty-fourth Congress, Federal assistance to help build facilities to train more physicians and Scientists. . . . We have encouraged a notable expansion and improvement of voluntary health insurance, and urge that reinsurance and pooling arrangements be authorized to speed this progress. . . .

"We have strengthened the Food and Drug Administration, and we have increased the vocational rehabilitation program to enable a larger number of the disabled to return to satisfying activity. . . . We shall continue to seek extension and perfection of a sound Social Security system. We pledge close cooperation with state, local and private agencies to reduce the ghastly toll of fatalities on the nation's highways."

From the Washington Office of the American Medical Association.

The platform pledges the party to "continuous vigorous development of atomic energy. . . . For the defense of our own country and to deter aggression, and for the promotion of world peace and the enhancement of our knowledge of basic science and its application to industry, agriculture and the healing arts. . . . President Eisenhower has inaugurated and led a strong program for developing the peaceful atom—a program which has captured the imagination of men and women everywhere with its widespread, positive achievements. . . .

"Every day, radioactive isotopes are brought more and more into use on farms, in clinics and hospitals, and industry. The use of isotopes already has resulted in annual savings of hundreds of millions of dollars and the nuclear age has only begun. It is to the benefit of the United States, as well as to all nations everywhere, that the uses of atomic energy be explored and shared."

MEETING OF COUNCIL ON RESEARCH FACILITIES

Sept. 20 has been set tentatively as the date for the first meeting of the National Advisory Council on Health Research Facilities, which must pass on money to be awarded under a new research grants program authorized by the last Congress. The council also will set policies and approve regulations. Members of the council now are being selected by Secretary Folsom of the Department of Health, Education, and Welfare.

The program provides for grants totaling 30 million dollars a year for three years to help in financing the construction of facilities for research in the "sciences related to health," which are defined in the act as including medicine, osteopathy, dentistry, and public health. Only public or nonprofit institutions are eligible, and the federal share of the project may not exceed 50%. Funds may be used for increasing research facilities through constructing and equipping new buildings or expanding, remodeling, or altering and equipping existing structures. The money may not be used for buying land, for offsite improvements, or to satisfy obligations incurred prior to award of the grant. Administration of the program is being handled by the Division of Research Grants, National Institutes of Health, Bethesda 14, Md.

PROGRESS IN ATOMIC RESEARCH

During the last six months new methods were developed for using atomic energy products and techniques to treat cancers, the effects of radiation upon living creatures were further investigated, and studies of methods of waste disposal yielded promising new knowledge, the Atomic Energy Commission's 20th semiannual report states. Research is being carried on in national laboratories and at projects sponsored by the commission in universities, colleges, hospitals, and other research institutions.

The report also describes a project for construction of a research hospital, to include a medical nuclear reactor, at Brookhaven National Laboratory on Long Island. The Brookhaven medical reactor, the first designed exclusively for medical research and treatment, will incorporate unique features to insure wider medical application of neutrons, flexibility of treatment, and availability of special short-lived radioisotopes. Completion is scheduled for 1958.

Announcement of another grant to make possible the completion of a nuclear research reactor to be used for medical research comes from the National Science Foundation. The foundation has awarded a grant of $500,000 to the Massachusetts Institute of Technology to help pay for a nuclear research reactor facility. Medical research planned for the MIT reactor includes the development of improved methods for treating brain tumors and other cancers by a neutron-beam therapy. The planned facilities will provide a higher neutron-beam strength than is presently available in other reactors and will furnish a down-directed beam that is preferred for the treatment of brain tumors.

The AEC helped assure safety and health protection at the 1956 spring weapons tests in the Pacific. A program to measure the radioactivity of sea water and marine organisms in the test area is being conducted. The marine surveys will continue as far as radioactivity is detectable in the ocean.

The AEC reported that it has continued its work with the Federal Civil Defense Administration, has kept its informative material in this field up to date, and is helping to provide local civilian defense groups with training tools. The commission also is expanding its scientific and technical assistance by adding consultant services to assist in civil defense matters. The report notes that "The Effects of Atomic Weapons," published jointly by the commission and the Department of Defense in 1950, is being revised to include the latest knowledge of weapons effects gathered by experiment and observation in laboratory work and test series since preparation of the first issue. Publication is planned for early 1957 under the title "Effects of Nuclear Weapons."

MISCELLANY

Dr. Theodore J. Bauer, a career officer in the Public Health Service since 1934, has been named deputy chief of the Bureau of State Services. He replaces Dr. Leroy E. Burney, recently appointed surgeon general of PHS. . . . The Korean GI Bill in its four years of operation has given 1,500,000 Korea veterans an opportunity to train for virtually every type of career and occupation found in America. Another one million veterans are expected to make use of their Korean GI training benefits before the program expires in 1965, according to VA estimates. One-third of all Korean GI trainees aimed for high-level professional, semi-professional, and technological occupations. Of the 156,000 Korea veterans who studied the sciences, 37,000 chose medicine and related subjects. . . . The Walter Reed Army Medical Center has named Lieut. Col. Herman A. Jones Jr., of Silver Spring, Md., as its new inspector general. Colonel Jones previously served in the office of the surgeon general. . . . The National Science Foundation has announced 289 grants, totaling $3,504,277, awarded during the last quarter of fiscal 1956 to help finance basic research in the sciences and the training of science teachers. The grants will also be used to help pay for conferences in support of science, for exchange of scientific information, and for attendance of scientists at scientific meetings abroad.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 1
CHICAGO, ILLINOIS
SEPTEMBER 1, 1956

Copyright, 1956, by American Medical Association

URINARY TRACT INFECTIONS CAUSED BY ANTIBIOTIC-RESISTANT COLIFORM BACILLI

William M. M. Kirby, M.D., Douglas O. Corpron, M.D.
and
Donald C. Tanner, M.D., Seattle

• *Nosocomial (hospital-acquired) infections are receiving increasing attention and are often serious when they occur, since micro-organisms that become widely disseminated in the hospital environment are frequently resistant to commonly used chemotherapeutic agents. The chief interest in recent years has centered around infections caused by Micrococcus (Staphylococcus) pyogenes var. aureus.*

The present study indicates that infections with antibiotic-resistant coliform bacteria may also occur commonly in hospitals. It is well known that catheterization and instrumentation of the urinary tract frequently lead to urinary tract infections, but the relationship of such infections to organisms present in the hospital environment is not commonly appreciated. The authors were unable to determine the source of the resistant bacteria and the exact mode of infection; the catheters themselves, and the solutions used to irrigate them, could not be incriminated. Blankets, mattresses, and possibly the nasopharyngeal flora of hospital personnel appeared more likely possibilities.

Results of antibiotic sensitivity tests from other hospital laboratories indicate that hospital-acquired infections with antibiotic-resistant coliform bacteria may be a widespread problem, and one that is largely unrecognized.

Infections caused by antibiotic-resistant bacteria have become a widespread and serious problem, chiefly with one organism, the Micrococcus (Staphylococcus). Such infections are usually acquired in the hospital, and an important focus is the nasopharyngeal flora of hospital personnel. Evidence concerning a similar increase in urinary tract infections caused by antibiotic-resistant coliform bacteria is conflicting. As pointed out in a recent comprehensive review by Finland,[1] except with streptomycin, originally sensitive strains have not been frequently observed to acquire high degrees of resistance during therapy. Much more commonly, sensitive strains have been eliminated by antibiotics and have been replaced by naturally resistant species, such as Proteus and Pseudomonas. In contrast to these results obtained in studies of individual patients, surveys from hospital laboratories have indicated a trend toward increasing resistance of coliforms, especially to tetracyclines.[2] A recent study from a general hospital laboratory revealed that more than a third of the coliform bacteria were tetracycline-resistant.[3] Our interest in resolving this discrepancy between the results obtained in individual cases and in hospital surveys was one of the chief motivations for the present study.

A study performed at this hospital two years ago showed that 29% of coliforms were resistant to tetracyclines and 43% to streptomycin.[4] It was postulated that resistant coliforms probably developed in patients with chronic infections as a result of therapy with these two antibiotics. Subsequent studies have shown that for the majority of patients this explanation is not the correct one. It appears, rather, that the patients somehow acquire infections with antibiotic-resistant coliform bacteria in the hospital, usually in association with instrumentation of the urinary tract. Details of these studies are presented in the present report.

Materials and Methods

During a three-month period, July through September, 1955, a study was made of all patients whose urine cultures, performed in the routine diagnostic bacteriology laboratory at the King County Hospital, showed a predominant growth of coliforms or of Achromobacter. Coliform bacilli were identified by their ability to ferment lactose with the production of acid and gas within 24 hours. No attempt was made to differentiate Escherichia coli from Aerobacter aerogenes. Members of the Achromobacter group were identified as described in our earlier publication.[4] After recovery of the etiological organism, antibiotic sensitivity tests were performed by the disk method with use of standards that have been found in this laboratory to correlate well with the tube dilution

Briefly, the highest concentrations of disks were

From the Department of Medicine, University of Washington School of Medicine, and the King County Hospital.

and the tests were performed on Mueller-Hinton medium. With few exceptions coliforms were either highly sensitive or quite resistant to a given antibiotic. For example, organisms sensitive to chloramphenicol or tetracyclines gave zones of inhibition larger than 20 mm. in diameter and were inhibited in tryptose phosphate broth by 5 mcg. per milliliter or less. With resistant coliforms, on the other hand, zones of inhibition were under 15 mm. in diameter, and, with the tube dilution method, growth occurred in the presence of 50 mcg. per milliliter of the antibiotic. Bacteria sensitive to polymyxin B, sulfisoxazole (Gantrisin) and streptomycin gave zone diameters greater than 10, 15, and 16 mm. respectively. The majority of the antibiotic-resistant coliforms showed resistance to the tetracyclines, chloramphenicol, streptomycin, and sulfonamides and were sensitive only to polymyxin B. Approximately one-third of the strains differed from this pattern in that they were also sensitive to chloramphenicol.

Patients whose urine cultures yielded coliform bacteria or Achromobacter were studied particularly in reference to the following points: (1) nature of the urinary tract infection, (2) possible underlying disease of the urinary tract, (3) instrumentation or inlying catheters, (4) previous antibiotic therapy, (5) location in the hospital, and (6) course of the illness. In addition to this study of all patients who had urine cultures during a three-month period, the antibiotic sensitivity pattern of coliforms isolated during various one-month periods has been tabulated on seven occasions during the past two years. Detailed observations have also been made on a number of individual patients whose cultures revealed antibiotic-resistant coliforms. Some of these cases are described below.

Results

One-fifth to two-thirds of the coliform bacteria olated at various intervals during the past two years found to be antibiotic-resistant according to the definition described above. No clear-cut reason could be found to account for the variation observed from month to month. During the course of the study, it became apparent that our original postulate, namely, that most antibiotic-resistant coliforms were cultured from the urine of patients who had had prolonged and varied chemotherapy, was incorrect. Although this undoubtedly occurs, another mechanism seems to be of greater importance. It appears that in most cases the resistant bacteria are acquired in the hospital, usually in association with instrumentation of the urinary tract and sometimes as a result of instrumentation elsewhere in the body. A few brief case reports will illustrate this point.

Case 1.—A 20-year-old woman was receiving a continuous intravenous infusion of penicillin for the treatment of subacute bacterial endocarditis and had been afebrile for two weeks. The penicillin was administered through an indwelling catheter in one of the veins of her left leg. On March 26, 1955, she had a shaking chill and a blood culture was positive for coliform bacteria resistant to all antibiotics except polymyxin B. A pour plate made from 1 cc. of the patient's blood contained 112 colonies of bacteria. The skin around the site of the cut-down was red and inflamed. She was treated with chloramphenicol, and the fever and swelling subsided within five days.

Case 2.—A 65-year-old female entered the hospital with a fractured femur on March 16, 1955. Initial urinalysis was negative, and she was not given antibiotics. An inlying catheter was inserted, and one week later the urine was noted to be cloudy. Urine was cultured on March 25th and revealed coliforms with a pattern of antibiotic resistance identical with that described in case 1.

These two patients, who were on widely separated wards of the hospital, appear to have been infected with the same organism. One infection was associated with a catheter in the bladder and the other, with a catheter inserted into a vein. Benzalkonium (Zephiran) chloride solutions used for bladder irrigations and for cleansing the skin for venipunctures were suspected, but cultures of these solutions were negative.

Case 3.—A 32-year-old female, 7 months pregnant, entered the hospital with acute bulbar poliomyelitis on Sept. 7, 1955, and was placed in a respirator. Urinalysis on admission was negative. A week after the insertion of an indwelling catheter, the urine was cloudy and antibiotic-resistant coliforms were cultured. Although an indwelling catheter was needed for only three weeks, these same organisms were cultured repeatedly from the urine during the next four months.

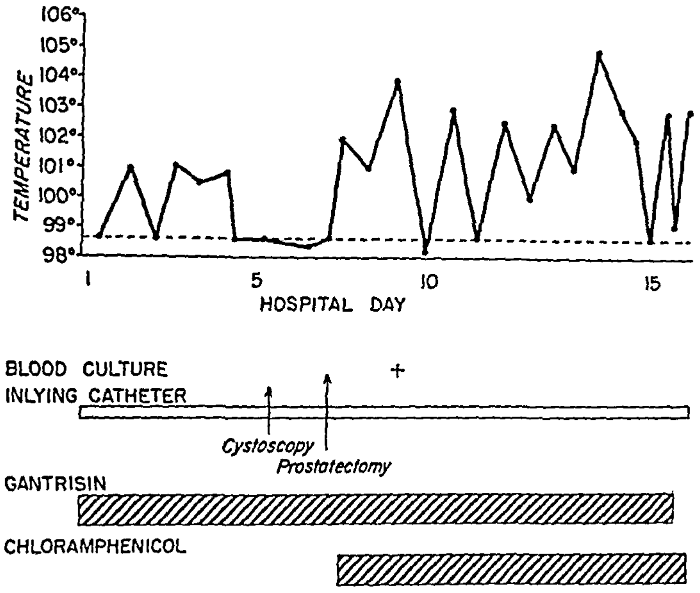


Fig. 1.—Therapy and course of patient in case 4.

Case 4.—An 82-year-old man with prostatic hypertrophy had had increasing difficulty in voiding during the previous six months and entered the hospital on July 27, 1955, with acute retention. He had received no chemotherapy. An inlying catheter was inserted, and he was given sulfisoxazole. He was cystoscoped on the sixth day, and two days later a suprapubic prostatectomy was performed. After surgery he developed shaking chills and a high temperature, and coliform bacteria sensitive only to chloramphenicol and polymyxin B were cultured from the blood stream (fig. 1). Despite therapy with sulfisoxazole and chloramphenicol, the febrile course continued, and he died on the 15th hospital day, after a massive gastrointestinal hemorrhage. At autopsy he was found to have multiple gastric ulcers and evidences of acute and chronic pyelonephritis.

In both of these instances, infection with antibiotic-resistant coliform bacteria seems clearly to have been acquired as a result of catheterization.

Case 5.—A 9-year-old boy, previously well, entered the hospital on Oct. 26, 1955, after an automobile accident. He was comatose and in shock and was taken to surgery, where a compound skull fracture was treated and a ruptured spleen was removed. An inlying catheter was inserted into his bladder, and he was treated with penicillin and chloramphenicol (fig. 2). The hospital course was stormy and febrile, and on the seventh day coliform bacteria sensitive only to chloramphenicol and polymyxin B were cultured from the blood stream. The pour plate showed a growth of 70 colonies per cubic centimeter of the patient's blood. The urine was cloudy and showed an increased number of red blood cells, white blood cells, and protein but was not cultured. During the second week, he showed gradual improvement, and on the 14th day he was transferred to another hospital. Follow-up data are not available.

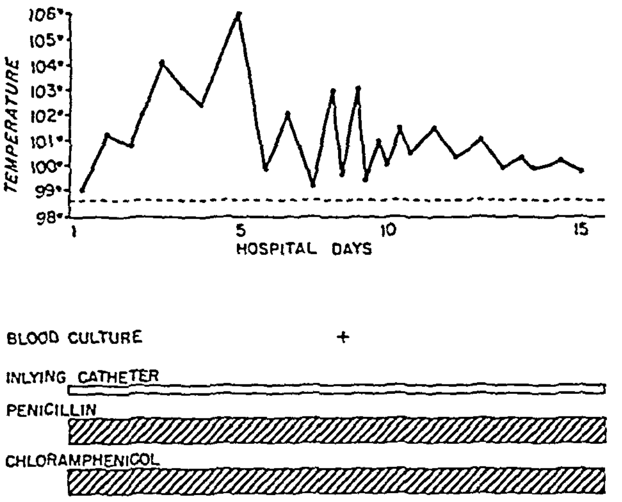


Fig. 2.—Therapy and course of patient in case 5.

In this instance, the coliform bacteria recovered from the blood stream had characteristics identical with those recovered in cases 3 and 4. These bacteria may have gained access as a result of the catheter in the bladder, although other possibilities are present, since he had two operations and also received continuous intravenous infusions of fluids and electrolytes.

Three-Month Survey.—From July 1 through Sept. 30, 1955, urine cultures from 85 patients revealed a predominant growth of coliform bacilli (see table). In 41 patients the organisms isolated were antibiotic-sensitive, and in 44 they were resistant. Approximately half of the resistant strains showed sensitivity only to polymyxin B, while the remainder were sensitive to both polymyxin and chloramphenicol. Striking differences were observed between the two groups of patients, as indicated in the table. The patients with antibiotic-sensitive organisms were in general those with acute urinary tract symptoms at the time of admission to the hospital. The incidence of obstructive lower urinary tract disease was low, and few had had recent catheterizations. It is of interest that 10 of the 41 patients in this group had bacteremia. In those with resistant bacteria, on the other hand, there was a high correlation with recent catheterization or instrumentation of the urinary tract. Many of these patients entered the hospital without symptoms of a urinary tract infection, and the urine became cloudy and infected only after an inlying catheter had been in place for several days. In this group the incidence of underlying urinary tract obstruction was relatively high, although, in a number of patients who developed infections in association with indwelling catheters, there was no evidence of underlying urinary tract disease. In only 6 of the 44 cases was it probable that the patient had had therapy with all the chemotherapeutic agents to which the bacteria were resistant.

Analysis of Patients Whose Urine Cultures Showed a Predominant Growth of Coliform Bacteria, or Achromobacter, Sensitive or Resistant to Antibiotics

	Coliforms		
	Antibiotic Sensitive	Antibiotic Resistant	Achromobacter
Total patients	41	44	14
Positive blood culture	10	1	1
Repeated catheterization or inlying catheter	4	42	13
Acute symptoms at time of culture	33	9	2
Obstructive lower urinary tract disease	5	25	8
Previous therapy with chemotherapeutic agents against which the bacteria were resistant	0	6	0

In 14 patients, the predominant organism cultured from the urine was Achromobacter. As noted in our earlier study,[4] this organism was cultured from the urine of patients with prolonged catheterization. In the one patient with a positive blood culture, the organism appears to have entered the blood through an infection around an intravenous catheter. This patient did not have a catheter in the bladder.

Comment

The present studies appear to clarify the paradox described in the introduction, namely, that, while coliform bacilli have not often been observed to acquire antibiotic resistance during therapy of individual patients,[1] surveys from hospital laboratories indicate that a relatively high percentage of all coliforms isolated from urine cultures are resistant to a number of chemotherapeutic agents.[5] The explanation seems to lie in the fact that the resistant bacteria are acquired in the hospital, chiefly in patients with indwelling catheters. The exact source of the resistant coliforms and their mode of entry into the body remain unexplained. One possibility is that the catheters themselves, or solutions used to irrigate them, become contaminated in the central supply area before they are sent out to the wards. This explanation is logical and attractive, but we have been unable to obtain any information to support it. Cultures of both catheters and irrigating solutions have consistently failed on many occasions during the past two years to show any evidence of contamination. Another possibility is that coliforms are carried in the nasopharyngeal flora of the hospital personnel in the same way as micrococci. Again, we have no convincing studies and further investigation along this line is contemplated. We have noted that coliforms are often isolated from the nasopharynx during carrier studies for micrococci, but antibiotic sensitivity tests have not been performed. If the nasopharynx is an important focus, the bacteria may multiply in the patient's intestine and may eventually gain access to the urinary tract by way of the intestine. Recent studies have shown marked changes from time to time in the serologic types of coliforms that inhabit the intestinal tract.[6] In patients with inlying catheters, interference with normal drainage may allow bacteria to pass through the lymphatic system from the intestine to the urinary tract. A study of the serologic types and antibiotic sensitivity patterns of coliform bacteria in the intestinal flora of hospitalized patients may well yield important information. A third possibility, probably the most likely of all, is that objects with which the patient comes into close contact, particularly mattresses and blankets, are heavily contaminated with resistant coliforms. The bacteria may then cover the patient's skin and the indwelling catheter and may gain access to the bladder when the catheter is irrigated. We have recently demonstrated that blankets and mattresses throughout the hospital are contaminated with antibiotic-resistant micrococci, and attempts to culture coliforms are now in progress.

As was true at the time of our earlier study,[4] members of the *Achromobacter* group were isolated from more than 10% of all positive urine cultures. This antibiotic-resistant gram-negative rod was also present almost exclusively in the urines of patients with indwelling catheters. The source and mode of spread of this organism is presumably similar to that of the antibiotic-resistant coliform bacteria.

To our knowledge, data similar to those obtained in the present study have not been previously published in the United States. It seems highly likely, however, that the phenomenon of hospital-acquired infections with antibiotic-resistant coliforms is widespread but is largely unrecognized. Failure to recognize the problem probably results from the fact that interest in urinary tract infections is focused chiefly on patients with acute infections acquired prior to admission to the hospital. In contrast, the present study started with organisms isolated in the laboratory and proceeded to an analysis of factors leading to infection of the individual patient. This approach automatically included patients, many of them relatively asymptomatic, who developed signs of infection only after they had been in the hospital for some time. The probability that the phenomenon is widespread is indicated by recent reports from other hospital laboratories, showing that one-third or more of the coliform bacteria isolated were antibiotic-resistant.[5] In some instances, coliforms resistant to several antibiotics are undoubtedly present in individual patients as a result of therapy with a variety of chemotherapeutic agents. As pointed out by Finland,[1] however, except with streptomycin, this has not often been observed to occur. It seems much more likely that in other hospitals, as in ours, future studies will indicate that in the majority of instances infections with resistant coliform bacteria are hospital-acquired. A rational approach to control measures will have to await a better understanding of the manner in which these infections are acquired.

The problem of nosocomial infections of the urinary tract is receiving increasing attention, and the subject has been recently summarized by Kass.[7] Particularly noteworthy are the studies of Orskov[8] in Copenhagen, who found a strikingly uniform distribution of Klebsiella strains cultured from the urines of patients on male surgical wards. Cross infection, probably related to catheterization, was considered the most likely explanation. Garrod and co-workers[9] in England found that almost 20% of women who had recently been catheterized had infections with enterococci, while only 2% of those not catheterized had similar infections. It is evident from these observations, and those described in the present report, that hospital-acquired infections of the urinary tract are an important and challenging problem. As with micrococci, the emergence of coliform bacteria resistant to most of the commonly used chemotherapeutic agents aggravates the situation and will undoubtedly make control measures difficult.

Summary and Conclusions

From one-fifth to two-thirds of the coliform bacteria isolated in the bacteriology laboratory at the King County Hospital at various intervals during the past two years have been found to be antibiotic-resistant. Study of the patients from whom they were isolated revealed that in most instances the resistant bacteria were acquired in the hospital, chiefly in association with instrumentation of the urinary tract. The source of the resistant coliforms and the exact mode of infection remain unexplained. Contamination of catheters and irrigating solutions could not be demonstrated. As with micrococci (staphylococci), the evidence suggests that resistant coliforms are widespread in the hospital environment and are available to cause infections when opportunities present themselves. Reports of a similar incidence of antibiotic-resistant coliforms from other laboratories indicate that this problem is probably present in many hospitals but is largely unrecognized.

References

1. Finland, M.: Medical Progress: Emergence of Antibiotic-Resistant Bacteria, New England J. Med. **253**: 1019-1028 (Dec. 8) 1955.
2. Kenney, M.; Johnson, P. M., and Tatz, J. S.: Four Year Study of Bacterial Sensitivity to Five Antibiotics Using Standardized Paper-Disk Method, Antibiotics & Chemother. **3**: 1221-1234 (Dec.) 1953. Schneierson, S. S.: Changes in Bacterial Sensitivity to Aureomycin and Chloramphenicol in Course of Past Three Years, J. Lab. & Clin. Med. **40**: 48-57 (July) 1952.
3. Weil, A. J., and Stempel, B.: Resistance to Antibiotics Among Microorganisms Isolated in General Hospital in 1953 and 1954, Antibiotic Med. **1**: 319-326 (June) 1955.
4. Kirby, W. M. M.; Waddington, W. S., and Doornink, G. M.: Occurrence of Antibiotic-Resistant Gram-Negative Bacilli in Urinary Tract Infections, in Antibiotics Annual, 1953-54, Welch, H., and Martí-Ibañez, F., editors, New York, Medical Encyclopedia, 1954, p. 285.
5. Footnotes 2 and 3.
6. Powers, D., and Baker, E. E.: Serologic Relationships of Escherichia Coli Isolated Before and After Treatment with Chlortetracycline, Antibiotic Med. **1**: 570-576 (Oct.) 1955.
7. Kass, E. H.: Symposium on Newer Aspects of Antibiotics: Chemotherapeutic and Antibiotic Drugs in Management of Infections of Urinary Tract. Am. J. Med. **18**: 764-781 (May) 1955.
8. Orskov, I.: Nosocomial Infections with Klebsiella in Lesions of Urinary Tract, Acta path. et microbiol. scandinav., supp. 93, pp. 259-271, 1952.
9. Garrod, L. P.; Shooter, R. A., and Curwen, M. P.: Results of Chemotherapy in Urinary Infections, Brit. M. J. **2**: 1003-1008 (Oct. 30) 1954.

PULMONARY CONGESTION AND EDEMA IN UREMIA

Skottowe W. DePass, M.D., Joseph Stein, M.D., Maxwell H. Poppel, M.D.
and
Harold G. Jacobson, M.D., New York

• *Roentgenograms of the chest in cases of so-called pulmonary azotemia, uremic lung, and uremic pneumonia show bilaterally symmetrical densities in the central lung fields with comparatively clear peripheral zones. The latter have been assumed, in the past, to be characteristic of the lung in uremia and to be absent when pulmonary congestion and edema arise from other causes.*

Study of roentgenograms previously published by others and of roentgenograms from a group of six original cases showed that the value of the clear peripheral zones as diagnostic criteria must be doubted; they were not always distinct in cases of uremia and were sometimes present when the primary disturbance was not renal but cardiovascular.

The roentgenographic appearances in question, therefore, should be interpreted simply as representing pulmonary congestion and edema due to fluid retention from whatever cause and should not be considered as diagnostic of nitrogen retention caused by renal failure.

It is the purpose of this study to deny the existence of the roentgenographic entity known as "pulmonary azotemia," "uremic lung," or "uremic pneumonia." It has been our observation that this so-called characteristic picture in patients with uremia actually represents pulmonary congestion and edema following fluid retention either on a cardiac or on a renal basis. The pulmonary changes seen are not related to azotemia, and identical changes can occur on a purely cardiac basis.

This pulmonary roentgenographic picture that occurs in patients with uremia has been described in the past and called variously pulmonary azotemia, uremic lung, or uremic pneumonia. In view of what is now known regarding the etiology of these roentgenographic findings, it would seem desirable to discard these terms. Alwall, Lunderquist, and Olsson [1] have suggested the term "fluid lung," since they consider fluid retention the basic factor in the changes seen.

The pulmonary roentgenographic findings in uremia that have been described consist of bilateral symmetrical densities in the central lung fields. The characteristic feature is the presence of a comparatively clear peripheral zone in both pulmonary fields. Most writers have admitted that, except for this peripheral zone of clearing, the findings are consistent with those of pulmonary congestion and edema.

Survey of the Literature

Roubier and Plauchu [2] in 1934 reported changes that were designated as uremic edema in the chest roentgenograms of four patients with uremia. Rendich, Levy, and Cove [3] in 1941 concluded that a positive diagnosis of pulmonary azotemia could be made from a roentgenogram of the chest. They considered the relationship of this picture to cardiorenal disease and nitrogenous retention as constant. However, they noted that this picture was rare and that there was no correlation with the level of blood urea. In 50 patients with elevated blood urea levels, roentgenograms did not show any pulmonary manifestations of uremia. These were all patients without clinical evidence of heart failure. It should be noted that all the patients reported in this study as showing the typical roentgenographic picture had clinical histories consistent with congestive heart failure. Doniach [4] in 1947 investigated four of five cases histologically. He also noted that the distribution of edema fluid in these cases was similar to that in uncomplicated acute left ventricular failure. His five cases all had clinical findings consistent with heart failure. The patients autopsied showed in the lungs widespread solid edema due to a fibrinous or albuminous intra-alveolar exudate. This was associated with a mononuclear cell reaction and organization with hyalin membranes lining the alveolar ducts. He considered this the result of a combination of a rise in pulmonary capillary pressure due to left ventricular failure and an alteration in capillary permeability resulting from the uremia. Barden and Cooper [5] in 1948 stated also that increased vascular permeability played a role in this condition. No definite evidence was offered to support this view. Bass and Singer [6] in 1952 reported five cases, all of which had clinical findings consistent with congestive heart failure. They considered the clinical findings in some of their cases less marked than would be expected from the roentgenographic picture. It was noted that the shadows gradually disappeared as the left ventricular failure was alleviated. Gould and Torrance [7] concluded that there was some correlation between the massive central type of edema and uremia. They included 10 "pure uremic" cases in their 100 cases of pulmonary edema. However, the case histories were not given.

Alwall, Lunderquist, and Olsson's [1] excellent work in 1953 reported 16 cases of uremia in which the chest roentgenograms revealed the so-called typical changes. They assumed that liquid retention constituted the fundamental etiological factor. In their series of patients they reduced fluid supply and produced diarrhea by means of hypertonic sodium sulfate solution either per os or as an enema. The body weight

---

Resident (Dr. DePass), Chief (Dr. Stein), and Consultant (Dr. Poppel), Department of Radiology, Veterans Administration Hospital; Assistant Clinical Professor of Radiology (Dr. Stein), Professor and Chairman of Radiology (Dr. Poppel), and Clinical Professor of Radiology (Dr. Jacobson), New York University College of Medicine; and Director of Radiology, Montefiore Hospital (Dr. Jacobson).

tract by way of the intestine. Recent studies have shown marked changes from time to time in the serologic types of coliforms that inhabit the intestinal tract.[6] In patients with inlying catheters, interference with normal drainage may allow bacteria to pass through the lymphatic system from the intestine to the urinary tract. A study of the serologic types and antibiotic sensitivity patterns of coliform bacteria in the intestinal flora of hospitalized patients may well yield important information. A third possibility, probably the most likely of all, is that objects with which the patient comes into close contact, particularly mattresses and blankets, are heavily contaminated with resistant coliforms. The bacteria may then cover the patient's skin and the indwelling catheter and may gain access to the bladder when the catheter is irrigated. We have recently demonstrated that blankets and mattresses throughout the hospital are contaminated with antibiotic-resistant micrococci, and attempts to culture coliforms are now in progress.

As was true at the time of our earlier study,[4] members of the Achromobacter group were isolated from more than 10% of all positive urine cultures. This antibiotic-resistant gram-negative rod was also present almost exclusively in the urines of patients with indwelling catheters. The source and mode of spread of this organism is presumably similar to that of the antibiotic-resistant coliform bacteria.

To our knowledge, data similar to those obtained in the present study have not been previously published in the United States. It seems highly likely, however, that the phenomenon of hospital-acquired infections with antibiotic-resistant coliforms is widespread but is largely unrecognized. Failure to recognize the problem probably results from the fact that interest in urinary tract infections is focused chiefly on patients with acute infections acquired prior to admission to the hospital. In contrast, the present study started with organisms isolated in the laboratory and proceeded to an analysis of factors leading to infection of the individual patient. This approach automatically included patients, many of them relatively asymptomatic, who developed signs of infection only after they had been in the hospital for some time. The probability that the phenomenon is widespread is indicated by recent reports from other hospital laboratories, showing that one-third or more of the coliform bacteria isolated were antibiotic-resistant.[5] In some instances, coliforms resistant to several antibiotics are undoubtedly present in individual patients as a result of therapy with a variety of chemotherapeutic agents. As pointed out by Finland,[1] however, except with streptomycin, this has not often been observed to occur. It seems much more likely that in other hospitals, as in ours, future studies will indicate that in the majority of instances infections with resistant coliform bacteria are hospital-acquired. A rational approach to control measures will have to await a better understanding of the manner in which these infections are acquired.

The problem of nosocomial infections of the urinary tract is receiving increasing attention, and the subject has been recently summarized by Kass.[7] Particularly noteworthy are the studies of Orskov[8] in Copenhagen, who found a strikingly uniform distribution of Klebsiella strains cultured from the urines of patients on male surgical wards. Cross infection, probably related to catheterization, was considered the most likely explanation. Garrod and co-workers[9] in England found that almost 20% of women who had recently been catheterized had infections with enterococci, while only 2% of those not catheterized had similar infections. It is evident from these observations, and those described in the present report, that hospital-acquired infections of the urinary tract are an important and challenging problem. As with micrococci, the emergence of coliform bacteria resistant to most of the commonly used chemotherapeutic agents aggravates the situation and will undoubtedly make control measures difficult.

Summary and Conclusions

From one-fifth to two-thirds of the coliform bacteria isolated in the bacteriology laboratory at the King County Hospital at various intervals during the past two years have been found to be antibiotic-resistant. Study of the patients from whom they were isolated revealed that in most instances the resistant bacteria were acquired in the hospital, chiefly in association with instrumentation of the urinary tract. The source of the resistant coliforms and the exact mode of infection remain unexplained. Contamination of catheters and irrigating solutions could not be demonstrated. As with micrococci (staphylococci), the evidence suggests that resistant coliforms are widespread in the hospital environment and are available to cause infections when opportunities present themselves. Reports of a similar incidence of antibiotic-resistant coliforms from other laboratories indicate that this problem is probably present in many hospitals but is largely unrecognized.

References

1. Finland, M.: Medical Progress: Emergence of Antibiotic-Resistant Bacteria, New England J. Med. **253**: 1019-1028 (Dec. 8) 1955.

2. Kenney, M.; Johnson, P. M., and Tatz, J. S.: Four Year Study of Bacterial Sensitivity to Five Antibiotics Using Standardized Paper-Disk Method, Antibiotics & Chemother. **3**: 1221-1234 (Dec.) 1953. Schneierson, S. S.: Changes in Bacterial Sensitivity to Aureomycin and Chloramphenicol in Course of Past Three Years, J. Lab. & Clin. Med. **40**: 48-57 (July) 1952.

3. Weil, A. J., and Stempel, B.: Resistance to Antibiotics Among Microorganisms Isolated in General Hospital in 1953 and 1954, Antibiotic Med. **1**: 319-326 (June) 1955.

4. Kirby, W. M. M.; Waddington, W. S., and Doornink, G. M.: Occurrence of Antibiotic-Resistant Gram-Negative Bacilli in Urinary Tract Infections, in Antibiotics Annual, 1953-54, Welch, H., and Martí-Ibañez, F., editors, New York, Medical Encyclopedia, 1954, p. 285.

5. Footnotes 2 and 3.

6. Powers, D., and Baker, E. E.: Serologic Relationships of Escherichia Coli Isolated Before and After Treatment with Chlortetracycline, Antibiotic Med. **1**: 570-576 (Oct.) 1955.

7. Kass, E. H.: Symposium on Newer Aspects of Antibiotics: Chemotherapeutic and Antibiotic Drugs in Management of Infections of Urinary Tract, Am. J. Med. **18**: 764-781 (May) 1955.

8. Orskov, I.: Nosocomial Infections with Klebsiella in Lesions of Urinary Tract, Acta path. et microbiol. scandinav., supp. 93, pp. 259-271, 1952.

9. Garrod, L. P.; Shooter, R. A., and Curwen, M. P.: Results of Chemotherapy in Urinary Infections, Brit. M. J. **2**: 1003-1008 (Oct. 30) 1954.

PULMONARY CONGESTION AND EDEMA IN UREMIA

Skottowe W. DePass, M.D., Joseph Stein, M.D., Maxwell H. Poppel, M.D.
and
Harold G. Jacobson, M.D., New York

• *Roentgenograms of the chest in cases of so-called pulmonary azotemia, uremic lung, and uremic pneumonia show bilaterally symmetrical densities in the central lung fields with comparatively clear peripheral zones. The latter have been assumed, in the past, to be characteristic of the lung in uremia and to be absent when pulmonary congestion and edema arise from other causes.*

Study of roentgenograms previously published by others and of roentgenograms from a group of six original cases showed that the value of the clear peripheral zones as diagnostic criteria must be doubted; they were not always distinct in cases of uremia and were sometimes present when the primary disturbance was not renal but cardiovascular.

The roentgenographic appearances in question, therefore, should be interpreted simply as representing pulmonary congestion and edema due to fluid retention from whatever cause and should not be considered as diagnostic of nitrogen retention caused by renal failure.

It is the purpose of this study to deny the existence of the roentgenographic entity known as "pulmonary azotemia," "uremic lung," or "uremic pneumonia." It has been our observation that this so-called characteristic picture in patients with uremia actually represents pulmonary congestion and edema following fluid retention either on a cardiac or on a renal basis. The pulmonary changes seen are not related to azotemia, and identical changes can occur on a purely cardiac basis.

This pulmonary roentgenographic picture that occurs in patients with uremia has been described in the past and called variously pulmonary azotemia, uremic lung, or uremic pneumonia. In view of what is now known regarding the etiology of these roentgenographic findings, it would seem desirable to discard these terms. Alwall, Lunderquist, and Olsson[1] have suggested the term "fluid lung," since they consider fluid retention the basic factor in the changes seen.

The pulmonary roentgenographic findings in uremia that have been described consist of bilateral symmetrical densities in the central lung fields. The characteristic feature is the presence of a comparatively clear peripheral zone in both pulmonary fields. Most writers have admitted that, except for this peripheral zone of clearing, the findings are consistent with those of pulmonary congestion and edema.

Survey of the Literature

Roubier and Plauchu[2] in 1934 reported changes that were designated as uremic edema in the chest roentgenograms of four patients with uremia. Rendich, Levy, and Cove[3] in 1941 concluded that a positive diagnosis of pulmonary azotemia could be made from a roentgenogram of the chest. They considered the relationship of this picture to cardiorenal disease and nitrogenous retention as constant. However, they noted that this picture was rare and that there was no correlation with the level of blood urea. In 50 patients with elevated blood urea levels, roentgenograms did not show any pulmonary manifestations of uremia. These were all patients without clinical evidence of heart failure. It should be noted that all the patients reported in this study as showing the typical roentgenographic picture had clinical histories consistent with congestive heart failure. Doniach[4] in 1947 investigated four of five cases histologically. He also noted that the distribution of edema fluid in these cases was similar to that in uncomplicated acute left ventricular failure. His five cases all had clinical findings consistent with heart failure. The patients autopsied showed in the lungs widespread solid edema due to a fibrinous or albuminous intra-alveolar exudate. This was associated with a mononuclear cell reaction and organization with hyalin membranes lining the alveolar ducts. He considered this the result of a combination of a rise in pulmonary capillary pressure due to left ventricular failure and an alteration in capillary permeability resulting from the uremia. Barden and Cooper[5] in 1948 stated also that increased vascular permeability played a role in this condition. No definite evidence was offered to support this view. Bass and Singer[6] in 1952 reported five cases, all of which had clinical findings consistent with congestive heart failure. They considered the clinical findings in some of their cases less marked than would be expected from the roentgenographic picture. It was noted that the shadows gradually disappeared as the left ventricular failure was alleviated. Gould and Torrance[7] concluded that there was some correlation between the massive central type of edema and uremia. They included 10 "pure uremic" cases in their 100 cases of pulmonary edema. However, the case histories were not given.

Alwall, Lunderquist, and Olsson's[1] excellent work in 1953 reported 16 cases of uremia in which the chest roentgenograms revealed the so-called typical changes. They assumed that liquid retention constituted the fundamental etiological factor. In their series of patients they reduced fluid supply and produced diarrhea by means of hypertonic sodium sulfate solution either per os or as an enema. The body w

---

Resident (Dr. DePass), Chief (Dr. Stein), and Consultant (Dr. Poppel), Department of Radiology, Veterans Administration Hospital; Assistant Clinical Professor of Radiology (Dr. Stein), Professor and Chairman of Radiology (Dr. Poppel), and Clinical Professor of Radiology (Dr. Jacobson), New York University College of Medicine; and Director of Radiology, Montefiore Hospital (Dr. Jacobson).

in all patients was reduced owing to the loss of fluid. There was a marked parallelism between the reduction in the body weight and the regression of the roentgenologic changes, but no relationship was noted to the nonprotein nitrogen or bicarbonate values. These remained the same or rose after the removal of the excess fluid. The significance of fluid retention as an etiological factor was also elucidated by ligating the ureters of rabbits and subsequently giving intravenous infusions. Changes similar to those of the uremic lung in human beings appeared on chest roentgenograms. After ultrafiltration treatment, the chest roentgenograms were normalized and remained normal in spite of uremia progressing to death. They concluded that it would seem justifiable to reckon fluid retention as a basic factor in the changes seen on the chest roentgenogram. They stated that for practical purposes it would seem preferable to speak of fluid lung rather than of uremic lung, since the former gives an indication as to appropriate therapy.

In reviewing the writing on this subject it is of interest that, in examining the roentgenograms used as illustrations of this condition, many of those presented as typical do not actually present a peripheral zone of clearing. A great many show grossly enlarged hearts and appear to be quite consistent with a diagnosis of pulmonary congestion and edema.

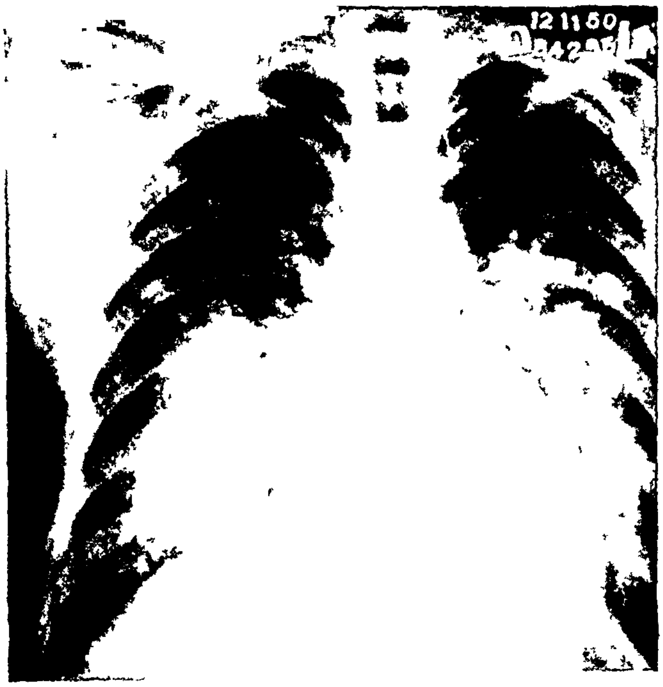


Fig. 1.—Roentgenogram of chest of patient in case 1; patient was in congestive failure at this time. Note clear periphery.

Report of Cases

The six illustrative cases summarized here were selected from the radiology museum of the Veterans Administration Hospital on the basis of chest roentgenograms that showed the so-called typical changes previously described in the literature.

Case 1.—A 27-year-old male was admitted on Dec. 7, 1950, with a history of chronic glomerulonephritis. He entered complaining of polyuria and headaches. Physical examination revealed venous distention in the neck. However, the lungs were clear on physical examination. The blood pressure was 230/150 mm. Hg. The hemoglobin level equaled 6.8 gm. per 100 cc. The urine showed 4+ protein with numerous red blood cells and white blood cells. The blood urea nitrogen level was 90 mg. per 100 cc. He was unable to retain fluids given orally, and it was necessary to give fluids intravenously. His urinary output was extremely low. He was receiving fluids intravenously on the day the chest roentgenogram shown in figure 1 was taken. At this time his respiratory rate was 28 per minute with severe hiccups. At autopsy two days later the lungs showed pulmonary edema. The right lower lung showed some fibrin and a few polymorphonuclear cells admixed, indicating an early pneumonia at this site. Autopsy confirmed the clinical diagnosis of chronic glomerulonephritis.

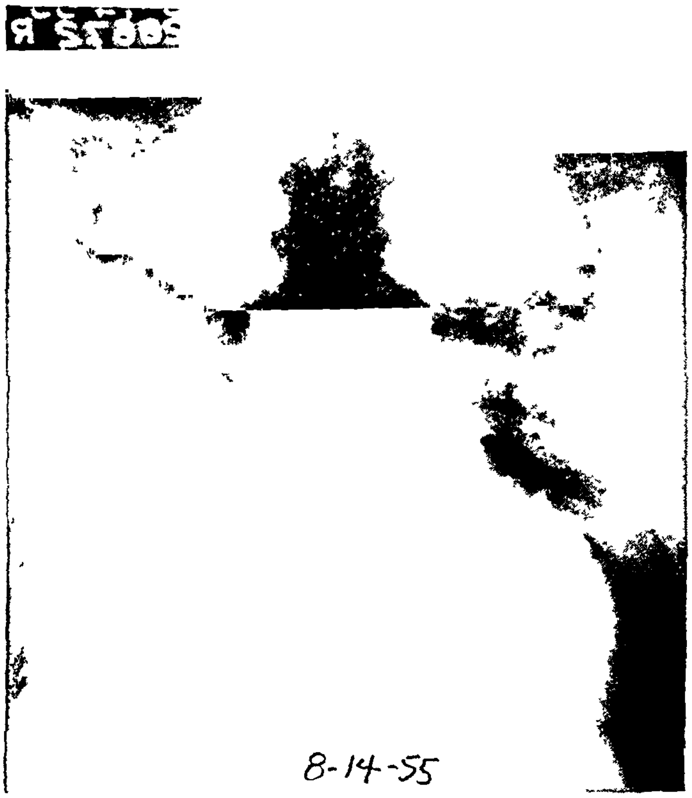


Fig. 2.—Anteroposterior roentgenogram of chest of patient in case 2 He was in congestive heart failure with a respiratory rate of 40 per minute at this time. The chest film cleared after digitalization.

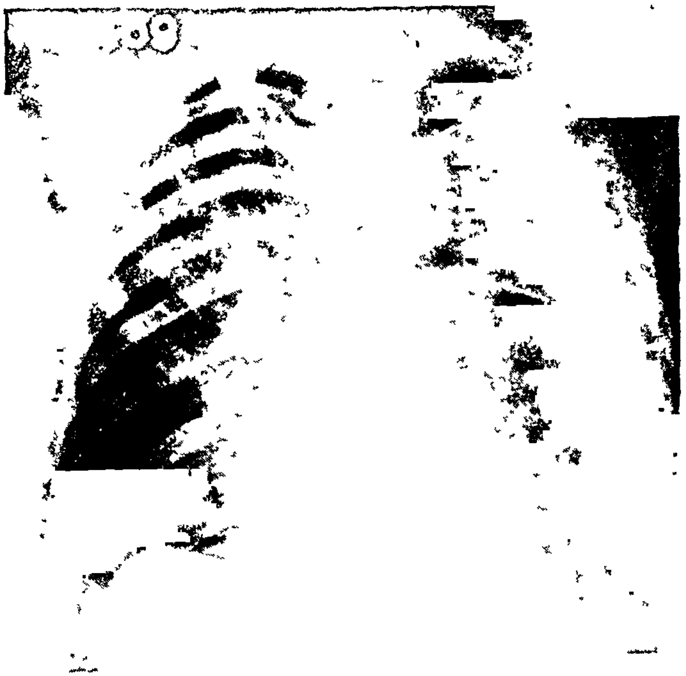


Fig. 3.—Roentgenogram of patient in case 3, showing hilar congestion with clear peripheral zone

Case 2.—A 50-year-old male entered the Veterans Administration Hospital on Aug. 10, 1955, with a two-day history of malaise, fever, chills, and cough. He had a history of hypertension and exertional dyspnea. On admission his temperature was 102.2 F (39 C), his pulse was 134 per minute, and his respiratory rate was 32 per minute. His blood pressure was 220/120 mm. Hg. On physical examination, rales were heard over the lower left lung field. The white blood cell count was 16,000 per cubic millimeter. The urinalysis showed 2+ protein with white blood cells and casts. The specific gravity remained fixed at 1.010. His cough was productive of purulent sputum. The blood urea nitrogen level was 42 mg. per 100 cc. Diagnosis of bronchopneumonia was made, and he was started on therapy with penicillin. Tetracycline (Achromycin) was added to the therapeutic regimen two days later. The dyspnea continued, and he developed a gallop rhythm three days after admission. The sputum became frothy and less purulent. On Aug. 14, 1955, when the chest roentgenogram shown in figure 2 was taken, his respiratory rate was 40 per minute. He was also receiving fluids intravenously on this day. His electrocardiogram revealed left ventricular strain. Digitalization and a low-salt diet were instituted. His blood urea nitrogen level rose to 92 mg. per 100 cc. on Aug. 15, 1955. A transient friction rub was heard at one time. His pulse rate and blood urea nitrogen level fell to normal after digitalization, and his respiratory distress was relieved. His chest roentgenogram showed marked clearing. It was felt clinically that the patient had entered with bronchopneumonia and chronic glomerulonephritis and that congestive heart failure had developed.

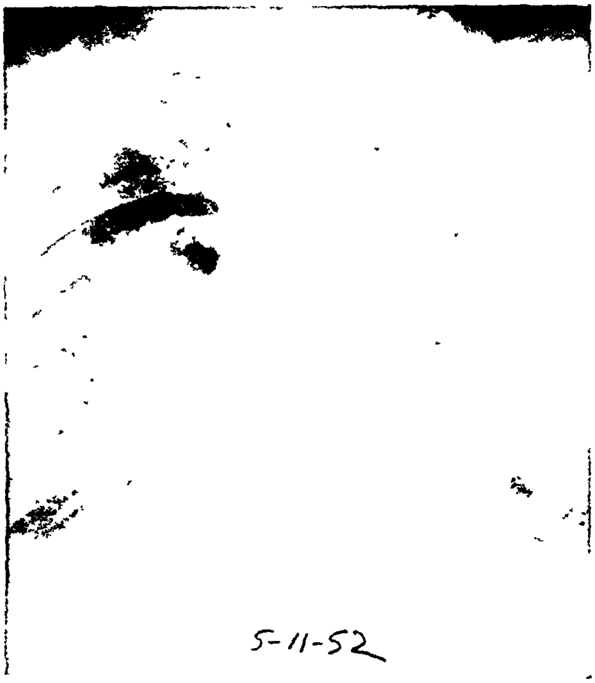


Fig. 4.—"Typical" roentgenogram of chest of patient in case 4, who had had a diagnosis of acute glomerulonephritis with congestive failure. Clearing followed digitalization.

Case 3.—A 24-year-old male was admitted on May 17, 1947, with chills and fever. His blood pressure was 175/40 mm. Hg, with a pulse rate of 120 per minute. An aortic systolic murmur was heard. His urine was clear. He was started on penicillin therapy. On May 29, 1947, he developed dyspnea and rales in his chest were heard. An electrocardiogram was consistent with myocarditis. He was digitalized; however, his course was progressively downhill. His blood urea nitrogen level rose from 99 mg. per 100 cc. on June 9, 1947, to 150 mg. per 100 cc. on June 20, 1947. On June 16, 1947, when the chest roentgenogram shown in figure 3 was taken, his respiratory rate was 40 per minute. He was receiving fluids intravenously on this day. At autopsy on June 24, 1947, endocarditis and aortic valvulitis were found. Pulmonary edema with some interstitial pneumonitis was present. The kidneys showed the changes of acute glomerulonephritis.

Case 4.—A 39-year-old male entered the hospital on May 11, 1952, because of exertional dyspnea and varicose ulcers. He also had a sanguinous discharge from the right ear that proved to be otitis media. Physical examination revealed marked dyspnea, but a clear chest was present. However, the admission chest roentgenogram showed marked changes (fig. 4). The respiratory rate was 28 per minute, the pulse was 120 per minute, and the blood pressure was 150/90 mm. Hg. The urine showed a specific gravity of 1.014 with 4+ protein. Microscopic examination revealed red and white blood cells with hyaline and granular

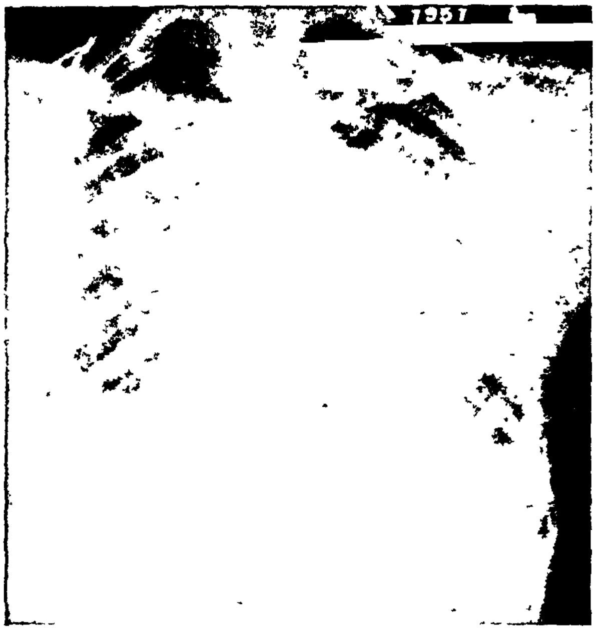


Fig. 5.—Roentgenogram of patient in case 5, showing "butterfly" densities with clear peripheral zone. The chest cleared after treatment for cardiac failure.

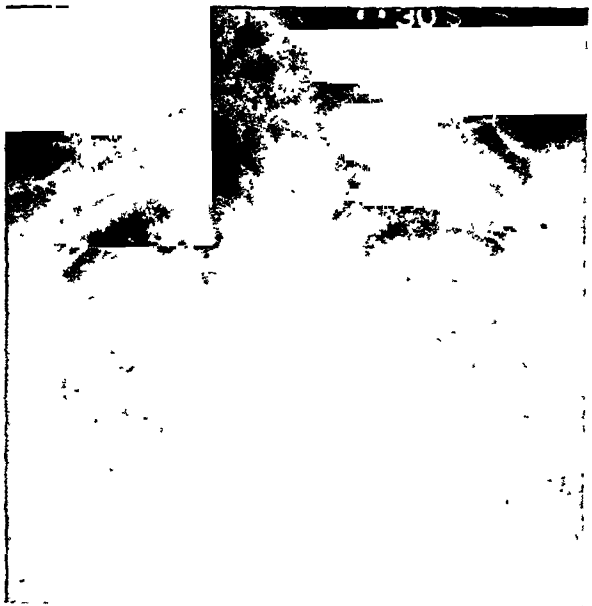


Fig. 6.—Roentgenogram of patient in case 6 in congestive heart failure with elevated respiratory rate. These changes occurred with no evidence of azotemia or renal disease. Chest films were normal after digitalization.

casts. The blood urea nitrogen level was normal. The dyspnea increased; distended neck veins were noted; and peripheral edema developed after admission. The dyspnea was relieved when the patient was digitalized and given diuretics. His weight dropped 23 lb. (10.4 kg.) within a week of digitalization. The chest roentgenogram cleared. The urine cleared, and a normal Addis count was present on discharge. The final diagnosis was acute glomerulonephritis with secondary hypertension and congestive failure.

Case 5.—A 33-year-old male entered the hospital on April 18, 1952, with a three-week history of cough and a one-week history of exertional dyspnea and orthopnea. He appeared acutely ill. His temperature was 102 F (38.9 C), his pulse was 102 per minute, and his blood pressure was 138/80 mm. Hg. The respiratory rate was 40 per minute. Distended neck veins were present. Moist rales were present, and a gallop rhythm was noted. Peripheral edema was present. The urine showed 4+ protein, many white blood cells, and a few red blood cells. The blood urea nitrogen level remained normal. The venous pressure was 130 mm. H₂O. Marked changes were seen on the admission chest roentgenogram (fig. 5). He was digitalized, given oxygen, and placed on antibiotic therapy. He developed a pleuropericardial friction rub. After digitalization he responded well, and his dyspnea was relieved. His chest roentgenogram cleared. He was afebrile within 48 hours. Serial electrocardiograms showed changes consistent with pericarditis. Red blood cells in the urine increased in number and then disappeared. He was discharged with a final diagnosis of acute glomerulonephritis with secondary congestive failure as well as superimposed bronchopneumonia. The patient was well one year later.

Case 6.—A 35-year-old male was admitted on Nov. 25, 1955, complaining of dyspnea and episodes of hemoptysis for six days. He had had recent ankle edema and gave a history of rheumatic fever. His temperature was 101 F (38.3 C), his pulse rate was 120 per minute and irregular, and his blood pressure was 130/100 mm. Hg. His urinalysis showed 1+ protein. His blood urea nitrogen level was normal. No rales were heard on admission, but marked changes were seen on his chest roentgeno- s (fig. 6). At this time his respiratory rate was 40 per te. His venous pressure was elevated. After digitalization symptoms were relieved, and his chest roentgenogram cleared. His urine became clear. The diagnosis was that of congestive failure on the basis of rheumatic heart disease with mitral stenosis and insufficiency. No evidence of renal disease was found.

Comment

Only three of these patients had uremia, but, as can be seen, all had symptoms consistent with congestive heart failure. There was clinical evidence of increased fluid volume in each case. The so-called typical uremic picture can occur on a cardiac basis without evidence of renal disease, as is demonstrated by case 6. It should be noted also that four of the patients showed some evidence of coexistent pneumonia. The frequent coexistence of cardiorenal pulmonary edema with superimposed infection is well known.[8] In one case, the pneumonia apparently preceded any evidence of clinical heart failure (case 2). The fact that excessive intravenous administration of fluids may be an important factor in the development of pulmonary edema has frequently been pointed out.[9]

The clear peripheral area was present on a chest roentgenogram taken during the course of each patient's illness. The explanation for the clear periphery has best been postulated by Dock.[10] He compared the lung to a fan that opens and closes about a relatively stationary hilus. In the central portion of the lung, the respiratory excursions are brief and stasis is greater. The edema fluid appears first in the inner zone where motion is slight compared to the periphery. It has been shown that a quiescent lung produces almost no lymph from the large collecting trunks. The lymph channels of the peripheral portions of the lung drain outward, and increased respiratory motion should aid drainage of these areas. Dock[10] suggested that acidosis and air hunger in these patients played the primary role. The elevated respiratory rates in the patients described at the time of the illustrated chest roentgenograms should be noted (see table).

The close association between glomerulonephritis with severe hypertension and cardiac failure has been described.[8] The frequency of heart failure in patients with acute glomerulonephritis is sometimes not appreciated. The question of the role of increased capillary permeability in nephritic edema has not been definitely settled. Fishberg[8] and others have suggested that augmented capillary permeability occurs due to the altered chemical composition of the blood in uremia. It should be noted that two of our patients who showed evidence of renal damage and fluid retention did not at any time have an elevated blood urea nitrogen level or other evidence of azotemia (cases 4 and 5). Only in those instances in which the edema fluid contains considerable amounts of protein are we justified in considering that increased capillary permeability plays a significant part in the genesis of the edema.[8] Warren and Stead[11] observed in patients with acute glomerulonephritis that the subcutaneous edema fluid contained levels of protein that were not elevated and were similar to levels that they observed in cardiac edema. They considered the cause of edema in acute nephritis to be water and salt retention secondary to a disturbance in renal function and not the

Summary of Clinical Data on Six Patients with Chest Roentgenograms Showing "Uremic Lung"

	Case No					
	1	2	3	4	5	6
Clinical diagnoses						
Glomerulonephritis	+*	+	+*	+	+	0
Uremia (blood urea nitrogen)	+	+	+	0	0	0
	90 mg per 100 cc.	92 mg. per 100 cc	150 mg per 100 cc	Normal	Normal	Normal
Pulmonary congestion and edema	+*	+	+*	+	+	+
Pneumonia	+*	+	+*	+	+	0
Hypertension	+	+	+	?	0	0
Rheumatic heart disease	0	0	?	0	0	+
Roentgenographic picture of "uremic lung"	+	+	+	+	+	+
Clinical evidence of fluid retention	+	+	+	+	+	+
Receiving fluids intravenously on day of "typical x-ray"	+	+	+	0	0	0
Respiratory rate at time of "typical x-ray"	28†	40	40	28	40	40
Clearing of lungs by x-ray after treatment for cardiac failure	Died	+	Died	+	+	+

* Confirmed at autopsy
† Severe spasms of the diaphragm

result of diffuse capillary damage throughout the body. It would seem unlikely that the lung capillaries are selectively damaged. Peters[12] considered congestive failure to be the chief disorder responsible for edema in nephritis.

We believe that the primary cause of the changes seen in the chest roentgenograms of the patients with renal disease presented here appears to be water and salt retention as the result of the disturbance of renal function. The development of cardiac failure probably following hypervolemia, superimposed pulmonary infections, and elevated respiratory rate all play roles in the formation of the picture. The same roentgenographic changes can be produced by primary cardiac decompensation without renal disease. There is no such roentgenographic entity as a pure uremic lung.

Conclusions

We urge the abandonment of the terms "pulmonary azotemia," "uremic lung," or "uremic pneumonia" to describe changes seen in chest roentgenograms of patients with renal disease. The roentgenographic findings described represent, primarily, pulmonary congestion and edema. Fluid retention, varying degrees of cardiac failure, and often a superimposed pulmonary infection, as well as an increased respiratory rate, all enter into the formation of this picture. The six cases that are presented illustrate that there is no such roentgenographic entity as a "pure uremic lung."

130 W. Kingsbridge Rd., Bronx 6 (Dr. Stein).

References

1 Alwall, N., Lunderquist, A., and Olsson O. Studies on Electrolyte-Fluid Retention I Uremic Lung—Fluid Lung? On Pathogenesis and Therapy, Acta med scandinav 146: 157-163, 1953

2 Roubier, C., and Plauchu, M Sur certains aspects radiographiques de l oedème pulmonaire chez les cardio-renaux azotemiques, Arch med-chir de l'app respir 9: 189-200, 1934

3 Rendich, R A., Levy, A. H., and Cove, A M Pulmonary Manifestations of Azotemia, Am J Roentgenol 46: 802-808 (Dec) 1941.

4 Doniach, I Uremic Edema of Lungs, Am J Roentgenol 58: 620-628 (Nov.) 1947.

5 Barden, R P., and Cooper, D. A Roentgen Appearance of Chest in Diseases Affecting Peripheral Vascular System of Lungs: Conditions Associated with Increased Vascular Permeability, Radiology 51: 44-57 (July) 1948

6 Bass, H E., and Singer, E Pulmonary Changes in Uremia, J A M A. 144: 819-823 (Nov 4) 1950

7. Gould, D M., and Torrance, D J Pulmonary Edema, Am J. Roentgenol 73: 366-374 (March) 1955

8 Fishberg, A M Hypertension and Nephritis, ed. 5, Philadelphia, Lea & Febiger, 1954

9 Nessa, C B., and Rigler, L G Roentgenological Manifestations of Pulmonary Edema, Radiology 37: 35-46 (July) 1941

10 Dock, W. Evil Sequelae of Complete Bed Rest, J A M A 125: 1083-1085 (Aug 19) 1944

11 Warren J. V., and Stead, E A Protein Content of Edema Fluid in Patients with Acute Glomerulonephritis, Am J. M Sc 208: 618-622 (Nov) 1944

12 Peters, J. P. Edema of Acute Nephritis, Am J Med. 14: 448-458 (April) 1953

USE OF THE C-REACTIVE PROTEIN TEST AS A SCREENING PROCEDURE FOR BLOOD DONORS

Edwin M. Knights Jr., M.D., Merrill Hutchins, Sc.B., Eugene Morgan, Sc.B.
and
Jaan Ploompuu, Sc.B., Detroit

• *The C-reactive protein test, performed by a capillary precipitin method with the use of commercially available antiserum, was applied to 3,543 blood donors and 633 patients in 37 different disease categories. The distribution of positive reactions failed to reveal any possibilities of the test as a screening method for the detection of any one condition in mass surveys. It was not of value in detecting carriers of homologous serum jaundice or in predicting minor transfusion reactions. Patients who experienced chills after transfusions developed a positive C-reactive protein test. Serums initially negative became positive after refrigeration and storage. The test represents a type of immune reaction but is unstable and nonspecific*

C-reactive or "acute phase" protein, which was first reported in the serums of patients with lobar pneumonia by Tillet and Francis[1] in 1930, has come into increasingly wide usage as a diagnostic tool since its isolation and identification by MacLeod and Avery[2] in 1941. The protein was originally recognized in the precipitate form when the C-polysaccharide of pneumococcus was added to the serums of patients ill with acute lobar pneumonia. Later, by injecting the purified protein into rabbits, MacLeod and Avery were able to develop an antiserum reputedly superior to the original C-polysaccharide. Wood, McCarty, and Slater[3] have been able to crystallize the protein out of lipid-containing fluids.

Although no great degree of specificity has been claimed for the C-reactive protein test, it has been described as a "non-specific but sensitive indicator of inflammation, of infectious or non-infectious origin."[4] It is relatively simple to perform and fairly easy to read if one does not attempt to make a quantitative determination out of it. Clinically, the C-reactive protein test has been most widely used in the evaluation of rheumatic fever, where it is considered most valuable in afebrile patients in whom carditis is a major feature. Good[5] summarized the advantages of the test over determination of the sedimentation rate for use in diagnosis of rheumatic fever in 1951, pointing out that there is no equivocal zone of values between normal and abnormal, that formation of C-reactive protein is not depressed by heart failure, that C-reactive protein is immunologically distinct from other serum protein, that concentration of the protein reflects roughly the degree of rheumatic activity, and that it may be absent from the serum in other conditions encountered in the differential diagnosis of rheumatic fever.

From the Department of Pathology, Harper Hospital

Attempts have also been made, although not on so great a scale, to assess the value of this test in other disease states. The possibility of its use in early diagnosis of myocardial infarction was suggested by Kroop and Shackman,[4] and the finding of a high percentage of positive tests in cases of cancer, tuberculosis, and rheumatoid arthritis has also been reported.[6] The apparent absence of C-reactive protein in the serums of 90 patients with active viral hepatitis was reported by Havens, Eichman, and Knowlton.[7]

Materials and Methods

In the present investigation, an attempt was made to evaluate the C-reactive protein test as a screening procedure for blood donors and as a basis of predicting so-called minor nonhemolytic transfusion reactions in recipients of blood. C-reactive protein determinations were performed by the capillary precipitin method devised by Anderson and McCarty,[8] with use of commercially available antiserum. Records were kept to ascertain whether positive C-reactive protein tests could be correlated with the sources of supply. Also under consideration was the possibility that the test might give some indication of the carrier state of serum hepatitis, particularly as the thymol turbidity and other liver function tests are not infallible as screening procedures. In addition, further studies were carried out investigating the nature and possible causes of false-positive C-reactive protein tests, together with incubation, bacterial inoculation, refrigeration, and Tiselius electrophoresis studies.

To accomplish these objectives, the C-reactive protein test was performed on the serums of all donors used by the David C. Whitney Memorial Blood Bank of Harper Hospital over a six-month period. Patients were followed to detect any changes in their C-reactive protein tests after receiving transfusions. The routine investigation of all transfusion reactions was augmented by a personal follow-up by one of us, and every effort was made to insure prompt and accurate reporting of any possible reactions. Criteria for minor reactions were shaking chills; urticaria, with or without an elevation of temperature; and the absence of hemolysis. A control series was run on patients with negative C-reactive protein tests who were receiving negatively testing bloods. It was usually necessary to exclude from the survey patients receiving multiple transfusions. All blood samples of recipients that had been received for typing and cross matching were placed in a deep freeze as soon as possible for retention for a period of at least six months.

Reading of the test was limited to two individuals on the investigative team. It was felt that there was probably little to be gained from making any attempt at quantitative evaluation, so, for the purpose of the studies, the test was reported as either positive or negative. In setting up the test it was found expedient to leave a small air bubble at the lower end of the capillary tube to prevent possible false-positive reactions that seem to arise from the plastic material at the base.

Findings

Early in the study it became apparent that the high percentage of positive tests among the patients to be studied represented a wide variety of disease states. A list of patients in whom the positive C-reactive protein tests were obtained is given in table 1. For the sake of completeness, this table also includes patients who did not receive transfusions but on whom the C-reactive protein tests were performed on admission or when ordered, as a diagnostic procedure. Follow-up of patients in whom results were negative revealed that many of their tests became positive while the patients were in the hospital. In a random sampling of 50 patients in whom the C-reactive protein test became positive, this occurred after surgery with transfusion in 28, after surgery without transfusion in 12, after parturition (no transfusion) in 7, and after transfusion alone in 3.

TABLE 1.—*Results of C-Reactive Protein Tests in Patients with Various Types of Diseases**

Diagnosis	Positive	Negative	Total
Rheumatic fever	18	10	28
Rheumatic heart disease	9	8	17
Rheumatoid arthritis	4	1	5
Congenital heart disease	0	7	7
Chronic valvular cardiac disease	0	6	6
Malignant tumors	24	29	53
Benign tumors	9	64	73
Brain tumors	0	4	4
Lymphatic leukemia	0	5	5
Bronchial asthma, bronchitis, bronchiectasis	5	6	11
Chronic and acute upper respiratory infection, sinusitis	5	6	11
Pneumonia	5	2	7
Appendicitis, acute	1	5	6
Tonsillitis, chronic	8	25	33
Nonmalignant gastrointestinal tract disease	5	13	18
Endometriosis, adenomyosis	0	13	13
Tuberculosis	2	3	5
Syphilis	2	1	3
Other acute and chronic inflammatory conditions	22	51	73
Traumatic conditions (fractures, sprains, etc.)	7	18	25
Pregnancy, ante partum	0	11	11
Pregnancy, post partum	87	5	92
Ruptured tubal pregnancy	1	0	1
Cataracts, preoperative	10	13	23
Simple hernias, preoperative	6	21	27
Varicosities, preoperative	2	8	10
Hemorrhoids, preoperative	1	8	9
Glaucoma, preoperative	2	2	4
Hemophilia	1	2	3
Lupus erythematosus	1	1	2
Diabetes mellitus	2	10	12
Angina pectoris	1	0	1
Cirrhosis	1	2	3
Cholecystitis, chronic	2	10	12
Thyroid colloid goiter	1	6	7
Adenomas (thyroid)	2	8	10
Hyperthyroidism	0	3	3

* Included are patients who received transfusions and patients who did not receive transfusions but had tests performed on admission or as diagnostic procedure.

Of the donors' bloods tested, 1,770 were drawn in the David C. Whitney Memorial Blood Bank from voluntary donors provided by the patients and from the bank's professional donor list. Of 3,543 bloods tested, 425 (12%) gave a positive C-reactive protein test; of these 425, 168 (approximately 40%) were in bloods drawn in the David C. Whitney Memorial Blood Bank and 257 (approximately 60%) were in bloods received from other metropolitan sources.

In a total of 100 C-reactive protein–negative tests in patients receiving blood transfusions, 29 became positive on the first day after transfusion. Seventy-seven had become positive by the fifth day after transfusion. These were divided as follows: 1. Eighty-three patients having negative C-reactive protein tests received negative bloods. By the first day after transfusion, 24 tests had become positive. By the third day after transfusion, 10 additional, or a total of 34, tests had become positive, and, by the fifth post-transfusion day, a total of 65 had become positive. 2. Seventeen patients having negative C-reactive protein tests received positive blood. By the first day after transfusion, 5 tests became positive; by the third day, 7 had become positive; and, by five days, 12 had become positive.

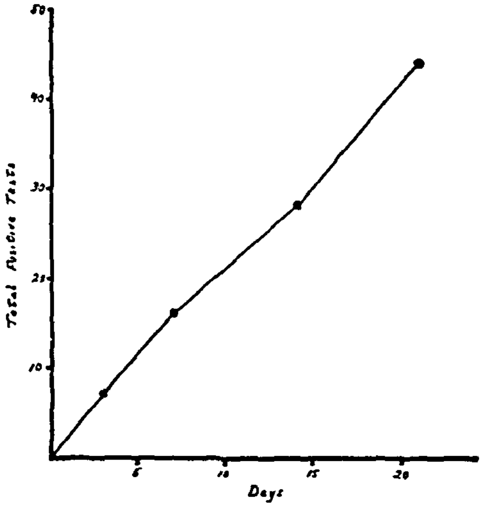
None of the above patients had major or minor transfusion reactions during this period. Twenty-two patients with C-reactive protein–negative tests had minor transfusion reactions, as evidenced by the criteria listed above. By the first day no tests were C-reactive protein–positive; by five days 16 were C-reactive protein–positive; and by eight days 18 were positive. In four patients, tests remained negative throughout this period; in none of these four were chills observed.

It was not too surprising that we were unable to establish any correlation between the positive C-reactive protein test and a carrier state of serum hepatitis, particularly after the report of Havens, Eichman, and Knowlton.[7] Five cases of homologous serum jaundice developed during the span of this survey. In four of these cases, patients had received 2 pt. (1,000 cc.) of blood each. Thanks to excellent cooperation from many individuals, serum was obtained from each of the donors concerned. In all eight donors, the liver function studies performed (thymol turbidity, icterus index, and cephalin flocculation) were within normal limits, but one donor from each case did have a positive C-reactive protein test. A fifth patient developed hepatitis after receiving blood testing negatively to the C-reactive protein antiserum.

The instability of this serologic examination became quite apparent during this research work and necessitated discarding large quantities of data. It was found that negatively reacting serums would become positive under several varieties of conditions. These are summarized below.

Retesting After Storage in Deep Freeze.—A group of 120 serums that had been negative and were subsequently stored in deep freeze at 15 C were retested in groups of 20 at various intervals. After 2 weeks, 16 had turned positive; after 4 weeks, one more; after 6 weeks, 10 more; after 8 weeks, 7 more; after 10 weeks, 7 more; and, after 12 weeks, 8 more. Bacteriological studies on these serums showed them to contain a multiplicity of organisms. Most commonly encountered were Aerobacter aerogenes, Streptococcus viridans, and Pseudomonas aeruginosa. Also encountered were diphtheroids, bacterioids, Micrococcus (Staphylococcus) pyogenes var. albus, and Escherichia coli.

Retesting After Storage in Refrigerator.—Another study was made to determine how long the serums could be kept in the refrigerator at 4 to 6 C. Fifty negative serums were placed in the blood bank refrigerator. Accurate records of the temperature were kept by means of a recording thermometer. These serums were tested at intervals, and the results are shown in the figure. Here again a large percentage of tests became positive. Bacterial contamination was again found with organisms similar to those described above. In addition, Proteus vulgaris was also observed.



Effect of prolonged refrigeration on 50 serums negative for C-reactive protein kept at 4 to 6 C. The number turning positive at 3, 7, 14, and 21 days are recorded above.

TABLE 2.—*Effect of Bacterial Inoculation on the C-Reactive Protein Test*

		Days				
Case	Serums	1	3	7	14	21
1	Sterile serum	—	—	—	+	+
	A. aerogenes	—	—	+	+	+
	Ps. aeruginosa	—	—	—	+	+
	Str. viridans	—	—	—	+	+
	Open tube	—	—	—	+	+
2	Sterile serum	—	—	+	+	+
	A. aerogenes	—	+	+	+	+
	Ps. aeruginosa	—	+	+	+	+
	Str. viridans	—	+	+	+	+
	Open tube	—	—	+	+	+
3	Sterile serum	—	—	—	—	+
	A. aerogenes	—	—	+	+	+
	Ps. aeruginosa	—	—	+	+	+
	Str. viridans	—	—	+	+	+
	Open tube	—	—	—	+	+
4	Sterile serum	—	—	—	—	—
	A. aerogenes	—	—	—	+	+
	Ps. aeruginosa	—	—	—	+	+
	Str. viridans	—	—	—	+	+
	Open tube	—	—	—	+	+
5	Sterile serum	—	—	—	+	+
	A. aerogenes	—	+	+	+	+
	Ps. aeruginosa	—	+	+	+	+
	Str. viridans	—	+	+	+	+
	Open tube	—	—	—	+	+

Study of Correlation Between Infecting Organism and Subsequent Positive Test.—In this study an attempt was made to discover if any correlation existed between an infection with a particular organism and a subsequently positive C-reactive protein test. Those organisms occurring most frequently, A. aerogenes, Ps. aeruginosa, and Str. viridans, were inoculated into sterile serum drawn through Swinny filter adapters. In addition, sterile control studies were run. Results are shown in table 2. As can be seen from the table, control serums did turn positive in spite of remaining bacteriologically negative; however, the organisms used tended to speed up the appearance of a positive C-reactive protein test.

Study of Effect of Inactivating Procedure Used in Serologic Studies.—In another investigation serums for which tests had become positive after refrigeration were studied to discover whether the inactivating procedure used in serologic studies might effect the final result in the C-reactive protein reaction. Twenty positive serums, representing 10 in which tests were positive directly after serum was taken from the patient and 10 in which tests had turned positive after refrigeration, were incubated in a water bath for 30 minutes at 37 C. They were then removed, and a C-reactive protein test was immediately set up. All continued to give positive C-reactive protein results.

Electrophoretic Studies.—In this study, blood was taken from 10 patients giving positive C-reactive protein tests and Tiselius electrophoretic studies were run on the serums of these patients. The Aminco-Stern apparatus was used, with a buffer of pH 8.6. Although various globulin fractions were found to be elevated in different patients, no characteristic pattern was observed.

Comment

It is apparent that the C-reactive protein test is a very nonspecific indication of an abnormal body process, such as acute inflammation or widespread neoplastic disease, although this does not appear to detract appreciably from its usefulness in evaluating the activity of rheumatic fever and possibly other disease states, such as bronchial asthma.

From the ubiquitous nature of acute phase protein in patients with diseases of all varieties, one might well suggest that this test be renamed "the heterophil precipitation test." Table 1 seems to corroborate the findings of Hedlund[9] of the vast varieties of disease stages in which a positive reaction may be expected. Although a positive test was found in many cases of malignant disease, these were, for the most part, far-advanced cases, and it should not be inferred from our data that the test is of value in the early diagnosis of cancer. From our data it would appear that the appearance of C-reactive protein after commissurotomy is of no diagnostic value, as either the surgical procedure or the accompanying blood transfusions would usually be sufficient to account for its presence. As a screening test of blood donors, the results so far leave considerable room for speculation. There is little doubt that it can pick up disease states concealed or unrecognized by the donor, and from this standpoint it shows some promise, particularly as it is a relatively simple test to perform. It would also appear to be a rough indication of the age of the blood stored and possibly of bacterial contamination. It would appear that the test could prove a valuable method of evaluating the state of health of blood donors being utilized in various sources of blood supply. Thirty per cent of recipients had a positive C-reactive protein test prior to transfusion, and therefore these could not be used in the evaluation of the reactions. In contrast, only 12% of donors had positive tests. From all data available we must assume that, if the test has been carefully performed on fresh serum, a positive test reaction is usually indicative of a pathological state existing in the donor.

Are we, therefore, justified in giving this blood to a patient? It would appear that the final decision should be based on the findings of demonstrable changes in the recipient of a serious enough nature to justify screening out an additional 10 to 15% of bloods already collected. If the recipients of blood develop positive tests that can be correlated with transfusion reactions, production of bacteremia, subsequent development of homologous serum jaundice, or development of immune antibodies, the test would appear to be of considerable value. Only the latter, a sensitization of the recipient, seems to be implied by our results. From a clinical standpoint, this sensitization is difficult to evaluate, particularly as in many cases it is undoubtedly modified by the clinician who prescribed antihistaminic substances that may mask, although not necessarily eliminate, the reaction of the transfusion in the recipient. It seems unlikely that the change in the recipient from negative to positive reactions can be attributed solely to the greatly diluted small quantity of protein received in the positively reacting bloods, although it is conceivable that the breakdown of these bloods in the body may contribute to the number of recipients giving a positive reaction. As noted above, many of these patients had received negatively reacting blood. Further support to possible immune response is the fact that the majority of the patients did not have positive reactions within the first 24 hours after transfusion but showed subsequent positive reactions on the third and fifth post-transfusion days. In nine patients who returned three to five weeks later for follow-up studies, four tests remained positive. Every patient who experienced chills after transfusion eventually gave a positive C-reactive protein test.

In our studies we were unable to establish a correlation between the receipt of positive C-reactive protein blood and development of so-called minor reactions and homologous serum jaundice, although it is interesting to note that, in nearly all patients who clinically manifested minor reactions, C-reactive protein tests became positive. Adequate evaluation of this would require a coordinated survey involving several large institutions with active blood banks and very careful follow-up of all patients receiving transfusions. It would also seem desirable to study the effects of chemical blood sterilization on the C-reactive protein reaction in recipients of the blood so sterilized.

Summary

The C-reactive protein test has been studied to evaluate its possible use as a screening procedure for blood donors. In 3,543 donors' bloods tested, 12% gave positive C-reactive protein reactions. No correlation was observed between the receipt of bloods positive for C-reactive protein and development of so-called minor transfusion reactions. The test does not appear to be of value for screening carriers of homologous serum jaundice. The delayed development of a positive C-reactive protein test in patients receiving transfusions of both positively and negatively reacting bloods was observed in many cases. All patients experiencing chills developed a positive C-reactive protein test. This possibly represents a type of immune reaction. The frequency with which positive C-reactive protein tests appear after surgical procedures or blood transfusions renders the test of little use in evaluation of the postcommissurotomy syndrome. The ubiquitous nature of C-reactive protein is reaffirmed by the high percentage of positive tests observed. In addition, the instability of this test and its nonspecificity are pointed out by false-positive reactions occurring after storage in the refrigerator and deep freeze.

3825 Brush St. (1) (Dr. Knights).

References

1. Tillett, W. S., and Francis, T., Jr.: Serological Reactions in Pneumonia with Non-Protein Somatic Fraction of Pneumococcus, J. Exper. Med 52: 561-571 (Oct.) 1930.

2. MacLeod, C. M., and Avery, O. T.: Occurrence During Acute Infections of Protein Not Normally Present in Blood. Isolation and Properties of Reactive Protein, J. Exper. Med 73: 183-190 (Feb.) 1941.

3. Wood, H. F., McCarty, M., and Slater, R. J.: Occurrence During Acute Infections of Protein Not Normally Present in Blood. Physical-Chemical Properties of C-Reactive Protein Crystallized by Modified Technique, J. Exper. Med 100: 71-79 (July) 1954.

4. Kroop, I. G., and Shackman, N. H.: Level of C-Reactive Protein as Measure of Acute Myocardial Infarction, Proc. Soc. Exper Biol & Med. 86: 95-97 (May) 1954.

5. Good, R. A.: Acute-Phase Reactions in Rheumatic Fever, Symposium on Rheumatic Fever, Minneapolis, University of Minnesota Press, 1951, pp 115-131.

6. Shetlar, M. R., Bullock, J. A.; Shetlar, C. L., and Payne, R. W.: Comparison of Serum C-Reactive Protein, Glycoprotein and Seromucoid in Cancer, Arthritis, Tuberculosis, and Pregnancy, Proc. Soc. Exper. Biol. & Med. 88: 107-109 (Jan.) 1955. Sprunt, D. H., and Hale, W. M.: Method of Evaluating Cancer Tests, abstracted, Proc. Am. A. Cancer Res. 2: 47-48 (April) 1955.

7. Havens, W. P., Jr., Eichman, H. L., and Knowlton, M.: Failure to Find C-Reactive Protein in Viral Hepatitis, Proc. Soc. Exper. Biol & Med. 75: 108-110 (Oct.) 1950

8. Anderson, H. C., and McCarty, M.: Determination of C-Reactive Protein in Blood as Measure of Activity of Disease Process in Acute Rheumatic Fever, Am. J. Med 8: 445-455 (April) 1950.

9. Hedlund, P.: Appearance of Acute-Phase Protein in Various Diseases, Acta med. scandinav., supp. 196, pp. 579-601, 1947.

PREVENTION OF RECURRENT ATTACKS OF RHEUMATIC FEVER

PROBLEMS REVEALED BY LONG-TERM FOLLOW-UP

Bessie L. Lendrum, M.D., Chicago
and
Charlotte Kobrin, M.S.W., Bartlett, Ill.

• *The cardiac status of 100 children with a history of rheumatic fever was reviewed at yearly intervals after their discharge from an institution where they had participated in a program of accelerated rehabilitation. Many were found to be without continued (though available) medical care, to have stopped taking any prophylactic medication, or to have been set back seriously in their emotional, social, or economic adjustment. Sixty-four had definite evidence of heart disease, but this fact seemed to play no significant part in getting patients to remain under medical care. The initiative of the patient and his parents does not suffice. Success in preventing recurrences depends on the development of a community-wide program, including some professional education and the dissemination of information about current rheumatic fever research.*

In 1949 a follow-up study was begun to evaluate the cardiac status of children who had participated in the Herrick House program of accelerated rehabilitation [1] after an acute attack of rheumatic fever. Herrick House is an institution where youngsters (ages 6 to 15 years) convalescing from rheumatic fever are made ambulant fairly rapidly once the clinical manifestations of the acute rheumatic processes have disappeared. At intervals starting one year after their discharge from Herrick House, these children are reexamined for evaluation only. In reviewing the data obtained on 100 children examined in 1955, three disturbing observations were made: first, almost one-third of the children were no longer under medical supervision; secondly, two-thirds of these 100 children were not receiving prophylactic medication; thirdly, adjustment problems at school and at home, which face the child who returns from Herrick House to his own environment, are not always successfully and most profitably dealt with. These observations led to a careful scrutiny of the data in an attempt to find out why these three situations occurred and how they could be prevented.

Findings

Discontinuance of Medical Care.—Twenty-nine of the 100 children were not under medical care. (It is of interest that, of 95 patients seen in 1949, 32% dropped out of medical care, approximately the same number as in this latest group.) Several possible explanations were considered, such as (1) lack of medical facilities, (2) lack of understanding by the patients and their parents of rheumatic fever as a disease process and what it means to them, (3) dissatisfaction with the

---

Research Director (Dr. Lendrum) and Social Worker (Mrs. Kobrin), Herrick House, Bartlett, Ill. Dr. Lendrum is now at Michael Reese Hospital, Chicago.

experience at Herrick House, or (4) lack of heart disease. Investigation, however, showed that none of these was the cause. There are available medical facilities, and every patient leaving Herrick House is either referred back to his private physician or given an appointment to the referring clinic. The significance of rheumatic fever to the patient is carefully reviewed with the parents by the admitting medical social worker. In addition, the medical director of Herrick House generally interviews the parents several times while their child is at the institution. He instructs them not only as to the current status of the child but also as to his future medical needs. The child, during the average stay of three months, is likewise thoroughly instructed as to how to cope with his medical problems. These careful educational efforts in themselves, however, have not proved adequate to ensure continued medical supervision for the rheumatic child.

Dissatisfaction with the experience at Herrick House was also discounted as a factor in the failure of 29 patients to continue under medical care. On the contrary, although no services were offered to the patients at the follow-up examinations, the good will they and their family felt toward Herrick House resulted in an amazing degree of cooperation. Over 96% (100 out of 104) of the former patients asked to report for an examination did so not only willingly but also, some'mes, at great inconvenience and even financial cost themselves. This is certainly an indication that the atients and their parents had, by and large, an excellent relationship with the staff.

Incidence of Heart Disease at Follow-Up in 100 Children Treated for Rheumatic Fever

	Total Group Examined	No Medical Care; No Prophylaxis	Medical Care; No Prophylaxis	Medical Care; Prophylaxis
No heart disease	36	12	17	7
Definite heart disease	64	17	21	26
Totals	100	29	38	33

Lack of heart disease also did not appear to explain the failure to remain under medical care. Examination of the records showed that 17 of the 29 patients not in medical care had definite evidence of heart disease, and 3 of these 17 had severe heart damage (see table). Thus, in this group of 29, 41% had no evidence of heart disease and 59% had definite heart disease, of which 10% was severe. Similar grouping of the entire 100 patients showed that 36% had no evidence of heart disease and 64% had heart disease, of which 16% was severe. Accordingly, the percentage of patients with heart disease is about the same in the group without medical care as in the group under medical care. Even the severity of the heart lesion seems to play no significant part in getting patients to remain under medical care. It follows, therefore, from our experience that those patients with a history of rheumatic fever but with no evident heart disease are no more likely to drop out of medical care than those with definite heart disease.

The factors found to have been actually responsible for lack of medical supervision after convalescence were as follows: 1. Four patients not under medical care had attended pediatric-cardiac clinics until they reached the "age limit" for the clinics and were then discharged; they did not on their own initiative seek out adult cardiac clinics or private physicians for continued care. 2. Fifteen children got no medical care either because their parents could not accompany them to clinics for various reasons (such as daytime work, illness, or no one to care for small children in the home while attending the clinic) or because the parents were disinterested in following through on medical care. Often clinics have rules against seeing patients unaccompanied by parents even though the patient is willing to travel to the clinic alone and is old enough to do this. 3. Five patients did not continue under medical supervision because of their own rebellious and unrealistic attitudes. 4. Five patients dropped out for miscellaneous reasons, such as dissatisfaction with medical care, administrative error, physician's negligence, or patient's ignorance. It is of considerable interest that no great effort was needed to get 13 of these 29 patients who dropped out of medical care to return to a physician or a clinic. They did so after one interview, during the follow-up examination, with a physician and a social worker. This suggests that a simple follow-up system would significantly reduce the number of patients discontinuing medical supervision.

Lack of Prophylactic Medication.—The second major cause for concern was the observation that, of the 100 patients reviewed, 67 were not on a regimen of prophylactic medication as recommended by the American Heart Association (see table). Of these 67, 29 were not under medical care and, therefore, were not receiving medication. Though the remaining 38 were under medical care (24 under private and 14 under clinic care), they were not receiving the recommended daily oral doses of penicillin or sulfonamides or monthly benzathine penicillin G (Bicillin) injections. Of the 38 patients who were under medical care but were not receiving prophylactic medication, 47% had no heart disease and 53% had unquestionable heart disease, of which 10% was severe. The percentage of these patients with heart disease is not significantly different from that of the entire group of 100. Thus, the presence or absence of heart disease is not an adequate explanation of the failure to give prophylactic medication to those known to have had an attack of rheumatic fever.

Readjustment.—The third major cause for concern is more difficult to show by figures. It is well known that a serious, prolonged illness generally has some effect on the child's personality and on his subsequent readjustment to family, playmates, and school. Severe handicaps in readjusting to normal living may often result. Some of this is unavoidable, but much can be done to minimize or even prevent the resultant harm to the child. The program at Herrick House is specifically directed at minimizing adjustment problems. School teachers from the regular Elgin, Ill., school system conduct a full-time school program for all children at Herrick House as soon as they are no longer restricted to complete bed rest. The individualized attention possible in this setting not only permits the children to do as well as they do in their own schools but also often enables them to make up time lost due to illness. Under the guidance of a consulting psychiatrist and the director of Herrick House, the entire staff has become attuned to detecting and handling problems of adjustment to the group as well as the person's adjustment to his own problems, created or accentuated by his illness. Occasionally the severely disturbed children are treated by the consulting psychiatrist or by some other individual.

When the child is discharged from Herrick House, he no longer is dealt with by the staff there and is referred back to his own clinic or private physician. A full report on such aspects as school performance and adjustment, medical status, and adjustment problems is sent to the child's school and clinic in the hope that he will continue the progress he has begun at Herrick House. Despite these efforts, the follow-up study showed that occasionally a child who had been doing well at school at Herrick House, and who had been looking forward eagerly to continued progress in both his health and his total rehabilitation, met with sharp disappointment that might have been avoided. For example, a doctor who wished to "play it safe" and who was, of course, unaware of the child's functional capacity (as displayed at Herrick House, where he could be observed carefully for 24 hours a day) might have kept the child at home at rest or partial rest until the "next visit." As a consequence, the boy or girl who had been successfully and safely playing baseball, swimming, hiking, and attending school, with a doctor's permission, suddenly was disturbed by renewed doubts about his health. Patient's and parent's anxieties were rekindled. Occasionally, a child was forced, unnecessarily, to repeat a year's schooling. These two avoidable types of setbacks constitute severe blows to most children and can permanently cripple them emotionally, socially, and economically. Several children became so discouraged that they dropped out or school.

Comment

Need for Prevention of Recurrence.—The information acquired by examining children who had recovered from acute rheumatic fever is a powerful plea for a well-organized community program to prevent the recurrence of rheumatic fever attacks in patients who are known to have had rheumatic fever. It seems clear that no single institution can cope with a problem of such magnitude, and breakdowns in follow-up care will occur when the patient leaves the jurisdiction of the institution or private physician. Recurrent attacks of rheumatic fever can now largely be prevented. The devastating effects of chronic, incapacitating disease to the individual, his family, and his community are familiar enough to all who work with any aspect of the resulting problems. Accordingly, such persons as physicians, social workers, and educators note with great enthusiasm the reports of highly successful measures that are capable of almost completely preventing rheumatic recurrences. The occurrence of initial attacks of rheumatic fever can also be reduced by prompt treatment of streptococcic infections. The mechanism of pathogenesis of this disease process is still unknown, and complete prevention of initial attacks is still not possible. This, however, should not beguile workers in the field of rheumatic fever into focusing solely upon the unsolved problems and neglecting to apply what is already known in the effort to stamp out rheumatic fever.

By far the greatest need at the present time is to put into action machinery for effectively applying the measures that we know to be capable of greatly reducing recurrences in patients who have had rheumatic fever. Known rheumatic patients should remain under regular medical supervision and receive prophylactic medication. The physician and his co-workers in associated professions who participate in this important task will achieve the important goal of very greatly reducing the incidence of disabling heart disease. They will save the individual patient, as well as his community, the suffering from physical, emotional, and social problems that attend all chronic diseases. In addition, countless numbers of dollars will be saved for the patient and his community.

Community Program.—An adequate communitywide program should include several essential features. First, it must have a registry of all individuals in the community known to have had rheumatic fever. This registry can serve numerous functions, but the most important function will be that of promptly detecting all instances in which a known rheumatic patient fails to carry out recommended medical follow-up and treatment. Having such a registry and the important information it supplies would permit implementing a successful prophylactic program. This can be achieved only if machinery exists for dealing with each instance of failure to follow the recommended medical program as soon as possible, so that no longer than a day or two elapses after a missed appointment before steps are taken to deal with the situation. For this part of the program each cooperating clinic would have its own resources and solutions. Communitywide integration is needed to take over the job where the clinic or private physician cannot cope with it. The health agencies that would assume this responsibility would, of course, vary from community to community. The board of health, local heart association, school health department, Public Health Service, voluntary groups interested in rheumatic fever, or a committee organized by the local medical society are a few agencies that might accept the responsibility for integrating the program. Whichever one the responsible agency might be, however, it will urgently require facilities for personal casework with delinquent patients. Those who perform this service may be nurses or social workers. The job will not profitably be confined to helping the patient keep his medical appointments or take his medicaments; a very important task would be that of helping a convalescent patient during the critical early days of his return to his own home and school or work environment. Many cardiac neuroses can be avoided by a bit of thoughtful help at this point. Implied, of course, is an educational program to be directed at the parents, clinic physicians, private physicians, and school teachers in order to supplement the actual individualized work with the patient.

Efforts likewise would need to be directed toward keeping the busy practicing physician informed of the experience at Herrick House, or (4) lack of heart disease. Investigation, however, showed that none of these was the cause. There are available medical facilities, and every patient leaving Herrick House is either referred back to his private physician or given an appointment to the referring clinic. The significance of rheumatic fever to the patient is carefully reviewed with the parents by the admitting medical social worker. In addition, the medical director of Herrick House generally interviews the parents several times while their child is at the institution. He instructs them not only as to the current status of the child but also as to his future medical needs. The child, during the average stay of three months, is likewise thoroughly instructed as to how to cope with his medical problems. These careful educational efforts in themselves, however, have not proved adequate to ensure continued medical supervision for the rheumatic child.

Dissatisfaction with the experience at Herrick House was also discounted as a factor in the failure of 29 patients to continue under medical care. On the contrary, although no services were offered to the patients at the follow-up examinations, the good will they and their family felt toward Herrick House resulted in an amazing degree of cooperation. Over 96% (100 out of 104) of the former patients asked to report for an examination did so not only willingly but also, sometimes, at great inconvenience and even financial cost o themselves. This is certainly an indication that the atients and their parents had, by and large, an excellent relationship with the staff.

Incidence of Heart Disease at Follow-Up in 100 Children Treated for Rheumatic Fever

	Total Group Examined	No Medical Care: No Prophylaxis	Medical Care: No Prophylaxis	Medical Care: Prophylaxis
No heart disease	36	12	17	7
Definite heart disease	64	17	21	26
Totals	100	29	38	33

Lack of heart disease also did not appear to explain the failure to remain under medical care. Examination of the records showed that 17 of the 29 patients not in medical care had definite evidence of heart disease, and 3 of these 17 had severe heart damage (see table). Thus, in this group of 29, 41% had no evidence of heart disease and 59% had definite heart disease, of which 10% was severe. Similar grouping of the entire 100 patients showed that 36% had no evidence of heart disease and 64% had heart disease, of which 16% was severe. Accordingly, the percentage of patients with heart disease is about the same in the group without medical care as in the group under medical care. Even the severity of the heart lesion seems to play no significant part in getting patients to remain under medical care. It follows, therefore, from our experience that those patients with a history of rheumatic fever but with no evident heart disease are no more likely to drop out of medical care than those with definite heart disease.

The factors found to have been actually responsible for lack of medical supervision after convalescence were as follows: 1. Four patients not under medical care had attended pediatric-cardiac clinics until they reached the "age limit" for the clinics and were then discharged; they did not on their own initiative seek out adult cardiac clinics or private physicians for continued care. 2. Fifteen children got no medical care either because their parents could not accompany them to clinics for various reasons (such as daytime work, illness, or no one to care for small children in the home while attending the clinic) or because the parents were disinterested in following through on medical care. Often clinics have rules against seeing patients unaccompanied by parents even though the patient is willing to travel to the clinic alone and is old enough to do this. 3. Five patients did not continue under medical supervision because of their own rebellious and unrealistic attitudes. 4. Five patients dropped out for miscellaneous reasons, such as dissatisfaction with medical care, administrative error, physician's negligence, or patient's ignorance. It is of considerable interest that no great effort was needed to get 13 of these 29 patients who dropped out of medical care to return to a physician or a clinic. They did so after one interview, during the follow-up examination, with a physician and a social worker. This suggests that a simple follow-up system would significantly reduce the number of patients discontinuing medical supervision.

Lack of Prophylactic Medication.—The second major cause for concern was the observation that, of the 100 patients reviewed, 67 were not on a regimen of prophylactic medication as recommended by the American Heart Association (see table). Of these 67, 29 were not under medical care and, therefore, were not receiving medication. Though the remaining 38 were under medical care (24 under private and 14 under clinic care), they were not receiving the recommended daily oral doses of penicillin or sulfonamides or monthly benzathine penicillin G (Bicillin) injections. Of the 38 patients who were under medical care but were not receiving prophylactic medication, 47% had no heart disease and 53% had unquestionable heart disease, of which 10% was severe. The percentage of these patients with heart disease is not significantly different from that of the entire group of 100. Thus, the presence or absence of heart disease is not an adequate explanation of the failure to give prophylactic medication to those known to have had an attack of rheumatic fever.

Readjustment.—The third major cause for concern is more difficult to show by figures. It is well known that a serious, prolonged illness generally has some effect on the child's personality and on his subsequent readjustment to family, playmates, and school. Severe handicaps in readjusting to normal living may often result. Some of this is unavoidable, but much can be done to minimize or even prevent the resultant harm to the child. The program at Herrick House is specifically directed at minimizing adjustment problems. School teachers from the regular Elgin, Ill., school system conduct a full-time school program for all children at Herrick House as soon as they are no longer restricted to complete bed rest. The individualized attention possible in this setting not only permits the children to do as well as they do in their own schools but also often enables them to make up time lost due tion of the private practice of medicine. What is done for the clinical department staff members has repercussions on the conditions of employment in other departments of the medical school and the rest of the university. While recognizing that some differential favoring the clinical staff members is indicated, the biochemists, pharmacologists, and anatomists find it difficult to understand why the surgeon should have an income many times their own. The full-time academic surgeon in turn sees the young men whom he has helped train go out into practice and in a short time exceed his earnings by sizable amounts. Furthermore, it taxes the ingenuity of university presidents to reconcile the salaries paid to professors of psychology, sociology, and English with those paid to the staffs of their medical schools. With the limited resources at his command, the medical college dean is forced sometimes to the consideration of complete abandonment of the full-time system and a return to a system of medical college staffing used at the beginning of the century, a step that would set medical education back in a harmful fashion. As a matter of fact, the full-time system as envisioned by Abraham Flexner in 1910 is just struggling along in many of our institutions. Many of our difficulties would be ironed out if we had a great deal more money, more than seems available at the present time.

The problems are complex and difficult and must be faced with fairness and equanimity. The medical profession has much to gain if our program of medical education remains vigorous and strong, and it has much to lose if our medical schools are weakened. All of us are into this together and must work it out in such a manner that the teaching of our future physicians and the members of allied health professions is maintained at a high level and is advanced whenever possible. In his address as President of the American Medical Association to the House of Delegates in Boston on Nov. 29, 1955, Dr. Elmer Hess [1] said:

> Another sore spot which has arisen in various parts of the country is the dispute over circumstances under which medical school faculty members are permitted to engage in the private practice of medicine as a means of supplementing income. This situation has created bad publicity in some of the cities I have visited. Surely, intelligent and temperate discussion of the problem within the profession would be more desirable than a public brawl. I understand that the Council on Medical Service is to make a progress report at this session on the exhaustive study of the problem which is being made in cooperation with the Council on Medical Education and Hospitals, the American Hospital Association and the Association of American Medical Colleges. Please let's work this out according to the needs of a given situation in a manner befitting intelligent, well-educated and mature men.

The medical school administrations must see to it that they do not compete unfairly with the practicing profession, and, by the same token, the profession should recognize the needs of our medical schools. Let us not confuse our code of medical ethics with medical economics. Medical schools must not exploit any members of their staffs, and, in turn, staff members must not exploit the institutions to which they belong.

Prof. Donald Fleming of Brown University has given an account of the differences of opinion held by the late Drs. Welch and Mall on the one side and the late Dr. Osler on the other.[2] It was in 1913 that Welch announced to the General Education Board that Johns Hopkins would institute a full-time system in the clinical departments, and the board then appropriated $1,500,000 to implement it. Fleming concludes his article by saying: "From 1913 forward to 1939 the principal objections to full-time for the leading men in clinical departments grew increasingly faint: and all progressive schools gravitated toward full-time." I shall not have time to discuss the factors that have made a core of full-time clinical staff members a necessity in our modern medical schools, but the demands of clerkships, undergraduate teaching, the development of outpatient departments for better teaching at all levels, the residency programs, medical research programs, and greater participation in community projects are known to all of you.

Definition of Full-Time Faculty Member

The word full-time has come to have a number of meanings, and we should bear in mind the definitions that accompanied the questionnaire under discussion. (The questionnaire discussed herein was prepared by the Council on Medical Service of the American Medical Association and was submitted to the deans of the 75 approved four-year medical schools and the 2 new four-year schools. It contained 13 major questions with subdivisions and dealt with the numbers, ranks, types of practice, and methods of compensating medical school faculties.)

A. An Absolute Full-Time faculty member has as his primary responsibility teaching and research activities in the Medical School and in its clinical facilities. His total income from professional activities is derived from the University and related sources. He may see and render care to pay patients only within the medical school and its clinical facilities, but his personal financial compensation from the Medical School is fixed without reference to such service. (It should be emphasized that he is not permitted to keep these fees. They are used by the university to support medical education and research.)

B. A Geographic Full-Time faculty member has as his primary responsibility teaching and research activities in the Medical School and in its clinical facilities. He receives a salary from the University and possibly from related sources, but he also has the privilege of receiving personal financial compensation for services rendered to pay patients, which he can care for in the clinical facilities of the medical school.

1. Geographic Full-Time, Unrestricted: No specific limit is placed (other than in keeping with the primary responsibility mentioned above) on amount of income derived from and/or time devoted to services to pay patients.

2. Geographic Full-Time, Restricted: A specific limit (over and above that related to the primary responsibility for teaching and research) is imposed by the University as to the amount of income that may be derived from and/or the time devoted to services to pay patients.

C. A Part-Time faculty member is a practicing physician who desires to devote part of his time to teaching and research in the Medical School and in its clinical facilities, for which he receives a nominal stipend. He maintains his own facilities for medical practice and is in no way responsible to the University in regard to where he sees pay patients, how many such patients are seen, nor how much income is earned.

D. A Volunteer faculty member is the same as a part-time faculty member except that, because of local tradition and/or amount of time and degree of responsibility involved, he receives no stipend from the University.

Current Practices

As I have visited medical institutions over this country and from experience in those where I have served, I have been much impressed by the contributions made by the part-time and volunteer faculty members. They serve an important function in community relations and in those with the outside profession, as well as what they do in teaching, research, and service. However, in general it may be said that they contribute most effectively in departments where there is full-time leadership; in my opinion, a proper balance between part-time and full-time staff is important for the effective functioning of a clinical department. One will find exceptions to a generalization of this kind.

It is fortunate that the study under discussion was undertaken, because it brings the practice of our various institutions out into the open. It shows how variable the methods of compensation are. It is to be regretted that adequate answers were not received from all the 75 approved four-year schools and the 2 new four-year schools to which the questionnaire was sent, but the 34 government and the 33 private schools on which the analysis was made give a good cross section of the nation's medical schools. The growth of the full-time system is indicated by the fact that 65% of government schools and 90% of private schools have a nucleus of absolute full-time clinical faculties. There are geographical full-time faculty members in 91% of the government schools and 84% of the private schools. Furthermore, 71% of government schools and 76% of private schools with absolute full-time clinical faculties permit private practice, although fees cannot be retained. However, it is extremely difficult to categorize these schools because of individual variations.

The fact that schools permitting private practice recognize a concern with the amount of such practice performed is shown by the methods of limiting it: placing ceilings on income, limiting time, limiting the number of patients, and limiting it to only referred patients. The most frequent limiting factor for absolute full-time faculty in government-owned schools is accepting "only referred patients" and in private schools "restricting the amount of income." In only a very small number of schools did the income of the absolute full-time staff members depend upon the number of private patients seen. It is significant that there is such a large percentage of schools using private patients for teaching purposes and that so many schools report that provision for private practice for the absolute and geographical full-time faculty members improves teaching and research. In my opinion, the most important finding of this whole study is that 25 of 34 government schools (73.5%) and 27 of 33 private schools (81.8%) believe that salary supplementation by fees from private patients is necessary to permit them to attract and retain competent full-time teachers. In addition, seven government and two private schools make the observation that it is partially necessary.

One point that should command attention in this discussion is the need for maintaining a balance of compensation in the various clinical departments. The surgeons and surgical specialists need less time to earn a given amount than the staff members in medicine, pediatrics, and psychiatry. This has been met in some institutions by group practice arrangements by which such inequities can be ironed out. At the fall meetings of the Association of American Medical Colleges, the following systems were described: the Full-time Plan at the University of Chicago, the Private Diagnostic Clinic at Duke University, the University of Virginia Plan, the University of Iowa Plan, and the Harvard University Plan. These plans and the many other ones that could have been described are different, but they work in each institution. In some of our state institutions, the full-time staff members, whether working on an absolute or a geographical full-time basis, are limited to work in tax-supported hospitals. This can lead to difficulties and misunderstandings with the outside profession. That a satisfactory solution can be worked out in such situations is admirably demonstrated in a number of government institutions.

Statement of Policy

For some time, many persons in medical education have looked forward to making a statement that would embody their judgment concerning the best policy for meeting the challenge facing medical education. The following statement was developed by a group from some of our medical schools and teaching hospitals and has been endorsed by the executive council of the Association of American Medical Colleges.

MEETING A CHALLENGE TO MEDICAL EDUCATION. The maintenance and improvement of the physical and mental health of the population are among the primary responsibilities of any nation. Health ranks in importance with other major features of the national economy, such as food supply, housing, employment, education, and industrial and agricultural production.

The level of any health service depends upon the competence of those who participate in it.

The future health of the people will depend in considerable measure upon the continuing supply of competent physicians. The education of physicians is a mutual concern of the universities, the medical schools, the teaching hospitals and the medical profession. The chief source of the supply of physicians will be the medical schools and teaching hospitals of the country.

In order that the high standards of medical education both for medical students and resident training may be maintained, it is essential that the universities, the medical schools, the teaching hospitals, and the medical profession appreciate the problems created for medical education by the changing pattern of medical and hospital services, a growing emphasis on medical research and the complexity of the operation of a modern teaching medical center.

The production of competent physicians by the teaching institutions will depend upon adequate facilities, financial support, the recruitment of a sufficient number of well-prepared students and particularly the maintenance of a staff of qualified scientists and clinicians dedicated to the education of physicians.

Prepayment plans for hospitals and medical services, which have shown a phenomenal growth in the last ten years, are having a pronounced impact upon the operation and financing of those services. The cost of medical and hospital services continues to rise so that prepayment becomes more and more necessary. The growth of knowledge with consequent specialization within the profession has introduced many new problems, partly answered by the evolution of group practice, preventive medicine and emphasis again upon the whole individual and family as the unit of medical care. All of these and other developments have produced considerable disruption in the older methods and forms of practice.

The hospital and medical service prepayment plans are sharply modifying an earlier concept of relying upon indigent patients in the hospital for the clinical instruction of medical students and residents. Medical Education requires a satisfactory volume and balance of clinical material in order that the high level of bedside instruction be maintained. The steady diminution of ward patients will require a continuing readjustment in our approach to the use of private patients and those covered by prepayment insurance plans to insure the instruction of medical students and residents.

Adaptations of medical and hospital services to the changing economic, social and professional conditions are to be expected. They have created apprehension and fear on the part of those who are obliged to meet new situations. These are evolutionary adjustments identified with progress, although new methods, just because they are different, are not necessarily better. These changes inevitably will have an impact upon the problems of professional education.

In view of the heavy duties upon the staffs, particularly in the clinical departments, many medical schools have put some of the appointments in those departments on one or another type of full-time status in order to insure proper instruction of students, the conduct of research and the supervision of patient care. These developments have increased the effectiveness of instruction, the productivity in research and the quality of patient care in the hospitals.

The teaching institutions which have the function of preparing the future generations of physicians should be encouraged to secure the services of full-time teachers and investigators under any reasonable plan satisfactory to the staff members and the school that will strengthen and improve the quality of medical education. They should have the support of the profession, the universities, and the hospitals in their endeavors to maintain the quality of teaching which, in turn, will insure a high level of health services for the future. The teaching centers associated with medical centers should be concerned with providing patient care of the highest standard, and, in doing so in an ethical manner, they should be free from hampering regulation and censure by the medical profession. The profession and the teaching institution should work together to encourage legislation which will not restrict the teaching centers in performing their essential functions in a modern society.

In closing, I again want to make a plea for understanding and consideration on the part of my colleagues, the medical administrators and educators, and the medical profession. If we cannot continue to work this out on a basis that is mutually satisfactory, the alternative is one that we do not wish to contemplate. The medical profession is helping our medical schools through the American Medical Education Foundation and the National Fund for Medical Education. Your help will be even more substantial if you continue to help make it possible for medical schools to remain strong by recruiting and holding competent faculties.

525 E. 68th St. (21).

References

1. Hess, E.: President's Mid-Year Report, Organization Section, J. A. M. A. 159:1545-1548 (Dec. 17) 1955.

2. Fleming, D.: "Full-Time" Controversy, J. M. Educ. 30:398-406 (July) 1955.

ESSENTIALS OF A RESIDENCY PROGRAM IN GENERAL PRACTICE

Louis F. Rittelmeyer Jr., M.D., Jackson, Miss.

• *The need for highly competent personnel in the field of general or family practice will continue for some time. Changes in the medical school curriculum and improvements in internships must be supplemented by general practice residencies. In developing such residencies, the cooperation of the major specialty departments must be enlisted, but the advisability of accepting general practitioners as key men in the planning and supervision of these programs should be considered. The programs should be properly balanced. In institutions where residencies exist both for general practice and for specialties, the two types should be given equal standing and responsibilities. There must be no suggestion of inferior or second-rate training for the general practitioner, and competent family physicians must be permitted to make use of their training without the arbitrary restrictions too often placed on their activities.*

I would like to thank Dr. Kirklin and the Advisory Board for Medical Specialties for the invitation to speak to you today. It may have occurred to you—as it has to me—that the usual situation of a specialist addressing a group of general practitioners is reversed. I assure you that this general practitioner addressing this group of specialists is sincerely grateful for the opportunity but is not entirely comfortable in making use of it. The reason I am here is to share with you some of my ideas regarding residency training in the field of general practice. In sharing these ideas, I hope to give you one thing: my perspective. This then, is what one general practitioner thinks of graduate training for general practice.

This subject is relatively new. Until 1948, there was no organized effort to establish or standardize training past the internship for physicians who were preparing for general practice. At that time, the American Medical Association set forth the first Essentials of Approved Residencies in General Practice. In 1955, the Council on Medical Education and Hospitals joined with the American Academy of General Practice in creating a Residency Review Committee to approve programs of this type. This committee has also revised the "Essentials." These revisions have been accepted by the A. M. A. and the academy and are now in effect.

Several factors are responsible for this reawakening to the problem of training the family physician. As advances in medical science have made the practice of the art more complex and as the giant pyramid of specialty residencies has all but buried the internship in many places, it has become more and more apparent that a reappraisal of the needs of physicians preparing for general practice was necessary. The American Academy of General Practice, founded eight and one-half years ago, has been a major influence in the stimulation of this renewed interest in the educational needs of the family doctor.

Associate Professor of Preventive Medicine and Director of the Section on General Practice, University of Mississippi School of Medicine.

Read before the Annual Congress on Medical Education and Licensure, Chicago, Feb. 12, 1956.

It seems to me that this is an appropriate time to organize our thinking on the subject and chart our course for the future development of training programs for general practitioners. Let us consider these questions. First, is our goal clearly in view; do we know what we want to accomplish? Second, what ingredients must a residency have for official approval and for effective teaching? Third, how can the program be coordinated and integrated with the existing educational activities of the hospital?

Before attempting to answer these questions, I should like to mention that at the present time I am preparing a general practice residency for the University Hospital in Jackson, Miss. It is still in the blueprint stage. Obviously, I cannot give you any pat answers about how to operate a program. What I can tell you is how we are approaching the problems that are bound to arise in getting such a program under way. I should also like to state that, although I am a member of the Residency Review Committee for General Practice, I am offering these opinions as my own. I think the other committee members agree with most of these points, but I will not presume to speak for them.

What Is Our Goal?

Dr. Albert Dix,[1] of Mobile, Ala., speaking to the State Officers' Conference of the American Academy of General Practice last year, expressed our goal very well. He said, "In planning hospital training for the family doctor we must bear in mind the definite differences in his philosophy and that of the specialist. The specialist is to become more or less a finished product in a limited field. The family doctor is to become a growing organism, well planted but adaptable to an ever-changing situation. His education is truly a lifelong experience." Some of you may disagree with this view of specialty training. I would rather not argue that point. What I want to emphasize is this: for the generalist, the internship and residency are only the beginning—the foundation—of a larger educational experience that will continue for a lifetime. The purpose of a residency, therefore, is to make this foundation for future education and practice a firm one.

Since its beginning, the American Academy of General Practice has required postgraduate training of its members. I am sure you are aware of the healthy effect that this requirement has had in stimulating more and better postgraduate courses for family doctors. Last year the academy inaugurated a residency requirement for new applicants. This is not an absolute requirement, but only physicians with two years of approved residency training, in addition to one year's internship, are now eligible for active membership immediately upon entering practice. I have mentioned these postgraduate requirements to show how effectively the American Academy of General Practice has stimulated postgraduate education among its 20,000 members and to express the hope that the residency requirement will do as much for graduate training. For the first time, and I think this is significant, medical students are being given a clearly charted course to follow to qualify themselves as well-trained family physicians. It is more necessary now than it has ever been to provide them with residencies of high quality.

What Should a General Practice Residency Contain?

It is evident that no two hospitals can offer identical programs in a field as broad as general practice. Even if it were possible, it probably would not be desirable—individual needs vary too much. However, some standardization is necessary. These standards are set forth in the revised "Essentials." I will quote the part that specifies the ingredients that should be present:

> General practice residencies should be flexible, both as to content and duration, depending upon the special needs of the individual resident. It is recommended that residency programs be of at least two years' duration. In a two-year residency, the first year should be devoted to general medicine; i. e., internal medicine, the medical specialties, psychiatry, and pediatrics (including contagious diseases). The second year may be devoted to training in surgery, obstetrics and gynecology. The surgical fields to be covered ordinarily should include general surgery, traumatic surgery, fractures and operative gynecology. Any service offered during this second year must be of at least three months' duration.

As you can see, this is not a repetition of the merry-go-round of a rotating internship. The entire first year is devoted to the study of the whole patient. The second year may be devoted to surgery, obstetrics, or even narrower fields. Still, no service can be of less than three months' duration. This is intended to ensure against sincere but misguided attempts to cover too much territory too quickly. Generally speaking, the residency is divided equally between medicine and surgery, using those terms in a broad sense. I feel that it is important to place them in that order. A general practitioner's basic function as general manager of a family's medical affairs requires that his skill in diagnosis and medical management be good. Whether he will eventually do more surgery than he learns as an intern will be determined to some extent by the need in his community and by his own conscience. In any event, additional training in medicine, pediatrics, and psychiatry is helpful to all family doctors. Training in major surgery is a relative necessity and should, in my opinion, be sought only by those who intend to practice in areas where surgical consultants are not readily available.

I would like to call your attention to the sentences concerning surgical training. "Time devoted to general surgery and a surgical specialty should emphasize diagnosis, pre-operative and post-operative care, minor surgery and emergency care, but should also offer an increasing opportunity to assist with and perform common emergency and elective operative procedures. It should be recognized that there is limited educational value in a general practice residency in assisting with highly specialized surgical procedures of an advanced nature." In other words, if a resident in general practice wants to develop additional skill in handling common surgical conditions, he should be offered the opportunity. On the other hand, he should not be exploited by having to assist with complicated procedures that he will never perform.

Again quoting the "Essentials," "An important consideration in evaluating a residency program in general practice is the availability of adequate experience in the medical management of ambulatory patients. Hospitals that have no organized outpatient department should provide the resident with an opportunity to compensate for this deficiency, such as that provided in a home care program or preceptorship." The need for giving a prospective family physician experience in caring for outpatients is self-evident. Although an outpatient department is the usual means used to provide this training, it is not the only way. Preceptorship under a practicing family doctor for a month or more each year would be a valuable experience. A home care program throughout the resident's tenure would offer continuity and closeness in his relationships with patients and give him a great deal of insight into the problems of sick people.

An important consideration that has never been clearly defined is the status of general practitioners on the staffs of hospitals offering general practice residencies. Heretofore, the residency review committee has not insisted that general practitioners participate in the planning and conduct of these programs. However, in view of a recent action by the A. M. A. House of Delegates, this may change. The resolution states:

> *Resolved*, that, subject to review by Counsel of the American Medical Association, the representatives of the Association on the Joint Commission on Accreditation of Hospitals be instructed to stimulate action by that body leading to the warning, provisional accreditation, or removal of accreditation of community or general hospitals which exclude or arbitrarily restrict hospital privileges for generalists as a class regardless of their individual professional competence, after appeal to the Commission by the county medical society concerned.

I do not know where this action will lead as far as hospital accreditation is concerned. It would appear reasonable to suggest, however, that hospitals seeking approval of residencies in general practice should be prepared to accept general practitioners as key men in the planning and supervision of these programs.

How Does General Practice Residency Fit In?

In planning a general practice residency at the University Hospital, I have not solved all of the problems, but I believe I am aware of them. They are not too different from those encountered by others in activating similar programs. From my observations, relatively few pitfalls are most likely to upset a potentially good program. Taking the following steps should obviate most of these difficulties.

The first and most important step is to enlist the cooperation of the major specialty departments. A unique feature of the general practice residency is its dependence on physicians in other fields of practice to do a considerable portion of the teaching. Surgeons train surgery residents; internists train medical residents. These and many other specialists, as well as general practitioners, are needed to properly train general practice residents. They are doing this in 167 hospitals, including 8 affiliated with medical schools. The cooperative spirit with which these specialists have entered into this endeavor is tangible evidence that they are sincere in their desire to improve the standards of the family physician. Without their help, it would be impossible to have general practice residencies.

The second step is to give the program proper balance. Emphasis should be placed on activities that will best prepare physicians for family practice—not necessarily in those fields for which the particular hospital needs the largest house staff. If the patient load on any service is not sufficient to provide adequate experience for the resident, affiliation with another institution may well be used to fill this deficiency.

The third step is necessary only in hospitals that train residents in specialty fields. It consists basically of providing good training for both groups of residents by refusing to sacrifice the needs of one to the interests of the other. There are two facets to this problem. One involves a rather intangible, but nevertheless important, concept. The general practice resident should be given as much authority and responsibility as other first year residents. Every effort should be made to avoid letting him feel like a fifth wheel. The other facet of the problem is in integrating the general practice program with others being conducted. This is not difficult in medicine, pediatrics, and obstetrics, but may present some problems in surgical fields. It can be done and is being done in many hospitals. The solution usually entails no more than taking the trouble to work out a satisfactory formula.

Conclusions

It would be conventional to conclude this discourse with a summary of the facts and opinions I have presented. If my only purpose in speaking were to inform you of the requirements of a general practice residency, such a summary might be appropriate. However, I hope to do more than that, because I think it is vitally important for you to realize the urgent need for developing good graduate training programs specifically designed for future family doctors.

In 1954, Dr. Holland Jackson,[2] a general practitioner in Fort Worth, Texas, wrote: "What is at stake here is the development of a new man of medicine. If he can be achieved, all doctors will have the same level of medical education, and it will be high. There must be no suggestion of inferior or second-rate training for this new man of medicine."

The American Medical Association and the American Academy of General Practice have stated repeatedly that the one-year internship is no longer adequate to develop the full potential in a physician. Yet only 65% of the available positions in general practice residencies are filled. Too many hospitals are creating these positions for the convenience of the attending staff rather than the education of resident physicians. There are actually fewer doctors in general practice residencies today than there are in the fields of anesthesiology, ophthalmology, radiology, or urology. On Sept. 1, 1954, there were only 404 physicians in general practice residencies as compared to 20,090 training in specialty fields.[3] The new man of medicine will be a long time arriving at that rate.

The greatest problem facing American medicine today is how to provide our patients with modern, comprehensive care at reasonable cost. Fortunately, progress is being made. Medical schools are revamping their curriculums to better prepare their graduates to cope with the problems of patient care in our changing society. The internship is under constant scrutiny to help us find ways of improving it. Residencies in every specialty are being improved and enlarged with almost frightening speed. These accomplishments are remarkable and reflect great credit on the men and women who have worked so hard for their realization.

These efforts alone, however, will not produce the new man of medicine. And he is the man who will do more than any one else to fulfill the needs and demands of the American people. The future of the family doctor is the future of the free practice of medicine in this nation. To make sure he can fulfill his destiny should be the concern of every one of us. In the development of general practice residencies, we are still dragging our feet. We must awaken to the fact that the graduate education of the family physician is just as important as the undergraduate and postgraduate. An editorial[4] in THE JOURNAL of the American Medical Association last year expressed the problem clearly:

> Medical educators face the challenge of the needs in graduate education for those who choose this field and development of programs that will reflect the same thought and consideration that has been given to graduate medical education in the narrower specialty fields. Trends in specialization will not eradicate, in the foreseeable future, needs for well-qualified and highly competent personnel in the field of general or family practice. Is it not time, therefore, that every effort should be made to assure the same high standards of preparation for "specialists" in this important field as have been given to the preparation of personnel in the narrower specialties?

We need more general practice residencies and we need better ones. Students must be stimulated and encouraged to avail themselves of this type of training. And competent family physicians must be permitted to make use of their training in caring for their patients, without the arbitrary restrictions too often placed on their activities. This is as much your responsibility as it is mine. It is not too late, but there is no time to lose.

References

1. Dix, A. S.: Planning General Practice Residency, GP **12**: 135-138 (Aug.) 1955.

2. Jackson, H. T.: Medicine's Challenge—and Reply, GP **10**: 111-117 (Oct.) 1954.

3. Leveroos, E. H.; Springall, A. N., and Heinze, C. T.: Approved Internships and Residencies in United States, J. A. M. A. **159**: 251-260 (Sept. 24) 1955.

4. Background for General or Family Practice and Specialization, editorial, J. A. M. A. **159**: 609-610 (Oct. 8) 1955.

REVERSIBLE POSTOPERATIVE NEUROLOGICAL SYMPTOMS

REPORT OF FIVE CASES SECONDARY TO WATER INTOXICATION AND SODIUM DEPLETION

Lloyd G. Bartholomew, M.D.
and
Donald A. Scholz, M.D., Rochester, Minn.

• *Coma, hemiparesis, generalized convulsions, and other alarming neurological symptoms occurring postoperatively in five patients were shown to be associated with water intoxication and an unrecognized depletion of sodium. The diagnosis was verified by studies of the blood electrolytes and by the prompt clinical response to the intravenous administration of sodium chloride. The possibility of water intoxication and depletion of sodium should be considered in all patients in whom neurological disturbances develop during the first few days after operation.*

The possibility of water intoxication deserves serious consideration whenever acute neurological symptoms develop early in the postoperative period. Patients depleted of extracellular electrolytes are most susceptible to this disturbance in water balance. The widespread use of diets containing small amounts of sodium, alone or in conjunction with use of mercurial diuretics, frequently leads to depletion of the body's stores of sodium. The postoperative use of excessive amounts of nonelectrolytic solutions, principally a 5% solution of dextrose in water, in these or other patients who have experienced excessive preoperative loss of sodium chloride from the gastrointestinal tract may lead to unexpected and alarming neurological symptoms. The clinical signs and symptoms associated with mild degrees of water intoxication are nervousness, salivation, and vomiting. Disorientation, twitching of the extremities, stupor, convulsions, and coma have been noted in the more severe degrees of water intoxication. The clinical signs and symptoms usually associated with severe deficiency of sodium itself are primarily those of peripheral vascular collapse, namely, hypotension, coldness of the extremities, and a rapid, thready pulse. Pronounced impairment in renal function may develop. We have encountered five patients in whom severe but completely reversible neurological signs and symptoms developed during the postoperative period after administration of relatively large amounts of a 5% solution of dextrose in water. Unsuspected preoperative deficiency of sodium was present in three of these patients.

Report of Cases

CASE 1.—A 70-year-old woman was seen at the Mayo Clinic in August, 1953. She complained of four severe attacks of abdominal pain in the previous 15 years. The history was extremely suggestive of recurrent biliary colic, but jaundice had not occurred. She was known to have had hypertension for 15 years but

---

From the Section of Medicine, Mayo Clinic and Mayo Foundation. The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

denied having had any particular treatment for it. Examination showed that the blood pressure varied between 138 to 155 mm. Hg systolic and 70 to 78 mm. Hg diastolic. A grade 1 systolic murmur was heard best over the aortic region. The edge of the liver was palpable 2 to 3 cm. below the right costal margin. Results of urinalysis were normal. The value for hemoglobin, the erythrocyte and leukocyte counts, the erythrocyte sedimentation rate, the amounts of serum bilirubin and lipase, and the results of a test of hepatic function with sulfobromophthalein sodium were normal. Roentgenographic examination of the skull revealed calcification of the falx and of the internal carotid arteries in the region of the sella. The gallbladder was not visualized roentgenographically. Fluoroscopic examination of the upper part of the intestinal tract disclosed a duodenal deformity. Cholecystectomy was advised. At operation, the gallbladder was found to be shrunken and densely adherent to the duodenum. When these two organs were separated, there appeared to be a cholecystoduodenal fistula. The gallbladder was removed in the usual manner. The pathological diagnosis was subacute ulcerative cholecystitis superimposed on chronic cholecystitis.

The postoperative course was uneventful until about the 34th hour. The patient then had a generalized convulsive seizure, with biting of the tongue, frothing at the mouth, and incontinence of urine. She became semicomatose a few minutes later. Babinski's sign was present bilaterally. The patient was aphasic within a few hours and had hemiparesis on the right. Review of the complete postoperative period revealed that the patient had passed approximately 1,300 ml. of urine and had received 5 liters of a 5% solution of dextrose in water. It was learned from her husband at this time that she had been following a fairly strict low-salt dietary regimen for the previous year. The possibility that her symptoms were secondary to water intoxication superimposed on depletion of sodium was then considered. Blood studies showed the following values: plasma chlorides, 85.7 mEq. per liter; urea, 14.0 mg. per 100 ml.; serum sodium, 112.0 mEq. per liter; and serum potassium, 3.0 mEq. per liter. Because of the longer time entailed in the determination of sodium and potassium, treatment in this and the other four cases was begun before values for these two constituents were available. A 5% solution of dextrose in isotonic sodium chloride was given. The patient gradually began to improve, and she fully regained consciousness. The concentration of serum sodium was normal for the first time on the seventh postoperative day, by which time the patient was able to talk, was well oriented, and had no evidence of hemiplegia. The remainder of the postoperative course was uneventful, and she was dismissed from the hospital on the 16th postoperative day.

Case 2.—A 72-year-old woman made her sixth visit to the clinic in September, 1953. She had been observed at various intervals since 1938. On her first visit, a diagnosis of duodenal ulcer and diffuse arteriolar disease with group 2 hypertension was made. In 1947, obstruction of the duodenum developed. Because of the patient's age and the hypertension, posterior gastroenterostomy was performed. In March, 1950, dysphagia developed, and a large pharyngoesophageal diverticulum was excised in one stage. Both surgical procedures were well tolerated, and the patient made uneventful recoveries. Later in 1950, hemiplegia on the left and aphasia developed. The defect in her speech gradually disappeared, although weakness in the left arm and leg persisted. In August, 1953, she noted the onset of epigastric burning distress and vomiting of the retention type. These symptoms continued for about six weeks prior to her return to the clinic. Examination revealed a blood pressure of 190/100 mm. Hg, hemiplegia with Babinski's sign on the left, and a loud succussion splash in the epigastrium. Results of routine urinalysis and hematological studies were normal. The blood urea was 46.0 mg. per 100 ml.; plasma chlorides measured 98.2 mEq. per liter; and the carbon dioxide-combining power was 33.0 mEq. per liter. Roentgenographic examination of the thorax revealed calcification of the aorta. Fluoroscopic studies of the upper part of the gastrointestinal tract showed a duodenal ulcer with obstruction and a nonfunctioning gastroenteric stoma. The patient was given a diet designed for use in gastric obstruction. Stomach lavage was done twice daily. The amount of gastric contents aspirated varied between 100 and 900 ml. On the 12th day in the hospital, an abdominal exploration was performed. The gastroenteric stoma was found to be malfunctioning because of the presence of an anastomotic ulcer. The duodenum was narrowed and almost completely obstructed. The operation consisted of partial gastrectomy and duodenectomy with an anterior Polya anastomosis.

On the day of operation, the patient received 500 ml. of blood, 2,100 ml. of a 5% solution of dextrose in water, and 1 liter of a 5% solution of dextrose in isotonic sodium chloride. On the second postoperative day, she received 4 liters of a 5% solution of dextrose in water. In addition, 400 ml. of fluid was obtained by means of gastric suction. She became drowsy and unresponsive approximately 30 hours after operation. In addition to the old hemiplegia on the left, there now appeared to be facial weakness on the right and increased spasticity of the right arm and leg. Babinski's sign was present on the right side. The initial clinical impression was that the patient had cerebral thrombosis on the left. However, in view of a possible fluid and electrolytic disturbance, blood studies were made. The value for blood urea was 24 mg. per 100 ml., and the plasma chlorides and carbon dioxide-combining power measured 66.0 and 23.0 mEq. per liter respectively; serum sodium and potassium measured 114.0 and 2.5 mEq. respectively. In the next 36 hours, a total of 6 liters of a 5% solution of dextrose in isotonic sodium chloride was administered intravenously. The patient's condition gradually began to improve, and she regained consciousness. The hemiparesis on the right disappeared, but the status of the old hemiplegia on the left remained unchanged. The patient was dismissed on the 13th postoperative day with no evidence of hemiparesis on the right.

Case 3.—An 80-year-old woman was seen at the clinic in December, 1954. She complained of anorexia and loss of 10 lb. (4.5 kg.) during the preceding year. She had noticed severe constipation alternating with diarrhea four weeks prior to admission. Examination revealed a hard fixed mass high in the rectum. Results of routine laboratory tests were within normal limits. Roentgenographic examination of the colon revealed almost complete obstruction in the lower portion of the sigmoid. Laparotomy was performed after suitable preparation of the intestine. The sigmoid was found to be the site of a perforating obstructive mass. The involved portion of the sigmoid was resected, and end-to-end anastomosis was accomplished. The pathological diagnosis was diverticulosis, diverticulitis, and peridiverticulitis. The postoperative course was uneventful for approximately 46 hours. The patient then became comatose. Generalized muscular twitchings were observed. Neurological examination revealed divergence of the eyes, transitory nystagmus, failure to move the left arm and left leg after noxious stimuli, generalized tendon hyporeflexia, and Babinski's sign in the left foot.

Since operation, the patient had passed approximately 2,000 ml. of urine and had received 5 liters of a 5% solution of dextrose in water. It was then learned from the family that she had been avoiding the use of salt in her diet for at least six months. The possibility of water intoxication superimposed on depletion of sodium was then considered. Blood studies revealed the following values: plasma chlorides, 66.0 mEq. per liter; carbon dioxide-combining power, 17.5 mEq. per liter; urea, 16.0 mg. per 100 ml.; and serum sodium and potassium, 105.0 and 2.2 mEq. per liter respectively. A total of 300 ml. of a 5% sodium chloride solution was then given intravenously. One hour later, the patient began to move all four extremities. In the second hour, she regained consciousness and responded to her name. Three hours after the onset of treatment, all the neurological signs had disappeared except Babinski's sign. Results of neurological examination were completely normal on the following morning. Intravenous administration of isotonic sodium chloride solution was continued during the next few days. Potassium chloride also was given intravenously. Improvement was maintained, and she was dismissed on the 17th postoperative day, at which time the blood electrolyte values were normal.

Case 4.—A 50-year-old woman registered at the clinic in August, 1955, complaining of periodic discharge from the left nipple. She had undergone cholecystectomy for gallstones in 1952. An incidental finding at the time of operation was a 3-cm. mass in the anterior wall of the stomach. Subtotal gastrectomy also was performed. Pathological examination showed carcinoma of the stomach without evidence of local metastasis. Subsequent examinations failed to reveal any evidence of recurrence of the tumor. The only abnormal finding on general examination at the clinic was discharge from the left nipple. Results of routine laboratory studies and roentgenography of the thorax were within normal limits. Fluoroscopic studies of the stomach revealed a high gastric resection with a freely functioning Polya type of anastomosis. The clinical impression was an intraductal papilloma of the left breast. Simple mastectomy was advised. The surgical findings confirmed the clinical diagnosis. The postoperative course was uneventful for approximately 36 hours. The patient then became semicomatose. Neurological examination revealed generalized tendon hyporeflexia, deviation of the eyes to the left, and Babinski's sign in the left foot. She became increasingly unresponsive during the next eight hours.

Review of the postoperative period disclosed that the patient had passed approximately 1 liter of urine and had had a total emesis of about 500 ml. During this time, she had received 6 liters of a 5% solution of dextrose in water. No history of restriction of salt or excessive loss of sodium could be obtained. In view of our previous experiences, the possibility of water intoxication was considered. Blood studies revealed the following values: plasma chlorides, 81.0 mEq. per liter; carbon dioxide-combining power, 18.0 mEq. per liter; urea, 15.0 mg. per 100 ml.; and serum sodium and serum potassium, 111.0 and 3.3 mEq. per liter respectively. One liter of isotonic sodium chloride solution was given intravenously. The patient began to improve and within a few hours regained consciousness. A total of 300 ml. of a 5% sodium chloride solution was then administered intravenously, followed by a liter of isotonic sodium chloride containing potassium chloride. Steady clinical improvement was maintained, and results of neurological examination were completely normal within 36 hours. Associated with this clinical improvement was pronounced diuresis. The patient was dismissed on the 10th postoperative day, at which time the blood electrolyte values were normal. An electroencephalogram taken during the period of unconsciousness showed grade 3 dysrhythmia, with no evidence of a focal organic process. The type of changes noted suggested the possibility of a metabolic disorder. Two days later, the electroencephalogram had returned to normal.

TABLE 1.—*Postoperative Neurological Disturbances in Five Patients with Water Intoxication*

Case	Sex and Age, Yr.	Preoperative Depletion of Sodium	Operation	Postoperative Neurological Disturbances	Fluids Given Postoperatively *Prior to* Neurological Disturbances	Immediate Treatment For Neurological Disturbances
1	F 70	Low-sodium diet, 1 yr.	Cholecystectomy	Generalized convulsion, coma, and hemiplegia on right, 34 hr. postoperatively	5 liters of 5D/W*	3 liters of 5D/S† in 36 hr.
2	F 72	Gastric obstruction and vomiting	Subtotal gastrectomy	Semicomatose with hemiplegia on right, 30 hr. postoperatively	500 ml. of whole blood; 6 liters of 5D/W; 1 liter of 5D/S	6 liters of 5D/S in 36 hr.
3	F 80	Low-sodium diet 6 mo.	Primary resection of sigmoid	Muscle twitchings, coma, and hemiparesis on left, 46 hr. postoperatively	5 liters of 5D/W	300 ml. of a 5% sodium chloride solution in 4 hr.; then isotonic sodium chloride
4	F 50	None	Simple mastectomy	Deep coma, 48 hr. postoperatively	6 liters of 5D/W	1 liter of isotonic sodium chloride followed by 300 ml. of 5% sodium chloride in 24 hr.; 1 liter of isotonic sodium chloride later
5	M 73	None	Cholecystectomy	Generalized convulsion, semicomatose, 6 days postoperatively	11 liters of 5D/W; 4 liters of 5D/S; 2.5 liters of fluids orally	2 liters of 5D/S in 24 hr.

* 5D/W=5% solution of dextrose in water. † 5D/S=5% solution of dextrose in isotonic sodium chloride.

CASE 5.—A 73-year-old man registered at the clinic in August, 1955. During the previous four months he had noted four attacks of epigastric and low substernal pain radiating to the left arm. These were associated with nausea and occasionally required an injection of meperidine (Demerol) hydrochloride for relief. Results of general examination and routine laboratory studies were completely negative. Electrocardiography and an exercise-tolerance test gave no objective evidence of coronary insufficiency. Roentgenograms of the gallbladder revealed cholelithiasis. Atypical gallbladder colic was considered to be the cause of his symtoms, and cholecystectomy was recommended. At operation, the gallbladder was distended and contained multiple stones. The gallbladder was removed in the usual manner. Further exploration of the abdomen revealed nothing of significance. The pathological diagnosis was chronic cholecystitis with multiple stones.

The postoperative course was not remarkable until the fifth day, at which time the patient complained of abdominal pain; later, the abdomen became moderately distended. It became necessary to institute gastric suction and to administer fluids parenterally. Generalized convulsions suddenly developed on the sixth postoperative day, with frothing at the mouth, stertorous respiration, and incontinence of feces. Neurological examination revealed lateral nystagmus and rigidity of all extremities. Babinski's sign was not present. A period of confusion followed the convulsive seizure. Review of the entire postoperative period revealed that the patient had received 11.0 liters of a 5% solution of dextrose in water, 4.0 liters of a 5% solution of dextrose in sodium chloride solution, and approximately 2.5 liters of fluids given orally. During this same period, a total of 1,800 ml. had been lost by emesis or gastric suction. The excretion of urine had averaged about 1 liter daily. The possibility of water intoxication was considered. Blood studies revealed the following values: plasma chlorides, 92.0 mEq. per liter; carbon dioxide-combining power, 21.0 mEq. per liter; urea, 26.0 mg. per 100 ml.; and serum sodium and serum potassium, 124.0 and 2.7 mEq. per liter respectively. Replacement therapy was started with a solution of 5% dextrose in isotonic sodium chloride, to which potassium was added. The patient's condition steadily improved. Within 24 to 36 hours the patient felt essentially normal and was able to take the necessary fluids orally. The blood electrolyte values rapidly returned to normal. Later studies, including a roentgenogram of the skull and an electroencephalogram, gave normal findings.

Comment

Some of the clinical and therapeutic data in our five cases are summarized in table 1. Four of the five patients were women. All the patients were in the older age group, which agrees with the usual age incidence noted in previous reports on water intoxication. The onset of neurological symptoms occurred within 48 hours after operation in four of the cases. Zimmermann and Wangensteen[1] have stressed that most seizures attributed to water intoxication tend to occur within the first 48 hours after operation. Definite predisposing factors for deficiency of sodium chloride were present in three of our five patients, namely, prolonged preoperative periods of deprivation of salt in two patients and excessive loss of electrolytes from the gastrointestinal tract in one patient. The low values for serum sodium, serum potassium, and plasma chlorides, along with the normal values for blood urea, were the most significant laboratory findings (table 2). This is in keeping with the experiences of Wynn and Rob,[2] as well as of Zimmermann and Wangensteen, who showed that the symptoms of water intoxication developed in most patients when the serum sodium value was reduced to less than 120 mEq. per liter. In the 17 cases reported by Zimmermann and Wangensteen, most of the values for sodium were less than 120 mEq. per liter and three were less than 110 mEq. It would appear that hyponatremia was a far more significant factor in the genesis of the neurological complications than was hypokalemia, since clinical improvement was noted in all of our cases after the intravenous administration of isotonic or concentrated sodium chloride solution without the addition of potassium. Wynn and Rob have reported similar experiences in which the symptoms of water intoxication responded dramatically to treatment despite the fact that coincident depletion of serum potassium was unchanged or became worse because potassium was not given. However, when it becomes known that a deficiency of potassium exists, potassium salts should be administered by either the oral or the parenteral route. The possibility that these neurological symptoms might be related to postinfusion hypoglycemia[3] deserves mention. This would appear to be completely excluded in four of our five patients, since they were receiving dextrose in water intravenously at the onset of symptoms.

TABLE 2.—*Values for Blood Electrolytes at Onset of Neurological Symptoms in Five Cases*

	mEq./Liter				
Case No.	Sodium	Potassium	Chlorides	Carbon Dioxide—Combining Power	Urea, Mg./100 Ml.
1	112	3.0	85.7	...	14
2	114	2.5	66.0	23.0	24
3	105	2.2	66.0	17.5	16
4	111	3.3	81.0	18.0	15
5	124	2.7	92.0	21.0	26
Normal values	135-145	4-5	97-106	25-29	10-40

Treatment.—The postoperative neurological complications in our patients were dramatic. Definite neurological signs of hemiparesis were present in two patients, while one patient had generalized convulsions associated with signs of hemiplegia. One patient had a generalized convulsive seizure, and the fifth patient became deeply comatose. The initial clinical impression in patients who had hemiplegia was an acute focal cerebral ischemia on the basis of either cerebral thrombosis or hemorrhage. When the diagnosis of water intoxication associated with possible deficiency of sodium was considered and the proper therapy was instituted, the clinical response of the patients was most gratifying. As stressed by Moore,[4] the treatment of mild water intoxication or dilution of sodium is first to limit the intake of water. The patient should be given no water whatsoever for 24 hours, and intravenous infusions should not be given until adequate laboratory studies can be carried out. In cases of severe degree, the careful and judicious administration of hypertonic solutions of sodium chloride is usually effective in correcting symptoms. In a mixed disturbance of deficiency of sodium with superimposed water intoxication, small infusions of hypertonic sodium chloride, such as 300 ml. of a 3 to 5% concentration, usually restore the extracellular compartment toward normal tonicity and thereby cause a shift of water from the cells. Hypertonic sodium chloride solution was administered with prompt results in two of our patients. On theoretical grounds, Wynn and Rob stressed the relative ineffectiveness and potential danger of treating water intoxication with infusions of isotonic sodium chloride. They considered that use of isotonic sodium chloride increases the volume of extracellular fluid and fails to increase the value of plasma sodium significantly, with resultant failure to relieve the overhydration of the cells. Nevertheless, administration of isotonic sodium chloride solution to three of our patients led to dramatic improvement and ultimate disappearance of the neurological symptoms. In the face of a decrease in serum sodium value, isotonic sodium chloride is in reality a hypertonic solution and, therefore, serves to increase the effective osmotic pressure of the plasma sufficiently to relieve intracellular edema. Coincident improvement in renal function and a diuretic response could be expected with increase of the level of serum sodium. However, we are in full agreement that treatment with hypertonic sodium chloride solution is the most effective and safest method when a definite diagnosis of acute water intoxication can be made on the basis of clinical observations and confirmatory laboratory data.

Predisposing Circumstances.—Certain circumstances predispose the patient to the development of water intoxication. A low intake of salt during the preoperative period may abet the development of water intoxication. McCance[5] has shown that extremely low concentrations of serum sodium can be produced by depletion of sodium without depletion of water only when the loss of sodium has been large. It has been recognized for years that the values of serum sodium and chloride regularly decrease from preoperative levels during the first 24 hours after operation.[1] The exact mechanism for the depression of these major extracellular electrolytes remains to be explained, although the function of the adrenal cortex ultimately may be proved to play an important role. Diminution of serum sodium also may produce a decrease in glomerular filtration and the diuretic responses to a water load. Preexisting renal insufficiency may play an important part in postoperative disturbances of water and electrolytic control. Cerebral arteriosclerosis with impaired circulation might predispose older persons to the development of the neurological symptoms of water intoxication.

Clinical Significance.—Weir and associates,[6] in 1922, were among the first to report the clinical significance of water intoxication. They were able to produce neurological symptoms in a patient who had diabetes insipidus by continuing the excessive intake of water after treatment with posterior pituitary extract. They also produced convulsive seizures in dogs by forced intake of water. McQuarrie,[7] in 1933, stressed the importance of electrolytes and water in the causation of convulsive seizures. It had been known for many years that dehydration and ketogenic diets aided in the control of epileptic seizures. In a series of clinical studies, McQuarrie concluded that brain cells are oversensitive to dilution of extracellular fluids. Alterations in the permeability of cellular membranes associated with a shift of water and electrolytes are probably fundamental in the production of convulsions. Adams and associates[8] utilizing radioactive sodium in studies in which cocaine was used to produce convulsions noted a shift of water from the extracellular fluid into brain cells. They also expressed the opinion that this was an important part of the extremely complex mechanism involved in the production of convulsions. Ariel[9] observed 20 patients before and after operation to determine the effect of the administration of electrolyte-free infusions. He used only a 5% solution of dextrose in water and found that all patients retained a portion of the water. This retention of water, although transient, was quite pronounced in a few instances. Convulsive seizures without any localizing signs developed in three of Ariel's patients.

Preoperative medication, anesthesia, and surgical procedures decrease the body's capacity to secrete water. Talbot and co-workers[10] have shown that simple solutions of dextrose are likely to produce water intoxication in anyone if given more rapidly than at a rate of 3 liters per square meter of body surface area per 24 hours. When patients are given morphine or one of its derivatives, or barbiturates, the tolerance to a simple solution of dextrose may be reduced to slightly more than 1 liter per square meter per 24 hours. The addition of as little as 40 mEq. of total base per liter of dextrose solution greatly increases tolerance. Thus, it is apparent that water intoxication can be prevented by careful consideration and supervision of the postoperative administration of fluids. It might be asked hether these patients actually had cerebral throm- s or hemorrhage in addition to water intoxication. nis question deserves consideration, but the subsequent course of events, namely, complete recovery of the patients in a relatively short period merely by the restoration of normal extracellular tonicity, would militate against this diagnosis.

Summary

A study has been made at the Mayo Clinic of five cases in which overt neurological signs and symptoms associated with water intoxication and an unrecognized depletion of sodium developed during the immediate postoperative period. The pronounced improvement and the disappearance of neurological symptoms after administration of isotonic or concentrated solutions of sodium chloride produced a dramatic clinical response. The possibility of water intoxication and concomitant depletion of sodium should be considered in all patients in whom hemiplegia, convulsions, or coma develops during the postoperative period.

References

1. Zimmermann, B., and Wangensteen, O. H.: Observations on Water Intoxication in Surgical Patients, Surgery **31**: 654-669 (May) 1952.

2. Wynn, V., and Rob, C. G.: Water Intoxication: Differential Diagnosis of Hypotonic Syndromes, Lancet **1**: 587-594 (March 20) 1954.

3. Postinfusion Hypoglycemia, editorial, J. A. M. A. **160**: 876-877 (March 10) 1956.

4. Moore, F. D.: Low Sodium Syndromes of Surgery: Outline for Practical Management, J. A. M. A. **154**: 379-384 (Jan. 30) 1954.

5. McCance, R. A.: Experimental Sodium Chloride Deficiency in Man, Proc. Roy. Soc., London, s. B. **119**: 245-268 (Feb. 1) 1936.

6. Weir, J. F.; Larson, E. E., and Rowntree, L. G.: Studies in Diabetes Insipidus, Water Balance, and Water Intoxication: Study I, Arch. Int. Med. **29**: 306-330 (March) 1922.

7. McQuarrie, I.: Some Contributions of Biochemistry to Study of Epilepsy, J. Chem. Educ. **10**: 205-214, 1933.

8. Adams, J. E.; Aird, R. B., and Garoutte, W.: Fluid and Electrolyte Exchange in Brain in Experimental Convulsions, Tr. Am. Neurol. A. **77**: 34-38, 1952.

9. Ariel, I. M.: Effects of Water Load Administered to Patients During the Immediate Postoperative Period: Hypotonic Syndrome, A. M. A. Arch. Surg. **62**: 303-324 (March) 1951.

10. Talbot, N. B.; Crawford, J. D., and Butler, A. M.: Medical Progress: Homeostatic Limits to Safe Parenteral Fluid Therapy, New England J Med. **248**: 1100-1108 (June 25) 1953.

THE ROLE OF REHABILITATION IN A PROGRAM FOR HANDICAPPED CHILDREN

Helen M. Wallace, M.D., Jerome S. Tobis, M.D., Robert S. Siffert, M.D., Margaret A. Losty, R.N.
and
Caroline H. Elledge, M.S.W., New York

- *Chronic disease is as important and rehabilitative programs are as necessary in children as they are in adults. There is reason to fear that children have sometimes been kept in institutions too long. The development of departments of physical medicine and rehabilitation, the use of consultants in this field, the multidisciplined approach, the integration of programs for children with those already existing for adults, and the facilities provided by recent federal legislation are significant steps toward the solution of this problem.*

By and large, rehabilitation of the chronically ill has been most closely identified with the care of the adult. Younger persons with chronic illness, although a frequent subject for special types of care, have not generally been included in programs of rehabilitation. The advances made in the field of rehabilitation of the adult during recent years, partly as a result of the impetus of World War II experiences, are equally applicable to the handicapped child. In the broadest sense, rehabilitation is the process by which the patient may attain the maximum physical, psychological, social, educational, and vocational restoration in the community.

Recognition of the importance of rehabilitation in the care of patients with chronic illness has recently

---

Professor of Preventive Medicine and Public Health, New York Medical College (Dr. Wallace); Chief Medical Social Work Consultant, New York City Department of Health (Mrs. Elledge); Consultant in Physical Medicine and Rehabilitation (Dr. Tobis), Senior Orthopedic Consultant (Dr. Siffert), Coordinator, Hospital Consultation Program (Miss Losty), and formerly Director (Dr. Wallace), Bureau for Handicapped Children, New York City Department of Health.

Read before the Maternal and Child Health Section at the Annual Meeting of the American Public Health Association, Kansas City, Mo., Nov. 15, 1955.

occurred through the extension of two important pieces of federal legislation—the Hill-Burton Act and the Vocational Rehabilitation Act. The anticipated end-result of the extension of these two federal legislative acts will be the opportunity to provide well-constructed and well-equipped physical resources and to provide the many persons with professional skills necessary for the management, care, and rehabilitation of the patient's physical, vocational, social, educational, and psychological needs. Particularly because of these two acts, with their potential influence on patient care, personnel engaged in crippled children's programs have a unique opportunity to improve services for handicapped children. Perhaps the first question that comes to mind is: How can these newer concepts of rehabilitation be used and applied for the benefits of handicapped children? While the details may vary from community to community, depending on present local resources of personnel and physical facilities, certain principles can probably be laid down.

Employment of a Consultant

Just as it is important to have expert medical consultants, such as the orthopedist, ophthalmologist, and otologist, for each of the specialties involved in a handicapped children's program, it is important to employ a consultant in physical medicine and rehabilitation to outline and coordinate more modern concepts of rehabilitation. His role might include (1) evaluation of the physical medicine and rehabilitation services; (2) assistance in the development of physical medicine and rehabilitation services; (3) assistance in the development of standards for a department of physical medicine and rehabilitation in institutions; and (4) assistance in the training of personnel on the staffs of health departments, crippled children's agencies, and institutions in rehabilitation methods and techniques.

In New York City the handicapped children's program has employed such a consultant for the past two years. He has played a large role in educating the handicapped children's team in rehabilitation methods. He has evaluated departments of physical medicine and rehabilitation at the hospitals surveyed, he has consulted on special problems arising in the program in relation to physical medicine and rehabilitation, and he has participated in training programs and in hospital conferences in interpreting concepts of rehabilitation as they relate to the practical care of handicapped children. As rehabilitation becomes a larger part of the program, his role will increase. In fact, specialists in physical medicine and rehabilitation have been regular members of the orthopedic advisory committee to help the program in development and evaluation of these aspects of total care.

For example, in New York City, a recent survey of 24 hospitals caring for orthopedically handicapped children disclosed that 14 had a department of physical medicine and rehabilitation. Of the 14 hospitals with a department of physical medicine and rehabilitation, 8 were found to be well organized and equipped. Seven hospitals had a separate rehabilitation inpatient service, and eight had a separate outpatient service. In nine hospitals, the physical medicine and rehabilitation department staff had periodic staff conferences. Twenty-two of the 24 hospitals had at least one physical therapist, but 10 had no occupational therapist, 10 had no speech therapist. 8 had no psychologist, 6 had no teacher, and 21 had no recreation worker. In nine hospitals, medical rounds were made by a physiatrist; the visits varied in frequency from "daily" to "rarely." In 15 hospitals, no such rounds were made. It seems evident from this survey material that there is wide variation in the quality and quantity of physical medicine and rehabilitation services afforded orthopedically handicapped children. One of the major functions of the consulting physiatrist to the department of health has been to work with the hospitals to assist them with the further development of their services.

Rehabilitation Training Program

As in any new field, there is a certain body of knowledge developed and there are certain techniques used that may be helpful and that, therefore, should be disseminated to professional personnel working with patients. This is true for rehabilitation. and it applies equally well both to the staffs of institutions and to the staffs of crippled children's agencies and health departments. For example, from reports based on surveys of hospitals and convalescent homes in the metropolitan New York City area, children are being kept in institutions too long, and, in general, the program for children has not been one of active rehabilitation. Perhaps with the newer knowledge of rehabilitation techniques and the teaching of activities of daily living. such as feeding, dressing, toilet care, bowel and bladder control training, wheel chair transfer, ambulation, and gait training, these programs can become much more dynamic and positive for patient care. This same principle should be equally applied to patients at home who are visited by public health nurses, with the specific purpose of assisting the patient to develop maximum self-sufficiency wherever he is. Such a rehabilitation training program should, in our opinion, be developed on a multidisciplined team basis, for both the faculty and the trainees. One tangible plan might be that each health jurisdiction have at least one person, possibly a physician or public health nurse, who had had special training in the field and who would be the resource staff person for improvement in patient care in the specific field.

The field of physical medicine and rehabilitation is a new medical specialty that concerns itself with the care of children with neuromuscular and musculoskeletal disorders. This medical specialty, as does medicine generally, in the care of the chronically ill, provides symptomatic treatment directed toward improving the function of the patient without influencing the underlying disease process. Thus it seeks to improve motor power whether the weakness results from a lower motor neuron disease, such as poliomyelitis, or an upper motor neuron disease, such as intracranial damage. In this field disease is looked upon as more than the specific pathology and the social and psychological effects of the disability upon the total function of the patient are considered. Because all these factors and more must be considered in the total care of the patient, there are many disciplines involved in the rehabilitation of the handicapped child. The professional staff, including such specialists as the pediatrician, orthopedist, psychiatrist, ophthalmologist, neurologist, physical therapist, occupational therapist, psychologist, speech therapist, vocational or educational counselor, social worker, and nurse, functions as a team under the direction of the physiatrist. There is one additional unnamed member of the team whose participation is essential—the patient himself. By the very nature of rehabilitation care, the patient must be an active participant. In medical care of acute conditions, the success of treatment does not depend essentially upon the cooperation of the patient. If a child has pneumonia, the outcome will depend upon the diagnostic acumen of the physician, the efficacy of the antibiotic prescribed, and the nursing care given, not on whether the child is cooperative. But in rehabilitation, the success of treatment requires the active participation of the child because of two major factors: 1. Rehabilitation is primarily a learning or relearning process on the part of the patient—the learning of new and greater skills. 2. The necessary increase of motor power is dependent upon active exercises that the patient himself must perform.

Multidisciplined Approach

Rehabilitation of many handicapped children and adults usually requires a battery of skills as well as a large number of medical specialists in addition to the patient himself and his family. To produce a truly effective program that will result in the rehabilitation of the patient, these skilled persons must have an understanding of the contribution and role of each of the other professional groups and must be able to work closely together in order to provide the services the patient needs when he needs them. The multidisciplined approach should result not in a replacement of one type of professional worker by another but rather in a supplementation of one by the other. This should apply to the stage of the initial evaluation of the patient, periodic reevaluations, continuous supervision, and counseling of the patient and his family.

The paramedical members of this team have many roles, each of which complements the other. The physical therapist improves the patient's motor power by exercise, teaches ambulation, and applies physical modalities to relieve pain, reduce inflammation, and increase range of motion. The occupational therapist improves the dexterity and power of the patient's upper extremities by giving him meaningful work. She also teaches the patient self-care techniques, such as feeding and dressing himself. The rehabilitation nurse complements the role of the occupational therapist by continuing the self-care activities on the ward. The educational or vocational counselor evaluates the child's educational or vocational capacities and aptitudes and aids in the plans for his future training and study. The psychologist evaluates the child's intellectual and emotional profile and assists other therapists in creating the optimum conditions for the patient's learning of new techniques of rehabilitation. The speech therapist assists the child with speech and language disorders in order to help him attain his maximum potential. The social worker relates the family and home situation in the treatment planning. The group worker applies recreation programing as a physical and social therapeutic activity for the child. The teacher contributes to the over-all evaluation and educational goals of the child.

Integration with Adult Programs

Because of the country's aging population, chronic illness has become one of the major public health problems, and health departments are now planning and developing rehabilitation programs and services for adults with chronic illness. By and large, however, chronic illness does not magically begin at the age of 21 years. Many principles learned in the rehabilitation of handicapped children are equally applicable to adults, and many services developed for one age group can be and should be utilized and modified for the rehabilitation of the other age group. Services for the rehabilitation of handicapped children and adults must be coordinated and integrated. The artificial separation of the under 21 and over 21 age groups merely confuses community planning and results in duplication of efforts, funds, and services. Failure to apply the knowledge gained in one age group to the other age group causes repetition of errors in the trial-and-error method. It is important, therefore, that there be close integration of chronic disease rehabilitation programs and services for both children and adults.

Consideration of Long-Term Care

Rehabilitation of the handicapped child is frequently not accomplished on a short-term basis. As is true of any chronically ill patient, child or adult, long-term care is often essential. Frequently long-term care has meant for the child, at least, long-term institutional care. It should more properly imply the necessity of continuity of care, supervision, and rehabilitation wherever the child is—in an inpatient service, in an outpatient department, at home, in school, in job-training, or at camp. This principle of continuity of long-term care must include provision of the multidisciplined team in the various settings listed above as well as provision for flexibility for the easy flow of patients, when they are ready, from one setting to another and provision for the rapid interchange of full information from one setting to another. Otherwise, it is possible and probable that some patients will become fixed in one setting, which may be appropriate at one time but inappropriate at another time. It is also true that lack of interchange of information usually results in the expenditure of efforts and funds for duplicating evaluations. This may be discouraging to the patient and his family as well as being wasteful of the community's resources.

Evaluation of Results and Development of Priorities and Standards

The principle of evaluation of results is important for the individual patient, for the administrator of a crippled children's program, and for the director of any community service in future planning. Studies are necessary to develop even such basic data as the rehabilitation results in the individual patient for a given period of time, the most effective and successful techniques in certain types of disabilities, and the cost of rehabilitation per patient for each diagnostic group by individual institutions. Other such necessary studies include the duration of inpatient care and the reasons for prolonged inpatient stay; long-term longitudinal studies of the handicapped, comparing results in those who have had the opportunity for comprehensive rehabilitation care with those who have not; the results of prolonged inpatient care compared with an alternate community method, such as an organized home care program; the reasons for vocational success and failure among the handicapped in order to provide leads for further development of community services; and retrospective studies of adults who have been handicapped by conditions arising in infancy and childhood and who are now receiving public assistance. Such studies are essential if medical advances are to be made in improvement of methods and if fiscal authorities and the public are to be convinced of the value of rehabilitation programs.

In the early stages of any rehabilitation program, priorities must be established, since there are usually insufficient personnel and funds to serve all patients. The development of a priority system may be carried out on the basis of diagnosis or degree of disability. A priority list developed for one community will not necessarily be applicable in all phases to another community. The community's existing resources, available personnel, and public and professional interests are key factors in deciding any priority system. Also, carefully worked out standards are essential to serve as guides to participating institutions and agencies in their planning and developing good services. They will also be of help to accrediting groups in approving adequate acceptable services for a payment program.

Development of Community Services and Resources

In the development of community services and resources, a fairly complete knowledge of existing services and resources and of current gaps or lacks in patient care is necessary. This quantitive and qualitative knowledge should include such details as the hospitals and convalescent homes; the resources for the homebound group of children; the services provided for the children.,at school, especially the high priority groups in special classes or schools; the vocational resources, including sheltered workshops; the recreational programs; the transportation facilities; the long-term residential or custodial services; and the foster home and child welfare services. It is likely that in most communities at the present time "pieces" of services are now available and that undoubtedly there are many good or potentially good resources that can be further developed and improved with guidance, financial support, consultation, and patience.

Two examples will be used to illustrate this principle: the hospital resources and the convalescent resources. Once a knowledge of the hospital resources has been acquired, it is likely that it will be found that a minority of the hospitals have active and well-developed rehabilitation programs. The principles that might apply in such a situation are as follows: 1. General and not specialty hospitals would participate in the program in the beginning. 2. The initial selection would be of those hospitals that serve a teaching function in connection with medical and other professional schools, from the viewpoints of patient care, training of personnel, and research. 3. Diagnostic services on the one hand would be integrated with treatment and rehabilitation services on the other hand; this step might mean either the affiliation and joint staffing of detached diagnostic clinic services with hospitals or the physical relocation of detached diagnostic clinic services in hospitals with joint staffing. 4. There would be the development of a generalized rehabilitation program within the hospital. This program ideally would not be a completely separate one but would be one that would be closely integrated with other clinical departments so that rehabilitation techniques could be applied early; such a principle would apply to both inpatient and outpatient care. 5. There would be the development of certain specialized services in the hospital; for example, services for patients with hearing impairment, cleft palate, convulsive disorder, and mental retardation as well as for the traditionally accepted groups of patients, such as those with orthopedic, cardiac, and visual defects. 6. Assistance and guidance would be given to the hospitals in the recruitment of personnel, the training of personnel, and the development of program policies. 7. There would be continuity of care, including supervision and follow-up, between the hospital inpatient service and outpatient service and the home through the development of broad home care programs or the more limited public health nursing referral and follow-up.

The second example selected—that of convalescent care in the traditional convalescent homes—is more controversial and therefore more interesting. Once a working knowledge of the community's convalescent homes has been acquired, several principles might apply and a number of questions might be raised, such as: Is convalescent care as it has been traditionally given in the past necessary at the present time? What kinds of children are presently in convalescent homes, what are the reasons that they are there, and how many can be discharged home? Is a particular convalescent home fulfilling an essential community need at this time? Can a dynamic and active rehabilitation program be provided in a convalescent home currently located in a semirural setting, with its difficulties of recruitment and retaining of well-trained personnel, of close medical supervision, and of parent visiting? What are the alternatives that a community might provide that might mean better and more prompt rehabilitation care, better psychological care, and possibly even lower cost to the community? What are the current facts about the present capacity, census, and length of stay in convalescent homes? The first essential principle that should apply to this somewhat controversial subject, in an effort to answer the foregoing questions, is that of fact-finding. Other principles, which undoubtedly fall into the general area of better coordinated and broader community planning of rehabilitation services, will stem from the original one of *fact-finding*.

Relationship to Newer Federal Legislation

Two types of federal legislation were extended recently that are of great significance to programs for handicapped children: (1) the Hill-Burton Act, which will make available new funds for construction and equipping of rehabilitation centers, diagnostic centers, chronic disease services, and nursing homes, in addition to the funds presently appropriated for general hospital construction; and (2) the Vocational Rehabilitation Act, which will make funds available for special projects, training of personnel, and research. It would seem essential that administrators and clinicians concerned with the program for handicapped children work closely with the state and local agencies responsible for the carrying out of new federal legislation because (1) personnel engaged in crippled children's programs already may have considerable knowledge about services and facilities currently provided and about unmet needs and (2) the new federal legislation provides a means of improving and expanding services for handicapped children. Joint planning is essential if the newly provided funds are to be used in the soundest way for the maximum number of people to be served. It would seem, too, that the crippled children's agency might provide the methods or means of bringing together the medical and health treatment agencies and the vocational agencies in any community. Up to the present time, in some communities, these two groups have not worked as closely together as they might, with a result usually to the detriment of disabled patients. On the one hand, some medical treatment agencies know of and render medical and health services to large numbers of patients without significant awareness of their vocational needs and without early referral for vocational guidance, testing, training, and placement. On the other hand, some vocational agencies are currently in the position of offering vocational assistance without adequate knowledge of the medical status and functional ability of the individual patient. Liaison between these two types of community agencies is essential, and a crippled children's program might serve in such a coordinating capacity.

Purchase of Care

Rehabilitation of patients is costly; for example, the per diem cost of inpatient care in a large rehabilitation service in New York City is $25 for a child and $30 for an adult. Even though there is a considerable amount of funds available for the rehabilitation of patients, from both official and voluntary sources, funds will always be wanting. These two sources of funds, official and voluntary, should not be looked upon as competitors of each other; both are essential. This principle can work in a variety of ways, such as by grants to agencies or services, complete payment of salaries, joint payment of salaries, purchase of equipment, research projects and experimentation, and training of personnel. The important principle is that the two major sources of funds work together to develop rehabilitation services as rapidly as possible with well-trained personnel wherever they are needed. *The second principle is that of the purchase of care on a cost basis.* If one accepts the fact that rehabilitation is economically sound as well as socially desirable even though it is costly, then someone must be prepared to pay the bill. Logical sources, in addition to the patient and his family, are the categorical voluntary agencies and governmental agencies, including the crippled children's program. It is a fallacy that by paying less than cost, if cost is calculated on a sound formula, one is saving money. If the cost of care is not met in some way, then services are automatically decreased by reduction of personnel. This means that some essential services will not be provided and that rehabilitation may not be as effective or as complete. In any event, by not meeting the costs of rehabilitation, it is the patient and the community who "pay the price"; and the principle of purchase of care on a cost basis is a vital one.

Summary

Some principles in the possible role of rehabilitation in services for handicapped children may be based on experience in a large crippled children's program in an urban area. These principles include the employment of a consultant in the field of physical medicine and rehabilitation as a staff member of the crippled children's agency, the need for the establishment of a training program in rehabilitation to disseminate the newer knowledge developed in the field to personnel working directly with patients, the use of the multidisciplined team approach to meet the broad needs of the patients, and the need to integrate rehabilitation services for children with those for adults. It is necessary to recognize the need for long-term follow-up and supervision of patients and for flexibility of services and policies. Evaluation of results of services to the individual patient is important, and methods for such evaluation must be devised. Additional principles are those of development of knowledge regarding present resources and currently unmet needs of patient care and purchase of care on a cost basis. Newer extensions of federal legislation, such as the Hill-Burton Act and the Vocational Rehabilitation Act, provide excellent opportunities to develop, expand, and improve services for patients with chronic illness, both children and adults.

125 Worth St. (Dr. Wallace).

CLINICAL NOTES

SERUM PROTEIN CHANGES IN SUBACUTE THYROIDITIS

Grant N. Stemmermann, M.D., Hilo, T. H.

Subacute thyroiditis is an inflammatory disease involving the thyroid gland but associated with a systemic reaction characterized by fever and general malaise. A large number of papers upon this subject have appeared within the last decade. Recently these have been summarized in a complete review undertaken by Hazard.[1] It is my purpose to describe a laboratory finding in this disease, mention of which I have not encountered in the medical literature available to me. This consists of a striking elevation of the alpha-2 component of the globulin fraction of the blood. I shall describe two cases in which this change was noted and shall attempt to explain the cause of this change, correlating it with other reported findings.

Report of Cases

CASE 1.—A 47-year-old Caucasian man first became ill on Sept. 1, 1955. His initial symptoms were general malaise and weakness after vigorous walking. He also had a low-grade afternoon fever (99.6 F [37.6 C]) followed by sweating. He also complained of a mild sore throat, which varied in intensity from time to time. Ten days later he developed a hard, tender mass at the lower anterior margin of the right sternomastoid muscle. He was admitted to hospital on Sept. 18, 1955. His medical history and family history contained no facts related to the present illness. Physical examination on admission revealed the tender mass in the area of the right lobe of the thyroid gland to have subsided and to have been replaced by a similar mass in the region of the isthmus.

Laboratory findings were as follows. Urinalysis was negative for sugar and albumin. The specific gravity was 1.020, with 3 white blood cells per high-power field. The nonprotein nitrogen level was 32 mg. per 100 cc., total protein level was 7.4 gm. per 100 cc., with albumin 4.8, globulin 2.6, and albumin-globulin ratio 1.85. The white blood cell count was 11,800 per cubic millimeter, with 69% neutrophils and 31% lymphocytes, hemoglobin level was 12.4 gm. per 100 cc. and hematocrit 42%. The erythrocyte sedimentation rate was 48 mm. in one hour. The serologic test for syphilis was nonreactive, and the cholesterol value was 157 mg. per 100 cc.

A needle biopsy of the thyroid tissue revealed the basic architecture to be considerably disturbed. The follicles were decreased in number and widely separated from one another by an edematous connective tissue. Within this tissue were many lymphocytes, plump fibroblasts, and collagen fibers. Within some of the follicles were collections of neutrophils. Others were partially bordered by epithelioid cells and Langhan's-type giant cells, forming a tuberculoid focus. Some of these collections enclosed small amounts of persisting colloid. This patient's symptoms abated spontaneously without specific therapy.

CASE 2.—A 40-year-old man of Japanese origin was well until early November, 1955, when he noticed that he had a fever. His temperature was 104 F (40 C). He received some unidentified medication from a physician, but there was no improvement in his febrile disease. His only symptom other than the fever was slight pain in the throat when this region was pressed. He denied having any cough, shortness of breath, nausea, or vomiting. His medical history and family history were of little interest insofar as the present disease was concerned. On physical examination he was found to have slight injection of the tonsillar area. He also had a slightly enlarged and tender right lobe of the thyroid gland.

The laboratory findings were as follows. The white blood cell count was 7,700 per cubic millimeter, with 66% neutrophils, 22% lymphocytes, 10% monocytes, and 2% eosinophils. The hemoglobin level was 14 gm. per 100 cc., and the hematocrit was 45%. The erythrocyte sedimentation rate was 32 mm. in one hour. The findings on urinalysis were specific gravity 1.016, albumin and sugar negative. No cells or casts were seen. Prothrombin time was 53% of normal. The total protein value was 8 gm. per 100 cc., with albumin 3.7, globulin 4.3, and albumin-globulin ratio 0.86. The serologic test for syphilis was nonreactive. Blood cultures were repeatedly negative, and heterophil agglutination was positive through 1:8 dilution.

A needle biopsy of the thyroid gland was done, and microscopic examination revealed many of the follicles to be distorted. Some contained mixed neutrophils, monocytes, and colloid. The lining epithelium of these follicles persisted, but there were others in which the process just described had progressed to the extent that no epithelium was any longer seen. In the latter areas the collections of neutrophils were surrounded by palisaded epithelioid cells. The interstitial connective tissue was increased in amount and contained collections of lymphocytes, monocytic cells, and neutrophils. This patient's signs and symptoms promptly abated under cortisone therapy.

Pathological Changes

The pathological changes noted within the glandular tissue were typical of those reported by other authors. A wide variety was noted in the appearance of the individual follicles. The earliest change consisted of the accumulation of a few neutrophils within the colloid. These elements were surrounded by persisting colloid, and the follicular epithelium remained intact. In other follicles the epithelium was replaced by dense masses of neutrophils and monocytic elements. Where this change was most intense, segments of the follicular basement membranes were destroyed. In other areas collections of colloid were surrounded by histiocytic elements and giant cells of the Langhan's type. The histiocytic cells had a palisaded arrangement. The interstitial connective tissue was edematous and increased in amount. It contained collections of lymphocytes, neutrophils, plasma cells, monocytes, occasional giant cells, and fibroblasts.

Laboratory Findings

There was a striking increase in the alpha-2 globulin fraction as seen by the paper electrophoresis method. This distortion of the protein pattern accompanied a normal albumin-globulin ratio in one case and an inverted one in the other. This reversal was due to an increase of the globulin fraction as a whole rather than the decrease in the albumin portion. Furthermore, there was an increase in both the beta and the gamma fractions as well, although the latter change was not so striking as that seen in the alpha-2 fraction. The alpha-2 fraction appeared to migrate in a slightly faster range than the normal alpha-2 fraction.

Comment

These findings are of particular interest when they are compared with other changes noted in this disease. It has been reported that during the active phase of the disease there is a strikingly negligible uptake of radioiodine (I^{131}) and a definitely elevated serum protein-bound iodine value.[2] It has been felt that the elevation of the protein-bound iodine level was the

---

From the Laboratory, Hilo Memorial Hospital result of follicular destruction and the absorption of colloid into the blood stream. This concept would seem to be confirmed by the change in the electrophoretic pattern of the blood proteins. A recent study by Shulman, Rose, and Witebsky[3] is pertinent in this regard. These workers studied the electrophoretic patterns of material obtained from hog thyroid glands. They noted that the thyroid extract revealed essentially a single component, moving with a mobility slightly greater than that of hog alpha-2 globulin. They felt that this component was thyroglobulin.

These findings are of both practical and academic interest. It has been said that the only laboratory tests of value in the diagnosis of subacute thyroiditis are the determinations of protein-bound iodine and the uptake of the thyroid gland of I^{131}. In communities where neither of these examinations is available due to space or budget limitations, the electrophoretic pattern, obtained with simple equipment, may indicate that this disease is present. This is an important factor in some cases that present themselves to the physician as a fever of unknown origin. In the second case mentioned in this study the tenderness in the thyroid gland was so slight that no biopsy would have been made of the gland if the protein changes had not been known. The test would not be specific, since in any condition allowing the escape of follicular contents into the bloodstream there might be expected to be a high alpha-2 globulin value. For instance, Flynn[4] reports an increase in the fraction in a case of carcinoma of the thyroid, but the absence of systemic complaints should allow differentiation from thyroiditis. Isolated alpha-2 globulin elevation may also be seen in the nephrotic syndrome, but the wide difference in clinical appearances between this disease and thyroiditis should permit no confusion. In addition, the elevated fraction in the renal disease migrates in a slower range than that seen in thyroiditis, sometimes appearing to blend with the beta fraction.

Summary

In two cases of subacute thyroiditis an elevation of the alpha-2 globulin fraction was noted by the paper electrophoretic technique. This change is felt to be due to escape of a colloid into the bloodstream as a result of structural distortion of the follicles.

Addendum

Since this paper was submitted for publication, two additional cases of thyroiditis have been seen in which the above protein changes were found to be present. One of these was of special interest because the changes were not present during a four-day prodromal period of fever but were only noted after the patient's thyroid became tender.

References

1. Hazard, J. B.: Thyroiditis: A Review, Part 2, Am. J. Clin. Path. **25**: 399-426, 1955.

2. Lindsay, S., and Dailey, M.E.: Granulomatous or Giant Cell Thyroiditis: A Clinical and Pathologic Study of 37 Patients, Surg. Gynec. & Obst. **98**: 197-211, 1954.

3. Shulman, S.; Rose, N. R., and Witebsky, E.: Studies of Organ Specificity: 3. Ultracentrifugal and Electrophoretic Examinations of Thyroid Extracts, J. Immunol. **75**: 291-300, 1955.

4. Flynn, F. V.: Electrophoretic Patterns of the Serum Proteins in Health and Disease, Proc. Roy. Soc. Med. **47**: 827-831, 1954.

HYALURONIDASE AS AN ADJUVANT IN INSULIN SHOCK THERAPY

Milo Tyndel, M.D., Ph.D., Brandon, Manitoba, Canada

Extensive studies have been performed and reports published during the last few years concerning the biochemical, physiological, and therapeutic actions of hyaluronidase, the most important of the "spreading factors." Very few of these studies have been concerned with the use of hyaluronidase as an aid to insulin shock therapy with regard to decreasing the amount of insulin necessary, accelerating the evolution of comas and thus increasing the period of actual treatment, and avoiding its untoward effects, particularly the so-called after-shocks. Although the value of insulin shock therapy is still controversial, this therapy continues to be widely used in mental hospitals throughout the world for the management of schizophrenia and other psychiatric disorders. Therefore, every method leading to possible technical improvements in the administration of this therapy is welcome and should be given attention.

Reports on the use of hyaluronidase in insulin shock therapy have been published by Straccia and Scheflein,[1] Demay, Mises, Bories, and Chanoit,[2] Gysin and Wilson,[3] and Greenbank.[4] During my investigations, started at the Hospital for Mental Diseases in 1955, I confirmed the favorable reports of these authors and made some observations not published hitherto. Since I consider these observations useful for the routine application of insulin shock therapy, I shall briefly outline the findings.

Material and Method

In the investigations hyaluronidase was first used in dissolved form (Wydase). A milky turbidity was noticed when this was mixed with insulin. Since the supplier of the hyaluronidase notified me that the same turbidity has been observed with some types of insulin in other clinical investigations, I changed to the lyophilized form, which showed less tendency to cloud when mixed with insulin. However, it was found that the cloudiness did not have any significant untoward effect on either the insulin or the hyaluronidase. As to the dose of hyaluronidase added to the insulin, Gysin and Wilson found 75 turbidity-reducing units (T.R.U.) to be the most efficient. I tried to find the optimum dosage by adding from 25 to 150 T.R.U. Doses smaller than 75 T.R.U. appeared definitely insufficient to influence the structure of comatose reactions to insulin. Doses up to 150 T.R.U. did not seem to be more efficient than 100 T.R.U. I felt that 100 T.R.U. could be considered the optimum dosage, although the difference in action between 75 and 100 was not considerable. This optimum dosage was found irrespective of the amount of insulin administered. In my investigations I used lyophilized hyaluronidase in 10-cc. vials containing 1,500 T.R.U. I dissolved this powder in 15 cc. of isotonic sodium chloride solution, each cubic centimeter containing 100 T.R.U.

From the Hospital for Mental Diseases. Dr. Tyndel is now at Misericordia General Hospital, Winnipeg, Canada.

Results

No untoward local or systemic effects were noticed during the period of the investigation (five months). I administered hyaluronidase to 37 patients suffering from schizophrenia and other psychiatric conditions requiring either insulin shock therapy or modified insulin shock therapy. The number of hyaluronidase injections was about 1,000. As is usual in insulin shock therapy, the injections were given deeply intramuscularly. As controls for our investigations I used 13 patients who were given insulin shock therapy without hyaluronidase. The entire group of patients to whom hyaluronidase had been administered served as another control. By stopping the administration of hyaluronidase once for two days and much later for another four days I was able to observe the obvious differences regarding the depth of hypoglycemic reactions without having changed the dosage of insulin. Patients who had reached a coma level with hyaluronidase over many days of treatment dropped down to semicoma level immediately after withdrawal of hyaluronidase; other patients who had reached a semicoma level were able to take their feedings by mouth. The table gives a good picture of this difference.

Depth of Hypoglycemic Reactions

	Without Hyaluronidase	With 100 T.R.U.* of Hyaluronidase
Comatose	...	10
Semicomatose reactions	8	3
Oral feedings	5	...
Total	13	13

* T.R.U., turbidity-reducing units.

By the administration of hyaluronidase I was able to decrease the coma doses of insulin by a considerable amount. Before hyaluronidase, 7 of a group of 13 patients required doses higher than 300 units of insulin daily (up to 600). In the same group only three patients required doses higher than 300 units of insulin (up to 440 in one case only) when 25 to 75 T.R.U. of hyaluronidase were administered, and only one patient in the same group required doses higher than 300 units of insulin (up to 350) when 100 T.R.U. was administered. The average total dose of insulin administered on one of the insulin shock therapy wards in the hospital, calculated on the basis of the amounts received by 13 male patients over the first six months of 1955, was 4,400 units. After the routine administration of hyaluronidase, the average total dose of insulin on the same ward dropped to 2,200 units per week. Without hyaluronidase, the average coma dosage of insulin given to a group of 13 patients was 365 units; with hyaluronidase this dosage dropped to 212 units.

There are considerable variations in the decrease of insulin made possible by the administration of hyaluronidase; however, in my series I did not find any patient whose condition seemed completely refractory to hyaluronidase. In two patients who had had a course of insulin shock therapy on a previous occasion, the average dose of insulin required to obtain a coma level was 80 units with hyaluronidase as compared to 160 units during their former course. In two patients showing a marked tendency to spasticity and cyanosis with doses of 400 and 500 units without reaching a semicoma level, I was able to obtain semicomatose reactions with much greatly lessened degrees of spasticity and cyanosis at doses of 200 and 320 units respectively.

The average monthly number of comatose reactions in a group of 12 patients not receiving hyaluronidase was 77; with hyaluronidase this number was increased to 120. The time elapsing between the injection of insulin and the initial shock signs was shortened by about one-third (from an average of 100 minutes to about 70 minutes), thus increasing the duration of the semicoma. Taking the number of 50 reactions (including comatose, semicomatose, and convulsive responses) as the routine figure for a complete course of insulin shock therapy, without hyaluronidase the course used to require an average of 61 days of treatment. With the addition of hyaluronidase this period was reduced to an average of 55½ days.

In addition to the findings listed above, I would like to mention the following observations made during my investigations. During the early phases of shock there appeared to be a lesser tendency to hyperactivity and apprehension. The patients appeared quieter and showed less tendency to complications (e. g., respiratory difficulties) during both coma and semicoma levels and they appeared much less exhausted. The acceleration of the pulse rate appears considerably decreased when hyaluronidase is used. Whereas I used to notice pulse rates from between 100 to 140 per minute, the average pulse rate dropped to 90 to 100, and pulse rates over 100 were rarely found. With the use of hyaluronidase the average number of semicomatose and comatose reactions on Mondays, after the two-day weekend break, or after breaks for other reasons, showed a considerable increase. The decreased insulin dosage permits reduction of 1 oz. (30 cc.) of glucose for every 20 units of insulin. The average reduction of glucose feeding required per patient was 6 oz. (177 cc.) per day.

During the whole period of five months after the start of the investigation on hyaluronidase, there were no after-shocks in the afternoons and evenings of the treatment days. Without the use of hyaluronidase there were usually up to 4 out of a group of 13 patients who showed signs of after-shock on Mondays and 1 to 2 per day on the following four treatment days. Prior to use of hyaluronidase it had been my practice to give a feeding of 5 to 8 oz. (148 to 237 cc.) of glucose routinely at 1:30 p. m. After using hyaluronidase I discontinued this feeding without seeing any signs of after-shock. In a group of 13 patients the average reduction of glucose amounted to 100 to 120 oz. (2,957 to 3,549 cc.) per day.

It is felt that through the acceleration of metabolic changes due to the use of hyaluronidase the tendency to convulsions has decreased, although it is difficult to assess this finding with any accuracy. There were some noticeable changes in the patients' behavior and feelings during the afternoon and evening periods. The patients appeared more alert and less sluggish and apathetic. They were more active in participating in ward and hospital activities. They did not complain about feelings of fulness, and at the same time fewer patients were nauseated and vomited and therefore were better able to take noon meals and lunches without any persuasion.

Comment

Hyaluronidase has a definite action in reducing the resistance of tissues to diffusion and absorption of injected fluids. This applies also to insulin given intramuscularly for the shock therapy of schizophrenia and other psychiatric disorders. In my investigation about 1,000 injections of lyophilized hyaluronidase ranging from 25 to 150 T.R.U. were added to insulin in a group of 37 psychiatric patients. The addition of hyaluronidase to insulin has proved to be a valuable adjuvant to insulin shock therapy by (*a*) reducing the amount of insulin required to produce semicomatose and comatose reactions, (*b*) increasing the effective length of treatment levels, (*c*) eliminating the danger of after-shocks, (*d*) increasing the number of therapeutically valuable reactions, (*e*) decreasing untoward symptoms and signs due to feeding of glucose, (*f*) decreasing the tendency toward convulsions as well as toward restlessness and exhaustion, and (*g*) decreasing untoward strain on the vascular and respiratory systems. The optimal dose of hyaluronidase has been found to be 100 T.R.U., irrespective of the dose of insulin. No untoward local and systemic effects have been noticed. From an economic viewpoint, the savings in insulin and glucose as well as in days of treatment required for a full course of insulin shock therapy make up for the additional expense of the hyaluronidase.

Summary

Investigations carried out on 37 psychotic patients undergoing insulin shock therapy show that hyaluronidase (Wydase) is a valuable adjuvant to this treatment in improving its action and reducing its dangers and side-effects; it is also economical. The use of this modification of routine insulin shock therapy can be recommended safely.

John Wyeth and Brother (Canada) Limited supplied the hyaluronidase (Wydase) used in this study.

References

1. Straccia, F. A., and Scheflein, A. E.: Hyaluronidase as Adjunct in Insulin Coma Therapy, Am. J. Psychiat. **108**: 702-703 (March) 1952.

2. Demay, G.; Mises, R.; Bories, J., and Chanoit, P.: Association de l'hyaluronidase a l'insuline dans la cure de Sakel, Ann. méd.-psychol. **111**: 339-342 (Oct.) 1953.

3. Gysin, W. M., and Wilson, J. L.: Hyaluronidase in Insulin Coma Therapy, Dis. Nerv. System **15**: 138-141 (May) 1954.

4. Greenbank, R. K.: New Aid to Insulin Coma Therapy, Psychiat. Quart. **28**: 395-397 (July) 1954.

Anticoagulant Therapy.—An interrupted schedule of administering maintenance doses of warfarin sodium every third or fourth day has been tried and appears not to be satisfactory in view of the wide fluctuation of prothrombin levels. Administration of warfarin sodium guided by the day's prothrombin determination would seem to be the best method, and, if a pattern is established, the prothrombin determinations safely can be reduced in frequency. Individual dosage requirements vary widely, but for the majority, after an initial dose of 75 mg., daily or every-other-day doses of 12.5 mg. will satisfactorily maintain a proper hypoprothrombinemia.—D. V. Clatanoff, M.D., and O. O. Meyer, M.D., Further Observations on Use of Warfarin Sodium in Anticoagulant Therapy, A. M. A. *Archives of Internal Medicine*, June, 1956.

SPECIAL ARTICLE

DEFENSIVE ASPECTS OF BIOLOGICAL WARFARE

Arnold G. Wedum, M.D., Frederick, Md.

The offensive potential of biological warfare has created public health problems that were not known 10 years ago. For example, the vulnerability of the human respiratory tract as an avenue for infectious aerosols[1] dictates serious attention to the problems associated with the pathogenesis of diseases that can be produced by such means. It follows that the effectiveness of our antibiotics, vaccines, and toxoids will not be fully known until they are evaluated by respiratory challenge of animals or man. This is the most important thought that I wish to emphasize.

In the medical literature there are adequate reports of instances in which the number of organisms required to infect and the effectiveness of therapy in a given disease are significantly different when an animal is inoculated by different routes.[2] For instance, infection of the lung with Streptococcus or with the anthrax bacillus is a much more severe disease than infection of the skin. There is some experimental evidence that the inhalation of infectious particles with diameters of 1 to 5 μ produces a disease that is different and usually more severe than that produced by other means of inoculation.[2] Therefore, I wish to point out specific areas in which test by respiratory challenge is important.

Chemoprophylaxis

First, in regard to the possible value of chemoprophylaxis, the questions of whether antibiotics should be stockpiled and whether they should be made available for chemoprophylaxis, or only for therapy, are serious economically.[3] Consequently, the effectiveness of chemoprophylaxis needs critical examination in the case of each infectious micro-organism. For instance, chemoprophylaxis in malaria is well established, but Ley[4] has reported on its limitations in tsutsugamushi fever (scrub typhus). At Camp Detrick we have several times used prophylactic drugs immediately after laboratory accidents with infectious cultures. Illness has not always been prevented.

It is desirable to know the magnitude of the respiratory challenge against which administration of an antibiotic would protect. The concentration of any dispersed infectious aerosol would not be uniform everywhere, so there would be a significant variation in the respiratory dosage. Examination is needed of other variables and alternatives, such as (1) effect of length of time between inhalation of the organisms and start of administration of the prophylactic drug; (2) value of preexisting immunization; (3) simultaneous immunization and chemoprophylaxis (In this connection, experiments by Henderson[5] showed that monkeys chal-

---

Safety Director, Camp Detrick.

Read before the Research and Development Section, American Drug Manufacturer's Association, Homestead, Va., Nov. 10, 1955, and the Chemical Specialties Manufacturers Association, New York, Dec. 7, 1955.

lenged with aerosols of Bacillus anthracis could be protected by use of penicillin only as long as it was continued. When therapy was discontinued on the fifth day after challenge, a large proportion of the animals developed typical anthrax and died. However, if the animals were actively immunized during chemoprophylaxis, use of the antibiotic could then be discontinued and the animals survived); (4) importance of drug-resistant strains (In some instances, the bacteria may be resistant to the most effective drugs)[1c]; and (5) duration of prophylactic treatment and daily dosage necessary to prevent relapse, to minimize development of drug-resistant strains, and to erradicate foci of organisms in the body that would otherwise reestablish the disease when the patient was subjected to stress. As an example of this last problem, at the Camp Detrick laboratories, Dr. Henry Eigelsbach found that mice challenged with Pasteurella tularensis and treated for 21 days with streptomycin were apparently cured, but, when put under conditions of stress, such as extreme changes in temperature or vigorous exercise in the metabolism cage, they relapsed into active infection and died. These problems need better solutions than are now available before the prophylactic administration of drugs can be recommended.

Treatment

Our knowledge is defective in the second area, therapy of the established illness. Almost all the questions arising in connection with chemoprophylaxis recur in considering therapy. In addition, there is another problem that is coming to the fore, namely, that of the systemic toxicity that continues despite death of the bacteria. There is increasing recognition of diseases in which death of the patient may occur, even though the causative bacteria cannot be isolated at autopsy.[6] In other words, administration of large amounts of an antibiotic virtually sterilizes the patient, yet the toxins or toxic processes established by the bacteria produce a bodily change that results in death. There is a span of time during which the causative organism cannot be isolated from the living patient, and, somewhere in this period, there is a point before which death can be averted but after which death is inevitable under present conditions of available therapy. This is the "point of no return."[7] This point of no return is new only in that experience with antibiotics has allowed us to recognize it.

This phenomenon therefore calls for increased attention to the nonspecific factors that affect immunity. These have been reviewed recently by Nungester.[8] In particular, there is need for attention to possible neutralizers of the toxic products resulting from microbiological invasion. These toxic products may be the critical factors in the new point of no return. In addition to the well-known exotoxins of the bacilli causing diphtheria, tetanus, and botulism, there have been significant toxins derived from other bacteria[9] and from the viral-rickettsial group.[10] It is significant that chlortetracycline has a neutralizing effect on rickettsial toxins.[10] One of the latest is a toxin from the anthrax bacillus, formed only in vivo and associated in a curious and yet not completely known fashion with the anthrax-immunizing antigen.[6a] These considerations lead me to recommend increased emphasis upon study of the toxic processes that occur during acute infections, so that rational procedures may be devised for therapy in cases that are too far advanced to be controlled by use of antibiotics alone.

Antiserum

Our defenses are also weak in the third area, antiserums for diphtheria, tetanus, and botulism. It seems clear that supplies of equine antiserum cannot be produced or stockpiled in quantities adequate for even a moderate outbreak of illness caused by widespread dissemination of the organisms or their toxins. In view of the great advances in chemistry in the past 50 years, it should be possible to develop a chemical neutralizer for these toxins that would remedy this situation. The value of antiserum in the treatment of disease produced by aerosol-disseminated toxin has not been critically examined.

Rapid Laboratory Diagnosis

The fourth area in which respiratory challenge is important, rapid laboratory diagnosis, is a very important consideration in the treatment of infectious disease. The pharmaceutical industry has always been active in this field, and excellent improvements have been made. The Camp Detrick laboratories also have a comprehensive program on rapid detection, with emphasis upon examination of all possible avenues of approach. Extensive use is being made of contracts with private and public medical laboratories and of cooperation with the United States Public Health Service. Some of the interesting methods being examined for potential usefulness are rapid biochemical and bacteriophage techniques, slide agglutination, substrate utilization techniques, and infrared spectrophotometry. The results of these investigations will be made public, in accordance with the Department of Defense policy of releasing medical information pertaining to prevention, diagnosis, and treatment. A paper has already appeared on infrared spectrophotometry.[11]

Vaccines

Vaccines and toxoids constitute the fifth area in which the concept of respiratory challenge is important. This is where probably the best progress is being made, in terms of value to public health practice. The Civil Defense Administration has pointed out,[1a] "Active immunization offers by far the most effective form of civil defense against biological agents for which vaccines are available." Here we are confronted with the fact that a vaccine that will protect against intraperitoneal challenge will not necessarily protect to the same degree against respiratory challenge.[12] Therefore, it would be best to make sure that the vaccine produces respiratory immunity. As in chemoprophylaxis, it would be well to determine the degree of immunity in terms of resistance to an increasing number of organisms.

Another sort of problem is posed by diseases such as tuberculosis in which previous infection or immunization produces a state of hypersensitivity to the causative agent or its products.[13] Immunization might cause such a reactive state that respiratory contact with a large amount of infectious agent could induce a more severe disease than in the absence of immunization. Investigation of this possibility and of therapeutic procedures in hypersensitive reactions of this sort might prove worthwhile.

In this matter of vaccines, I should like to make two recommendations. The first concerns the possibility that an effective immunizing antigen may be present in the culture filtrate when the killed bacterial cells themselves have little or no immunizing activity. Anthrax has become the classic model for this situation. The presence of immunizing antigen in the edematous fluid of anthrax lesions has been known for many years. More recently, Gladstone[11] demonstrated that this antigen was elaborated in vitro when B. anthracis was grown in plasma under particular conditions. Subsequent investigations have been carried out in the Camp Detrick laboratories by Dr. George Wright and his collaborators.[15] In brief, it has been possible to produce the antigen in chemically defined, nonprotein mediums, and alum precipitation of the sterile culture filtrate has yielded a stable and acceptable product that produces effective immunity in a number of animal species. Evidently elaboration of the antigen is associated with a particular kind of metabolic activity of the organisms; many mediums may be devised that support excellent growth, but in which elaboration of antigen cannot be detected. We do not know the extent to which other infectious organisms may behave in an analogous way, but it would seem that the concept of a filterable antigen formed under particular conditions of growth may be a promising approach to the development of vaccines for diseases for which there is now no adequate immunizing substance.

The second recommendation relates to the potentialities of combined vaccines. It is realized that vaccines are not available for all infectious diseases and that there are other difficulties. However, these disadvantages become less important if a standard vaccine already in use by civil or military authorities is combined with vaccine for diseases less prevalent but more severe. It is proposed that such prototype combinations be made, tested, standardized, and adapted to commercial production and the technical directions for preparation be pigeonholed for possible future need. As new vaccines are developed in Camp Detrick laboratories or elsewhere, they will be brought into this plan. We are at present engaged in a small program of this kind. This, of course, is just an extension of a trend in vaccines for preventive medicine that has been present for some time but that, if accelerated, would be more valuable. The combined vaccines used in pediatric practice have been well received by doctors and patients, and the combined typhoid-paratyphoid A and B and cholera vaccine is of long standing. Successful use of the combined immunizing antigens for typhoid, paratyphoid A and B, tetanus, and diphtheria has been reported.

Combination of living vaccines may be more difficult, but it is encouraging that the combined living yellow fever and smallpox vaccines have been used successfully in man.[16] It is desirable that exploratory combinations be made with others, such as the living Rift Valley fever vaccine[17] and the chick-embryo rabies vaccine,[18] in order to determine existence of potentiation or interference. Such studies as this have been made recently with combined living dengue and yellow fever vaccines.[19] Combination of living bacterial vaccines appears to be an unexplored field.

A major obstacle to critical examination of the usefulness of living or killed vaccines has been the reluctance to inoculate man with living vaccines or to test his immunity by challenge with living organisms. An indirect benefit of the trials in Nuremberg, Germany, to the medical profession has been that the conditions justifying the use of man in medical experimentation have been accurately defined.[20] A nonexhaustive survey of the literature shows that man has been inoculated with living vaccines for plague,[21] tsutsugamushi fever,[3] typhus,[22] poliomyelitis,[23] tularemia,[24] dengue,[19] tuberculosis (BCG vaccine), rabies,[18] Colorado tick fever, infectious hepatitis, influenza, and mumps,[25] in addition to the standard living vaccines for smallpox and yellow fever. Furthermore, the natural or acquired immunity or response to therapy of man has been challenged with the living micro-organisms of malaria,[26] typhus,[22] brucellosis,[27] syphilis,[28] tsutsugamushi fever,[29] dengue,[30] and yellow fever (classic) and the virus of serum hepatitis.[31]

Very little has been done by way of respiratory challenge of man with micro-organisms, although cautious experiments have been done with gases, especially in the testing of gas masks. In some instances, adequate evaluation can be obtained in no other way, despite extensive experimentation in animals. Some of the important reasons for the absence of the use of respiratory challenge in microbiological experimentation are the complexity, cost, and infectious hazards associated with the necessary aerosol-exposure equipment.

Means of Respiratory Challenge

The Reyniers exposure chamber[2b] and various modifications thereof are suitable for exposure of laboratory animals and for study of basic problems of size, dispersion, and stability of aerosolized particles. However, its construction is elaborate and its operation difficult, so that a large operating and supporting staff is necessary.

Fortunately much excellent work can be done with simpler equipment.[2a] A device that has been very useful to us is an animal exposure tube known as the Henderson apparatus, developed by Dr. David Henderson and associates of Porton, England. The design drawings and working directions can be made available to qualified organizations. I should like to see this equipment put into use in the research laboratories of our medical schools and pharmaceutical firms. It is desirable that some mechanism be provided so that it can be given to selected academic institutions. I do not believe respiratory disease can be properly studied with infection by intraperitoneal injection or intranasal instillation. The Henderson apparatus can provide rather accurate respiratory dosages under controlled conditions. The English workers use it on an open bench and wear gas masks and other protective clothing. One small well-trained group has done this successfully for four years without infection despite considerable work with Past. tularensis. I prefer that it be enclosed in a ventilated safety cabinet and then masks worn or not, depending upon the organism in use and the state of immunity and therapy.

Summary

Study of the significance to public health of the respiratory route of infection has revealed problems in the pathogenesis, prophylaxis, and therapy of respiratory disease that can be adequately examined only by experimental respiratory challenge. These examinations have yielded, and will continue to yield, advances in medical science for the benefit of all mankind.

205 W. College Terrace.

References

1. (*a*) United States Civil Defense Health Services and Special Weapons Defense, publication AG-11-1, Federal Civil Defense Administration, December, 1950. (*b*) Haas, V. H.: Medical Aspects of Civil Defense in Biologic Warfare, Council on National Emergency Medical Service, J. A. M. A. **145**: 900-905 (March 24) 1951. (*c*) Creasy, W. M.: Biological Warfare, Armed Forces Chem. J. **5**: 16-18, 46-47 (Jan.) 1952. (*d*) *United States Civil Defense:* Civil Defense Against Biological Warfare, TM-11-10, Federal Civil Defense Administration, November, 1953. (*e*) Phair, J. J.: Threat of Biological Warfare, Armed Forces Chem. J. **8**: 14-16 (Jan.-Feb.) 1954.

2. (*a*) Wells, W. F.: Airborne Contagion and Air Hygiene: An Ecological Study of Droplet Infections, Cambridge, Mass., Harvard University Press, 1955. (*b*) Rosebury, T., and others: Experimental Air-Borne Infection, Baltimore, Williams & Wilkins Company, 1947. (*c*) Druett, H. A., and others: Studies on Respiratory Infection. Influence of Aerosol Particle Size on Infection of Guinea-Pig with Pasteurella Pestis, J. Hyg. **54**: 37-48 (March) 1956.

3. Footnotes 1 *d* and *e*

4. Ley, H. L., and others. Immunization Against Scrub Typhus: Living Karp Vaccine and Chemoprophylaxis in Volunteers, Am. J. Hyg. **56**: 303-312 (November) 1952.

5. Henderson, D. W.; Peacock, S., and Belton, F. C.. Observations on Prophylaxis of Experimental Pulmonary Anthrax in Monkey, J. Hyg. **54**: 28-36 (March) 1956.

6. (*a*) Smith, H., and Keppie, J.. Studies on Chemical Basis of Pathogenicity of Bacillus Anthracis Using Organisms Grown in Vivo, in Mechanisms of Microbial Pathogenicity. 5th Symposium of Society for General Microbiology Held at Royal Institute, London, April, 1955, edited by J. W. Howie and A. J. O'Hea, London, England, Cambridge University Press, 1955, pp. 126-151. (*b*) Medical Staff, Department of Medicine, Johns Hopkins University Hospital Personal communication to the author.

7. Keppie, J., Smith, H., and Harris-Smith, P. W.: Chemical Basis of Virulence of Bacillus Anthracis Role of Terminal Bacteraemia in Death of Guinea-Pigs from Anthrax, Brit. J. Exper. Path. **36**: 315-322 (June) 1955.

8. Nungester, W. J.. Nonspecific Factors in Immunity, in Annual Review of Microbiology, 1951-1954, edited by C. E. Clifton, S. Raffel, and R. Y. Stanier, Stanford, Calif., Annual Reviews, Inc., 1954, vol. 8, pp. 363-392.

9. Van Heyningen, W. E. Role of Toxins in Pathology, in Mechanisms of Microbial Pathogenicity: 5th Symposium of Society for General Microbiology Held at Royal Institute, London, April, 1955, edited by J. W. Howie and A. J. O'Hea, London, England, Cambridge University Press, 1955, pp. 17-39.

10. Cox, H. R.. Viral and Rickettsial Toxins, in Annual Review of Microbiology, 1951-1954, edited by C. E. Clifton, S. Raffel, and H. A. Barker, Stanford, Calif., Annual Reviews, Inc., 1953, vol. 7, pp. 197-217.

11. Stevenson, H. J. R., and Bolduan, O. E. A.. Infrared Spectrophotometry as Means for Identification of Bacteria, Science **116**: 111-113 (Aug. 1) 1952

12. Wagner, J. C., Meiklejohn, G., Kingsland, L. C., and Hickish, H. W.: Psittacosis Vaccines Prepared from Chick Embryo Tissues, J. Immunol. **54**: 35-46 (Sept.) 1946.

13. Raffel, S.. Immunity: Hypersensitivity, Serology, New York, Appleton-Century-Crofts, Inc., 1953, chap. 15.

14. Gladstone, G. P.: Immunity to Anthrax: Protective Antigen Present in Cell-Free Culture Filtrates, Brit. J. Exper. Path. **27**: 394-418 (Dec.) 1946.

15. Wright, G. G., Green, T. W., and Kanode, R. G.. Studies on Immunity in Anthrax Immunizing Activity of Alum-Precipitated Protective Antigen, J. Immunol. **73**: 387-391 (Dec.) 1954.

16. Dick, G. W. A., and Horgan, E. S.. Vaccination by Scarification with Combined 17D Yellow Fever and Vaccinia Vaccine, J. Hyg. **50**: 376-383 (Sept.) 1952.

17. Smithburn, K. C.: Rift Valley Fever: Neurotropic Adaption of Virus and the Experimental Use of This Modified Virus as Vaccine, Brit. J. Exper. Path. **30**: 1-16 (Feb.) 1949.

18. (*a*) Cabasso, V. J., Cox, H. S., and Markham, F. S.. Control of Viral Infections with Modified Live Viruses, Scientific Exhibit, 104th Annual Meeting of the American Medical Association, June 6-10, 1955. (*b*) Schwab, M. P., Fox, J. P.; Conwell, D. P., and Robinson, T. A.: Avianized Rabies Virus Vaccination in Man, Bull. World Health Organ. **10**: 823-835, 1954.

19. Schlesinger, R. W., and others: Response of Man to Attenuated Dengue and Yellow Fever Viruses, in Bacteriological Proceedings, 1955, Society of American Bacteriologists, Baltimore, Williams & Wilkins Company, 1955, p. 70.

20. (*a*) Shimkin, M. B.; Guttentag, O. E.; Kidd, A. M., and Johnson, W. H.: Problem of Experimentation on Human Beings, Science **117**: 205-215 (Feb. 27) 1953. (*b*) Ladimer, I.: Human Experimentation, Medicolegal Aspects, read before the 104th Annual Meeting of the American Medical Association, Atlantic City, N. J., June 8, 1955.

21. Meyer, K. F.: Immunity in Plague: Critical Consideration of Some Recent Studies, J. Immunol. **64**: 139-163 (March) 1950.

22. Fox, J. P.: Review of Experience with Avirulent Strain of R. Prowazeki (Strain E) as Living Agent for Immunizing Man Against Epidemic Typhus, Am. J. Pub. Health **45**: 1036-1048 (Aug.) 1955.

23. Markham, F. S.: Problems and Prospects in Virus Immunization, J. Iowa M. Soc. **44**: 505-509 (Nov.) 1954.

24. Faibich, M. M., and Ramanna, T. S: Dry Living Tularemia Vaccine of NIIEG of Red Army, Zhur. mikrobiol., epidemiol. i immunobiol., no. 7, pp. 59-63, 1946.

25. Cox, H. R.: Living Modified Viruses as Immunizing Agents, Brit. M. J. **2**: 259-265 (July 31) 1954.

26. Whorton, C. M., and others: Chesson Strain of Plasmodium Vivax Malaria: Immunity, J. Infect. Dis. **81**: 1-6 (July-Aug.) 1947.

27. Morales-Otero, P.: Further Attempts at Experimental Infection of Man with Bovine Strain of Brucella Abortus, J. Infect. Dis. **52**: 54-59 (Jan.-Feb.) 1933.

28. Olansky, S., and others: Inoculation Syphilis in Human Volunteers, Scientific Exhibit, 104th Annual Meeting of the American Medical Association, June 6-10, 1955.

29. Ley, H. L., Jr.; Smadel, J. E.; Diercks, F. H., and Paterson, P. Y.: Immunization Against Scrub Typhus. Infective Dose of Rickettsia Tsutsugamushi for Men and Mice, Am. J. Hyg. **56**: 313-319 (Nov.) 1952.

30. Sabin, A. B.: Research on Dengue During World War II, Am. J. Trop. Med. **1**: 30-50 (Jan.) 1952.

31. Henle, W.; Drake, M. E.; Henle, G., and Stokes, J., Jr.: Evidence for Propagation of Virus of Serum Hepatitis in Chick Embryo, Arch. ges. Virus Forsch. **4**: 612-620, 1952.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. KAUTZ, M.D., *Secretary.*

Use of Sodium Acetrizoate for Cerebral Angiography

The Council was requested to evaluate the usefulness and safety of sodium acetrizoate for cerebral angiography. This water-soluble organic iodine compound previously has been found suitable as a contrast medium for intravenous (excretory) urography, retrograde (transureteral) pyelography, intravenous nephrography and angiocardiography, translumbar arteriography, and intraductal cholangiography. On the basis of currently available evidence, the Council concluded that it is also useful for the visualization of the cerebral arteries; however, sufficient evidence and clinical experience have not been accumulated to permit a definite conclusion regarding its efficacy or toxicity as compared to other agents used for this purpose.

The dosage of sodium acetrizoate for cerebral angiography varies, but in general the total volume administered as a single injection probably should not exceed 10 cc. This is injected as a 30% solution into the external carotid artery immediately before roentgenographic exposure. Severe and dangerous reactions may occur if the 70% solution is injected accidentally; hence, extreme caution should be exercised regarding the proper concentration.

The Council voted to amend New and Nonofficial Remedies accordingly to describe the use of sodium acetrizoate for cerebral angiography.

Mallinckrodt Chemical Works cooperated by furnishing scientific data to aid in the evaluation of the use of sodium acetrizoate for cerebral angiography.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

DELIVER US FROM EVIL

GUEST EDITORIAL

Thomas A. Dooley, M.D.

The author of the now widely read book "Deliver Us from Evil" is a young physician who saw, while in the United States Navy, the atrocities that can be committed during war. He improvised a medical camp at Haiphong in North Viet-Nam and became an unsung hero to the natives during the evacuation of North Viet-Nam. With 600,000 refugees to worry about he knew no cessation from his own battle against disease and propaganda that taught, among other things, that Americans were monsters who ate their own children.

Dr. Dooley's book is the subject of a movie now being made. He has resigned from the Navy to return as a civilian to the area where he believes so much can be done. Elsewhere in this issue (page 65) are printed the plans for the medical mission to the kingdom of Laos. Its real title is "Operation Laos of the International Rescue Committee." This organization cannot give Dr. Dooley financial support, so he is using the royalties from his book to pay for the mission. Not long ago Dr. Dooley wrote to the Editor, in part: "Asking around the country to the large pharmaceutical houses and business concerns has given me real insight into our capitalistic system. It has splendor and wonder. Every single outfit I requested supplies from has given me about five times what I asked for . . . yesterday Willys gave me a jeep and the Navy an eight-month supply of field rations . . . if you have a minute say a short prayer for my new work."

Dr. Dooley, all of us send our prayers to you for your work, and we also pray you can help others less fortunate than us to understand the benefits of freedom and of the way of life that is possible only under freedom.—ED.

It is a not-so-pious platitude of godless communism that 90% of the world is steeped in misery and wretchedness. Adding together the massive millions of China, India, Russia, and the uncounted masses of dark Africa, one indeed finds the number to be formidable, especially when the number is compared to the near-minute 170 million Americans who live in comfort. In misery one finds discontent. Discontent breeds the potential for revolution. Moscow-trained professional revolutionists throughout the world are fanning the passions of this discontent. We have witnessed the earth-shaking results.

Including the neutrals of the world, if there really are such things, the professional revolutionists of Stalin have succeeded in wrenching half of all mankind from freedom and plunging them behind a curtain of silence, of iron and bamboo. From the time of the Bolshevik revolution, through the flight to freedom of Viet-Nam at this very moment, hundreds of thousands of people have tried to leave, to escape, to crack through this curtain and achieve or regain their liberty. To them "liberty" and "freedom" have a living value. They are not terms thrown around promiscuously by national leaders, but they are succinct, terse cages in which magnificent ideas are held; they are living, thriving entities portraying all that is goodness. Liberty and freedom to those behind the curtain are a pounding, ever-present dream.

To dream is easy. To escape is difficult. I saw 600,000 who fled. The memory returns like a searing flame. Their anguish. Their panic. Their tears. Their haggard women. Their exhausted children. Their fear. The atrocities. The horror. The death. No one who has ever witnessed such a heartbreaking exodus will forget it for the rest of his life.

It has long been known that a vital and powerful arm of foreign policy of any nation is to be found in medicine and the men of medicine. As physicians in a free land we find within the hierarchy of our duties that we can be of special service to our country as instruments of that policy. American medicine in foreign lands primarily as help but secondarily as an illustration of the intentions, achievements, and policy of our land—herein is our special service. Herein is our nation's special strength. Progress comes of making the most of our strength rather than looking for ways to repair weakness. Fulfilling this service, utilizing this strength, is the highest achievement of honor and duty for American physicians in this time of history bullied by ruthlessness, ravage, and ruin. This challenge to help on distant soil is flung to each American doctor from the first day out of his internship to the last day before he lays down his stethoscope.

Medicine in the underdeveloped, stricken areas of the world has many facets. One large aspect is to be found in aiding those who have escaped from the claws of communism. In Viet-Nam, Laos, Cambodia, Thailand, Formosa, Malaya, India, Israel, and Jordan literally millions of humans are living in temporary shelters, in huge tent-cities, in small wooden huts—in refugee camps. Here a doctor finds the gauntlet hurled at him.

The problems confronting the new doctor in a refugee camp, especially if he is young and inexperienced, appear at first sight to be staggering. As times goes on, they remain staggering. Years later, when the doctor sits in the dressing room of a stateside operating room suite and discusses the problems of his "old refugee camp" half a world away, the problems still loom up staggering. Our schooling is not directed toward this type of practice. I distinctly remember my professor in medical school speaking of smallpox and saying, "Don't worry, you graduates of '53, unlike those of '23, will never see smallpox." One year later, in a three-day period, I lost 157 children from this putrid horror alone.

The problems that the doctor will have to handle in a refugee camp, especially in Asia, fall into two categories: medical problems, usually of an epidemic nature, and sociologic problems, often more overwhelming. The second category is more important, because unless these problems are resolved, at least to a marginal extent, no medicine can be passed out, not a needle can touch the skin, not a person will have any trust.

The medical problems need little explanation; mention will be enough. The task of feeding is enormous. One must have nourishing and palatable food, palatable by their taste-test, not ours. In Viet-Nam we gave 600 gm. of rice to each person per day, along with one fish and some foul-smelling local sauce made of decaying carp (*nuoc mom* is called the chili sauce of the Orient).

Potable water must be processed. This is extremely important. We had a small Navy machine that did our job, filtering and chlorinating one gallon per refugee per day. Sometimes this was as much as 15,000 gallons per 24-hour period. There are disposal problems. Disposal of waste cooking products was an extremely small problem. Disposal of human waste products was a gigantic one. Fifteen thousand people in one relatively small camp produced a fantastic problem in plumbing. (You do not have to be a board-qualified specialist to learn this.)

Burial of the dead without offending local tradition is difficult. Though this seems a small problem, one soon runs out of available cemetery space when he loses 15 to 20 people a day. In Viet-Nam we buried one coffin on top of another, with one religious service per three coffins. The refugees of North Indo-China had undergone atrocity and torture and in many areas had suffered from starvation. They arrived in our camps barely clinging to life. Many lost hold.

Immunization against cholera and smallpox is imperative; I wish the pharmaceutical houses would develop one vaccine for the two and one that would not require refrigeration. Though cholera annihilated villages up the delta from our camp, we had no epidemics within the camp proper. Smallpox was rampant in the North, but, when the refugee children arrived with the pox, they were immediately isolated. Rarely did new cases spring up from within the camp. Isolation techniques similar to U. S. standards were impossible, but a feeble attempt met with some success.

The diseases seen at sick call daily were like the index to the tropical medicine course. With no electricity, no x-ray, no laboratory, no nurses, and no microscope, one finds oneself saying, "It looks like the picture, smells like they say it should, has a few of the characteristic signs and symptoms—it must be—I'll treat it as if it was, if the patient is cured in 10 days —I was right." This is offensive to many in medicine, but the exigencies of the situation sometimes rob us of our highest ideals. There are no purists working in a refugee camp.

Surgery should never be attempted unless absolutely needed. News of one death from a scalpel or even weeks after a surgical procedure will spread around the camp, and the doctor will be in a situation where he has 15,000 people in his camp and no one will let him touch them. Skin infections are common in the Orient and can frequently be cured rapidly. The clearing up of a micrococcic skin infection with the miraculousness of a penicillin-effected remission of yaws is the most spectacular cure encountered. The "propaganda" effect on natives is amazing. One assumes a godlikeness in a village when he eradicates yaws. And it is a relatively simple task to do this. (No worry over sensitivity tests or tolerance here.)

I believe, however, in spite of the medical problems encountered, the sociologic problems and their ensuing complications are far more important. This is especially true in the Orient. Let us not forget for one minute that the majority of the people one will see in such a situation as we had in Indo-China will be of a group who have seldom seen a white man. They have never seen a physician. They have never ever seen an American. The majority of the people believe that, when a child has a swollen belly, a palpable spleen, and a blazing fever, he dies. The idea of chloroquine curing this child's malaria is unbelievable. Let us not forget that the type of people that one will find in a refugee camp truthfully believe that it is just as normal to find death stalking every child and every infant as we in America believe it is normal to find death stalking a man in his 80's.

In a refugee camp, then, the physician suddenly finds himself a number of "persons"—the first doctor, the first American, the first Caucasian, the first believed-to-be-monster—and, in a short time, if he does not do an adequate job, he will be the first to be asked to leave, sometimes forcibly. Sociologically he has to combat centuries of tradition and custom. Though they do not sound important, tradition and custom are as real and thriving as they are appalling and frustrating. Strings around the wrists, beads around the neck, tobacco into the ears, and hundreds of other medieval—no, earlier than medieval—customs still command the Orient. The high priestess of these is the grandmother. The grandmothers of Asia are 10 times worse than the most malignant mothers-in-law of America. If you can win the haggard, wrinkled old grandmother to your side and get her to believe in penicillin, or sometimes even soap and water, then you can easily convince the rest of the village.

Understandably the people have a great fear of the American. Never have they seen a person so fast, so strange, so tireless, so mechanical, and with such odd looking orbital structures. (He looks well fed; does he really eat children?) Even to many American patients the doctor's armamentarium of glistening instruments is a sight to behold. Put a mirror on your head, a stethoscope around your neck, a syringe and needle in your hand, and a table of glass jars in front of you; paint an arm with Merthiolate; and speak a mumbo jumbo called medical English—you certainly are frightening.

In some areas of the Orient there is a very special problem, Communist propaganda. This follows the same pattern as used in other parts of the world. That aimed at medicine usually proclaims that our needles will inject bacteriological warfare, our DDT will render the people sterile, and our soaps on a child's scalp will make him feeble-minded. They claim we will bring air-borne death to the earth-born people of Asia. Doctors are a special brand of ogres developed in monstrous America and sent to foreign lands to experiment fiendishness. To overcome this we must show persistence in our gentleness. We can never run out of compassion. We must understand and grow to love our patients. The former is always hard, but the latter is an easily acquired joy. With perseverance we can show our nation's policy of aid and God's policy of charity to our brothers. Dr. Albert Schweitzer was correct when he said, "I don't know what your destinies will be, but one thing I know: the only ones amongst you who will be really happy are those who will have sought and found, how to serve."

To implement our foreign policy of aid and help to those underdeveloped and threatened communities of the world, a physician has a special calling. Through the World Health Organization, UNESCO, CARE, the International Rescue Committee, the Public Health Service, the State Department, the International Cooperation Administration, and a myriad of other such organizations, we can work to help those who, like my sailors used to say, "ain't got it so good."

From a war not so long ago, though two have succeeded it, there emerged a great poem, "Flander's Field." The closing lines said: "Take up the torch from we the dead." The hands of medicine, with gentle arms extended to noble but wretched people, can best hold up the torch of light, the torch of health, the torch of freedom.

MEDICAL EXAMINER VERSUS CORONER SYSTEM

At irregular intervals for over 100 years, the American Medical Association has been concerned with the need for improvement in both the quality and the quantity of medicolegal investigations in many parts of the United States. In 1855 a committee was appointed by the House of Delegates of the American Medical Association to report what measures should be adopted to remedy the evils then existing in the methods of holding coroners inquests "by which the lives and liberties of the innocent may be jeopardized, and the ends of justice frustrated." Through the years committees were appointed, investigations and studies made, and reports given, and in 1948 the House of Delegates adopted a report of its Reference Committee on Reports of Board of Trustees and Secretary that stated in part: "The Medical Examiner: It is noted with considerable interest that the coroner-medical examiner system is gradually replacing the old coroner system. . . . Your committee wishes to reemphasize the previous pronouncements of this House in favor of the medical examiner system to replace the antiquated coroner system."

A few years later, the American Medical Association, through the Committee on Medicolegal Problems and the former Bureau of Legal Medicine and Legislation, collaborated with a number of other interested organizations (American Bar Association, American Academy of Forensic Sciences, American Judicature Society, National Municipal League, and National Civil Service League) in the preparation of a draft law that could be used as a model by state legislatures wishing to take action in this field. The result of this collaboration was the approval, in 1954, by the National Conference of Commissioners on Uniform State Laws of a "Model Post-Mortem Examinations Act." The purpose of this act, according to a prefatory note of the commissioners, is "to provide a means whereby greater competence can be assured in determining causes of death where criminal liability may be involved." Unfortunately, copies of the model act were not available for distribution until too late for the 1955 state legislatures to consider the subject matter represented by its provisions.

Often in the past, the pages of The Journal have reflected the opinion of the profession that there is much room for improvement in the quality and quantity of medicolegal investigations and have urged the profession to take the steps necessary to accomplish such improvement. Now is the appropriate time for committees of state medical societies to consider the creation of a statewide medical examiner system in formulating programs for presentation to the 1957 state legislature.

According to the National Municipal League, which is spearheading the campaign to improve state medicolegal investigative facilities, substantial compliance with the principles of the model law now exists in Massachusetts, Maryland, Virginia, Arkansas, Rhode Island, North Carolina, Georgia, Vermont, Louisiana, and parts of other states; in four populous counties in Texas; in Arizona,, Detroit, Philadelphia, Los Angeles, Miami; and under new permissive laws in some counties of Michigan, New York, and North Dakota. In addition, Oregon will vote in November, 1956, on a constitutional amendment to remove coroners from the state constitution.

The fact that many of these endeavors received active support from the physicians in the areas involved indicates that the profession is not insensitive to its civic obligations. State society legislative committees that are laying the groundwork for this kind of activity during 1957 would be well advised to welcome the help that can be given by the National Municipal League in acquainting legislators with the provisions of, and need for, a Model Post-Mortem Examinations Act.

ORGANIZATION SECTION

THE SCIENTIFIC EXHIBIT AT CHICAGO

REPORT OF COMMITTEE ON AWARDS

The Committee on Awards has made the following report of the awards given at the 1956 Annual Meeting of the American Medical Association.

Hektoen Medal

The Hektoen Medal is presented for exhibits of original investigation, which are judged on the basis of originality and excellence of presentation. Three awards are made, consisting of gold, silver, and bronze medals.

Hektoen Gold Medal to Samuel Rosen, New York, for the exhibit on Mobilization of Stapes for Otosclerotic Deafness.

Hektoen Silver Medal to Edwin H. Ellison, Ohio State University Health Center, Columbus, Ohio, for the exhibit on the Ulcerogenic Tumor of the Pancreas.

Hektoen Bronze Medal to Harold J. Magnuson and Joseph Portnoy, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C., for the exhibit on Treponema Pallidum Complement-Fixation Test.

Billings Medal

The Billings Medal is presented for exhibits that do not exemplify purely experimental studies but are judged on the basis of excellence of correlating facts and excellence of presentation. Three awards are made, consisting of gold, silver, and bronze medals.

Billings Gold Medal to W. D. Snively Jr., M. J. Sweeney, and Martha Wessner, St. Mary's Hospital, Evansville, Ind., for the exhibit on the Body Fluids: Foundation Facts, Clinical Diagnosis, Therapy.

Billings Silver Medal to R. B. Hogan, M. M. Brooke, G. R. Cooper, D. S. Martin, and M. Schaeffer, Communicable Disease Center, Public Health Service, U. S. Department of Health, Education, and Welfare, Atlanta, Ga., for the exhibit on Laboratory Techniques in the Diagnosis of Communicable Diseases.

Billings Bronze Medal to Roderick D. Turner and Elmer Belt, University of California School of Medicine at Los Angeles, for the exhibit on Surgical Techniques of Total Perineal Prostatectomy.

Section Awards

Certificates of Merit and Honorable Mention were awarded to the following exhibits in each Section.

Section on Anesthesiology

Certificate of Merit to Reuben C. Balagot, Rosauro Ma. Reyes, Gareth B. Gish, and Max S. Sadove, University of Illinois College of Medicine, Chicago, for the exhibit on Pulmonary Edema: Antifoam Agents.

Honorable Mention to William K. Bannister and David M. Little, Hartford Hospital, Hartford, Conn., for the exhibit on Physiological Treatment of Asphyxia Neonatorum.

Section on Dermatology

Certificate of Merit to Robert F. Tilley, John Adams Jr., Chester N. Frazier, and Robert Griesemer, Masssachusetts General Hospital and Harvard Medical School, Boston, and George Odland, Seattle, for the exhibit on Tuberculosis of the Skin.

Honorable Mention to Louis C. Zopf and Seymour Blaug, the United States Pharmacopeia, New York, for the exhibit on Dermatological Preparations.

Honorable Mention to Richard J. Rowe and Harland C. Dangle, Marshfield Clinic, Marshfield, Wis., for the exhibit on Dermatological Lesions Seen in General Practice.

Section on Diseases of the Chest

Certificate of Merit to Aldo A. Luisada and C. K. Liu, Chicago Medical School, Chicago, for the exhibit on Patterns of Cardiovascular Pressure Pulses Obtained by Catheterization.

Honorable Mention to Henry T. Nichols, Clarence Denton, and Joseph F. Uricchio, Hahnemann Medical College, Philadelphia, for the exhibit on Mitral Insufficiency: Correction by Polar Cross Plication of the Annulus Fibrosis.

Section on Experimental Medicine and Therapeutics

Certificates of Merit to Albert Sjoerdsma, Luther L. Terry, and Sidney Udenfriend, National Heart Institute, Bethesda, Md., for the exhibit on Malignant Carcinoid, A New Metabolic Disorder.

Honorable Mention to Carroll A. Handley, John H. Moyer, and R. A. Seibert, Baylor University College of Medicine, Houston, Texas, for the exhibit on the Action of Mercurial Diuretics and the Fractionation of Excretory Products.

Section on Gastroenterology and Proctology

Certificate of Merit to C. F. Code, A. M. Olsen, F. E. Donoghue, H. A. Andersen, B. Creamer, F. E. Fyke Jr., and A. H. Bulbulian, Mayo Clinic and Mayo Foundation, Rochester, Minn., for the exhibit on Esophageal Motility: Dynamics of Deglutition in Health and Disease.

Honorable Mention N. C. Hightower, A. C. Broders Jr., R. D. Haines, A. W. Sommer, and J. F. McKenney, Scott and White Clinic, Temple, Texas, for the exhibit on Chronic Ulcerative Colitis: Diagnostic and Therapeutic Considerations.

Honorable Mention to David C. H. Sun and Harry Shay, Temple University School of Medicine, Philadelphia, for the exhibit on Value of Proper Dosage of Anticholinergic Drugs in Treatment of Peptic Ulcer: Optimal Effective Dose.

Section on General Practice

Honorable Mention to Franklin M. Foote, Willis S. Knighton, and Virginia Smith Boyce, National Society for the Prevention of Blindness, New York, for the exhibit on Early Detection of Glaucoma.

Honorable Mention to H. E. Nieburgs, Beth El Hospital, New York, for the exhibit on Control of Cervical Carcinoma by General Population Screening: The Floyd County Project.

Section on Internal Medicine

Certificate of Merit to Goronwy O. Broun and Rose Rita Schmidt, St. Louis University School of Medicine, St. Louis, for the exhibit on Epidemiology of Influenza as Demonstrated by a Study of Serum Pools.

Certificate of Merit to Bernard H. Ostrow, Daniel Steinberg, Howard E. Ticktin, and John M. Evans, George Washington University School of Medicine, Washington, D. C., and National Heart Institute, National Institutes of Health, Bethesda, Md., for the exhibit on Serum Glutamic Oxaloacetic Transaminase (G. O. T.) in Myocardial Infarction.

Section on Laryngology, Otology and Rhinology

Certificate of Merit to Irving M. Blatt, Philip Rubin, James H. Maxwell, John F. Holt, and John E. Magielski, University of Michigan Medical School, Ann Arbor, for the exhibit on Secretory Sialography in Health and Disease.

The Committee on Awards was composed of the following physicians: Frank W. Konzelmann, Washington, D. C., Chairman; O. P. J. Falk, St. Louis; Richard A. Mills, Fort Lauderdale, Fla.; Sam H. Sanders, Memphis, Tenn.; and W. Walter Wasson, Denver.

Honorable Mention to Maurice H. Cottle, George G. Fischer, and Roland M. Loring, Chicago, Ralph H. Riggs, Shreveport, La., and Ivan W. Philpott, Denver, for the exhibit on Early Nasal Injuries: A Factor in Facial and Dental Deformity.

Section on Military Medicine

Certificate of Merit to Sylvester F. Williams, Elmer R. King, and T. G. Balbus, U. S. Naval Hospital, Bethesda, Md., for the exhibit on Clinical Diagnostic Studies Utilizing Radioactive Isotopes.

Honorable Mention to Charles Huggins and Edwin L. Carter, Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md., for the exhibit on Experimental Hepatic Surgery Employing Differential Hypothermia.

Honorable Mention to S. W. French III, Herbert T. Berwald, and Joseph L. Hannon, Letterman Army Hospital, San Francisco, for the exhibit on the Pulmonary Coin Lesion: A Harmless Looking Killer.

Section on Nervous and Mental Diseases

Certificate of Merit to Maurice L. Silver, Providence, R. I., for the exhibit on Simplified Method of Cerebral Angiography.

Honorable Mention to Robert S. Schwab, Benjamin Castleman, Oliver Cope, Richard Sweet, James Vanderbeen, and Henry R. Viets, Massachusetts General Hospital, Boston, for the exhibit on Thymectomy in Myasthenia Gravis.

Section on Obstetrics and Gynecology

Certificate of Merit to Frederick H. Falls and Charlotte S. Holt, Illinois Department of Public Health and University of Illinois College of Medicine, Chicago, for the exhibit on Version and Extraction.

Honorable Mention to Joseph W. Kelso and Joseph W. Funnell, Oklahoma City, for the exhibit on Surgical Management of Carcinoma of the Cervix.

Section on Ophthalmology

Certificate of Merit to Bertha A. Klien, University of Chicago, the School of Medicine, Chicago, for the exhibit on Survey of Pathogenesis and Treatment of Retinal Venous Occlusion.

Honorable Mention to David Volk, Western Reserve University School of Medicine, Cleveland, for the exhibit on Aids to Subnormal Vision.

Section on Orthopedic Surgery

Certificate of Merit to D. C. Dahlin, R. K. Ghormley, E. D. Henderson, and M. B. Coventry, Mayo Clinic and Mayo Foundation, Rochester, Minn., for the exhibit on Bone Tumors: Analysis of 2,276 Primary Neoplasms of Bone Seen at the Mayo Clinic 1905-1955.

Honorable Mention to Dan R. Baker, Guthrie Clinic, Sayre, Pa., and William J. McHolick, McBride Clinic, Oklahoma City, for the exhibit on Spondyloschisis and Spondylolisthesis in Children.

Section on Pathology and Physiology

Certificate of Merit to Harry F. Weisberg, Mount Sinai Medical Research Foundation and the Chicago Medical School, Chicago, for the exhibit on a Better Understanding of Anion-Cation (Acid-Base) Balance.

Honorable Mention to Chandler McC. Brooks, Brian F. Hoffman, and E. E. Suckling, State University of New York College of Medicine at New York City, Brooklyn, N. Y., for the exhibit on Physiological States in Sleep.

Section on Pediatrics

Certificate of Merit to Willis J. Potts, W. L. Riker, Arthur DeBoer, and Thomas G. Baffes, Children's Memorial Hospital, Chicago, for the exhibit on Intestinal Obstruction in Newborn Infants.

Honorable Mention to Bohdan Dobias, New York, and Walter Mitchell Jr., Newark, N. J., for the exhibit on *Diagnosis and* Treatment of Moniliasis in Pediatrics.

Section on Physical Medicine

Certificate of Merit to Edward E. Gordon, Michael Reese Hospital, Chicago, for the exhibit on What Price Ambulation? A Study of the Indications and Contraindications for Paraplegic Ambulation.

Honorable Mention to Ray Piaskoski, Robert W. Boyle, Edwin C. Welsh, Paul A. Dudenhoefer, Albert M. Cohen, and DeLore Williams, Marquette University School of Medicine, Milwaukee, for the exhibit on Preventive Measures in the Management of the Hemiplegic.

Section on Preventive and Industrial Medicine and Public Health

Certificate of Merit to Howard Hansen, N. K. Weaver, and J. T. Perret, Esso Standard Oil Co., Baton Rouge, La., for the exhibit on Arteriosclerotic Hearts at Work.

Honorable Mention to D. O. Hamblin, Harold H. Golz, and C. Boyd Shaffer, New York, for the exhibit on Phosphate Ester Insecticide Poisoning.

Section on Radiology

Certificate of Merit to Franz P. Lessmann, Robert Schobinger Von Schowingen, Elliott C. Lasser, and Paul Zuckerman, Roswell Park Memorial Institute, Buffalo, N. Y., for the exhibit on Clinical Applications of Intraosseous Venography.

Honorable Mention to Lawrence Reynolds, William M. Tuttle, Harold E. Fulton, and George F. Boone, Harper Hospital, Detroit, for the exhibit on Preoperative Roentgen Studies in Primary Lung Carcinoma.

Honorable Mention to Charles M. Greenwald, Thomas F. Meaney, and C. Robert Hughes, Cleveland Clinic, Cleveland, for the exhibit on Chordoma.

Section on Surgery, General and Abdominal

Certificate of Merit to George T. Pack, Gordon P. McNeer, Richard Brasfield, Kathleen E. Roberts, Douglas A. Sunderland, Louis G. Ortega, and Henry T. Randall, Memorial Hospital, New York, for the exhibit on Treatment of Gastric Cancer.

Certificate of Merit to Alton Ochsner, Robert J. Schramel, John B. Blalock, Jack Harold Keeling, and Jack A. Haley, Tulane University School of Medicine and Ochsner Clinic, New Orleans, for the exhibit on Carcinoma of the Lung.

Honorable Mention to James F. Connell Jr., William Philip, Frank Gilbertson, and Louis M. Rousselot, St. Vincents Hospital, New York, for the exhibit on the Problem of the Nonadherent Surgical Dressing.

Section on Urology

Certificate of Merit to Edwin L. Prien and Burnham S. Walker, Boston University School of Medicine, Boston, for the exhibit on Salicylate Therapy for Recurrent Calcium Urinary Stone.

Certificate of Merit to Albert E. Goldstein, B. S. Abeshouse, Cafer Yildiran, Morton Goldfarb, and Hannah Silberstein, Hoffberger Urological Research Laboratory, Sinai Hospital and University of Maryland School of Medicine, Baltimore, for the exhibit on Bladder Substitutes: An Experimental Study in Dogs.

Section on Miscellaneous Topics

Honorable Mention to Oren C. Durham, Abbott Laboratories, North Chicago, Ill., and David Merksamer, Jewish Hospital, Brooklyn, N. Y., for the exhibit on Air-Borne Mold Spores in Seasonal Allergy.

Exhibit Symposium on Traffic Accidents

Certificate of Merit to Claire L. Straith, Richard E. Straith, Joseph D. Carlisle, and Burns G. Newby, the Straith Memorial Hospital, Detroit, for the exhibit on Treatment of Traffic Injuries.

Honorable Mention to E. C. Paul, Indiana State Police, Indianapolis, for the exhibit on Auto Crash Injury Research.

Exhibit Symposium on Arthritis and Rheumatism

Honorable Mention to L. Maxwell Lockie and John H. Talbott, University of Buffalo School of Medicine and Buffalo General Hospital, Buffalo, N. Y., for the exhibit on Gout.

Honorable Mention to Edward W. Lowman, Institute of Physical Medicine and Rehabilitation, New York, for the exhibit on Self-Help Devices for the Arthritic.

Subsidized Exhibits

The Committee on Awards commends highly the Special Exhibits on Fractures, Gross Pathology, Pulmonary Function Testing, P. E. for every M.D., and the Cardiovascular Demonstrations.

Appreciation

A Certificate of Appreciation is awarded to J. M. Sanchez-Perez, Mexico City, Mexico, for the exhibit on Automatically Controlled Stereo-Serio-Cerebral Angiography.

A Certificate of Appreciation is awarded to André Mackay, Armand Trépanier, and Maurice R. Dufresne, Hospital Notre Dame, Montreal, Canada, for the exhibit on Selective Segmental Bronchography.

Comment

The Committee on Awards wishes to point to the improvement in the general excellence of presentation and also to the increasing interest in original investigation of high quality that has brought forth meritorious exhibits in this class. It, therefore, wishes to commend all of the other exhibitors for their efforts in the preparation and diligence in the demonstration of their exhibits.

The Committee also wishes to commend the professional staff of Dr. Thomas G. Hull for their efforts in making this Scientific Exhibit a success.

ACTIONS BY BOARD OF TRUSTEES

The following actions were taken by the Board of Trustees at its meeting in Chicago on June 7-14, 1956.

Clinical Meeting

Dallas, Texas, was selected by the Board of Trustees as the place for the 1959 Clinical Meeting of the American Medical Association. A suitable date will be selected at a future time.

Military Medical Activities

The Council on National Defense was authorized to continue its study of the "Doctor-Draft" act, which expires on June 30, 1957. The Council feels that additional information is needed before a recommendation can be made to the Board on this subject.

An expanded public relations program on military medical activities of the Council on National Defense, its Committee on Military Medical Affairs, and the American Medical Association was approved. It is planned to publish more material in THE JOURNAL, the *Armed Forces Medical Journal,* and the *Student A. M. A. Journal* on subjects of interest to the profession.

The Board also approved a recommendation that the dual compensation laws restricting the employment of retired officers by the federal government be revised. A relaxation of the current laws would permit the employment of experienced personnel in the fields of medicine, electronics, guided missiles, radar, and atomic energy. These are all fields vital to the national defense.

Authorization was given to send a letter to the Secretary of the Navy and the Secretary of the Army urging the Secretary of Defense to issue the necessary directive so that medical control of the Armed Forces Medical Procurement Agency would be maintained through the retention of the surgeons general of the departments of the Army, Navy, and Air Force for advice, selection, and control of items of medical equipment and supply necessary in the proper scientific treatment of patients.

Rural Health

Approval was given to a request from the Council on Rural Health for a conference of state rural health chairmen, to be held at Purdue University in the fall of 1956.

Industrial Ophthalmology

The Board authorized the appointment of an advisory committee on industrial ophthalmology by the Council on Industrial Health. The members of this committee will be selected from the field of ophthalmology, rather than from any special group, and will function under the aegis of the Council. This committee replaces the present committee on this subject of the Section on Ophthalmology of the A. M. A.

World Medical Association

In response to a communication from the secretary general of the World Medical Association, the Board referred to the Council on Medical Service, for its study, the question of the role of the individual physician in the field of preventive medicine and what the principles should be in establishing cooperation between practicing physicians and public health officials.

The Board also voted not to approve of the World Medical Association assuming "administrative responsibility" for international awards.

Dr. Raymond B. Allen has accepted the presidency of the Second World Conference on Medical Education sponsored by the W. M. A., to be held in Chicago in 1959. A program committee for this conference has been appointed.

World Health Organization

The 10th anniversary of the signing of the constitution of the World Health Organization will occur in 1958. The Board supported a suggestion that an invitation be issued to hold the 1958 World Health Assembly in the United States.

Public Relations Conference

At the request of the Public Relations Department, the Board authorized discontinuance of the Public Relations Conference usually held prior to the Clinical Meeting of the Association.

Postgraduate Medical Education

Approval was given to the Council on Medical Education and Hospitals to appoint an *ad hoc* advisory committee on postgraduate medical education to assist in the planning in this field.

Committee on Rehabilitation

The following members have been appointed to the Committee on Rehabilitation, representing the Council of the Association as indicated: Drs. H. B. Mulholland, Council on Medical Service; Francis J. Gerty, Council on Mental Health; Guy Caldwell, Council on Medical Education and Hospitals; and O. A. Sander, Council on Industrial Health. As soon as a nomination has been received from the Council on Medical Physics, a representative from this Council will be appointed.

Appointments

The following appointments to councils, committees, and special functions were made:

Dr. Rolf Schloegel, temporary consultant to the Council on Medical Service.

Dr. Carroll Andrews, to fill the unexpired term of Dr. Robb Smith on the Council on Rural Health.

Dr. D. Denny-Brown, to succeed Dr. Puttnam, and Drs. George Gardner, Douglas Orr, M. Ralph Kaufman, and Fritz Redlich as additional members on the editorial board of the *A. M. A. Archives of Neurology and Psychiatry.*

Dr. Victor Goodhill, to fill the unexpired term of Dr. J. Mackenzie Brown, and Dr. George Shambaugh Jr., as an additional member on the editorial board of the *A. M. A. Archives of Otolaryngology.*

Dr. B. Dixon Holland, to fill the unexpired term of Dr. Carl Peterson on the editorial board of the *A. M. A. Archives of Industrial Health.*

Dr. Henry A. Davidson, to succeed Dr. Francis J. Gerty on the Committee on Medicolegal Problems.

Dr. Jay Johns, to succeed Dr. Ray O. Bjork on the Joint Committee on Health Problems in Education.

Dr. James R. Reuling, Chairman, to succeed Dr. David B. Allman, and Dr. James R. McVay, an additional member on the Committee on Legislation.

Council on Constitution and Bylaws, Dr. James R. Reuling, ex officio.

Task Force on Dependent Medical Care, Drs. E. S. Hamilton, Chairman, James R. Reuling, Hugh H. Hussey Jr., and Joseph D. McCarthy.

Alexander Hamilton Bicentennial Commission

At the request of the director of the Alexander Hamilton Bicentennial Commission, several names were suggested for membership on its Medical Advisory Committee.

Nurses and Nursing

Dr. Julian P. Price and Mr. C. Joseph Stetler were appointed to represent the Association at a meeting to be called by the American Nurses' Association for a discussion of legal and legislative implications of the extended functions required by nursing personnel during disasters.

Clinical Psychologists

The question of the future position of the A. M. A. with respect to certification or licensure of clinical psychologists was referred to the Law Department and the Council on Mental Health for study, analysis, and recommendation.

Grievance Committees

Authorization was given for the preparation of an appendix to the Guides for the Organization and Operation of Grievance Committees, as recommended by the House of Delegates at its meeting in Boston, December, 1955. This appendix will be prepared by members of the staff of the headquarters office.

RESULTS OF EXAMINATION OF PHYSICIANS AT CHICAGO MEETING

The Section on General Practice of the American Medical Association sponsored chest examinations for physicians at the recent meeting of the American Medical Association under the heading "A P.E. for Every M.D." Arrangements were made in the Scientific Exhibit for electrocardiograms and for chest x-rays. These were carried on in cooperation with the National Tuberculosis Association, General Electric X-ray Corporation, and numerous cardiologists and chest physicians.

The results of the examination of the physicians are as follows:

965 Chest X-Rays	No.	%
Negative findings	861	83.5
Suspected tuberculosis	58	6.0
Cardiac findings	42	4.3
Other pathology	59	6.1
1,083 Electrocardiograms		
Negative findings	821	84.9
Abnormal	97	10.0
Borderline	49	5.1
Survey sheets not returned	116	

It is not to be interpreted from the above findings that 6% of the physicians attending the Annual Meeting had tuberculosis. There are many factors to be considered, but the findings do indicate that many of the physicians who were examined on Navy Pier should have further and more complete examinations at home. The Section on General Practice is doing a service to medicine in promoting this project.

JOINT BLOOD COUNCIL MEETING IN CHICAGO

At its June 15 meeting in Chicago the board of directors of the Joint Blood Council gave the go-ahead signal for projects concerned with collection and dissemination of information, improvement of relations within the blood-banking field, accreditation and other administrative problems, and scientific research. A summary of the board's major actions is given below:

Officers Elected

Drs. LeRoy E. Bates and Roger W. DeBusk of the American Hospital Association and Dr. Sam T. Gibson of the American National Red Cross were appointed to fill places on the board; others continuing on the board are Drs. Leonard W. Larson, Walter B. Martin, James J. Griffitts, E. Eric Muirhead, Donald H. Kaump, and Frank W. Konzelmann and Mr. Charles H. Kellstadt. Dr. Bates was elected treasurer, and the following officers were reelected: Drs. Leonard W. Larson, president; James J. Griffitts, vice-president; and Frank E. Wilson, vice-president and secretary.

Dissemination of Information

A nationwide survey of blood banks was authorized, to be carried out under the direction of Dr. Frank E. Wilson, Washington, D. C., executive vice-president of the Joint Blood Council. A national blood banks directory, to be based on the survey findings, will contain the following information: location and areas served by individual blood banks and hospitals; how each is operated, organized, and supervised; whether commercial or nonprofit; adaptability for expansion in a national emergency; volume of business; and relationship of each blood bank to allied services, such as tissue banks. The directory also will contain a glossary of terms and definitions used in blood banking and blood research.

Authority was given for creation of a bureau of information as a clearing house on progress being made everywhere in all aspects of blood banking and blood research. The information will be sent out by the Joint Blood Council office to each member institution, the scientific committee, the board of directors, journals of member institutions, and others requesting it.

Also approved was a recommendation that a national diagnostic center or reference library be established to make available information on ways to stimulate the study of unusual serums and red blood cells. In this connection, the scientific committee was requested by the board to further study the problem of maintaining national and local blood donor registries for the rarer blood groups.

Relations with Organizations and Industries

Because of reports that the pharmaceutical industry is not receiving enough "surplus" blood to keep its blood fractionating facilities in operation, the board voted the president authority to appoint an ad hoc industry liaison committee to look into this situation. The following persons were appointed: Drs. James J. Griffitts, chairman, Frank W. Konzelmann, and LeRoy E. Bates. Later, the president may at his discretion set up a permanent committee.

The board approved in principle recommendations of a temporary committee on blood insurance problems (Dr. Walter B. Martin, chairman) that immediate steps be taken to (*a*) attempt to persuade health and accident insurance companies to limit their coverage to the cost of voluntary procurement, processing, and dispensing and (*b*) encourage Blue Cross to include in its coverage the cost of processing and dispensing, without any form of donor payment or professional fee.

Accreditation, Research, and Administration

The board agreed with a recommendation of the scientific committee (Dr. Max M. Strumia, chairman) that it is imperative that minimal standards for voluntary accreditation of blood banks be decided on and widely disseminated in professional fields. The need for stimulation of research in the following areas was recognized: (*a*) long-range storage of the red blood cells; (*b*) practical means of platelet preservation; (*c*) preparation and testing of antihemophilic globulin: (*d*) the effect on the red blood cells of water-repelling surfaces; (*e*) further investigation of anticoagulant procedures, such as ion exchange resins to replace citrate in the operation of blood banks, to make possible continuous use of large quantities of blood, as required in some operative procedures; (*f*) continuance of the work to eliminate as donors possible carriers of S. H. virus, or sterilization of the blood itself; and (*g*) recommendations for ideal transfusion equipment insofar as it affects the quality of the formed elements but not necessarily the safety, already considered by the minimum requirements.

Dr. Wilson described to the board his visits to various parts of the United States to obtain an over-all picture of some of the progress and problems in blood banking. Among his other contacts, his itinerary included the following visits: Blood Banks Association of New York State; the Red Cross Regional Center in New York City; King County Central Blood Bank, Seattle; Irwin Memorial Blood Bank, San Francisco: California Blood Bank System, San Francisco: San Diego Blood Bank, San Diego: Pacific Area Clearing House, San Francisco; Southwest Blood Banks, Phoenix, Ariz.; Milwaukee Blood Center, Milwaukee; and Lansing and Battle Creek, Mich. He also visited the American Association of Blood Banks' headquarters in Dallas, Texas.

MEDICINE AND THE LAW

RIGHT OF NON-STAFF MEMBER TO TREAT PATIENTS IN PUBLIC HOSPITALS

Ordinarily a physician is the vehicle through which a patient is admitted to a hospital; however, a recent decision of the appellate division in New York[1] had the rather interesting result of making a patient the vehicle through which a physician was admitted to practice in a public hospital even though he was not a member of its active staff.

In other cases in which the right of a physician to practice in a public hospital has been in issue, the courts, if they held for the hospital, also held that the physician was thereby totally barred from using the hospital's facilities. In the Alpert case, the court held that staff membership is not necessary in order for a physician to utilize the facilities of a public hospital. It was decided that it is only necessary that the patient desire to be treated in that hospital. The decision, in effect, created a courtesy staff where none had existed before.

The city hospital of Fulton, N. Y., is publicly owned, controlled, and financed. Its affairs are managed by a board of directors that has been granted full power to make rules and regulations. Pursuant to this authority the hospital adopted certain rules, which provide, in part: "*Section 1.* Patients may be treated only by physicians and surgeons who have submitted proper credentials to the Board of Governors. Such surgeon or physician must be a graduate of a recognized medical school, legally licensed to practice medicine in the State of New York and a member of the County Medical Society where he is located and practicing medicine. *Section 2.* Any physician or surgeon wilfully violating any rule or regulation of the hospital may be denied the use of the hospital."

The bylaws of the medical staff contain substantially the same requirements for membership and provide for staff appointments to be made by the board of governors for a term of one year.

The petitioner was licensed to practice medicine in New York in 1938 and was accepted for membership on the active staff of the hospital in 1946. He remained a member of the staff until that membership was terminated in 1955 by the board of directors of the hospital. This termination not only excluded him from the hospital, it denied him reappointment to the medical staff. Thus any of his patients requiring hospitalization were required either to change physicians or go to another hospital in a distant town. The petitioner contended that such action would destroy his practice and deprive him of the right to practice medicine in that area. The facts developed in the case disclosed that the physician had advanced training and experience in medicine and surgery, that he had developed a large practice, and had a substantial investment in his office and facilities in Fulton. He alleged that the determination of the board was arbitrary and without due process of law, since he received no notice and was not granted a hearing prior to the board's ruling.

The board alleged that its determination "was reached only after a careful and mature consideration of a multitude of condemning facts and circumstances which overwhelmingly justified" its action. It contended, further, that it had uncontrolled discretion in e management of the hospital and that no court could presume to review or correct its official acts. Judicial control of administrative conduct, said the court, must be reasonable. It was pointed out that courts have often held that a regularly licensed physician cannot be denied the use of a public hospital by the operation of unreasonable rules and regulations. In this case, continued the court, the regulation itself was reasonable and the petitioner fully met its requirements. The hospital, however, relying upon the lack of any expressed limitations upon its authority, went ahead and unreasonably and arbitrarily excluded him from the use of the hospital. It did not give him either notice or hearing prior to its action. The court held that there are limitations upon the powers of the respondent hospital even though none are expressly stated in the law. These limitations are implied, said the court, by the very nature of a public hospital and also by the constitutional protection given to valuable interests.

Regulations must be consonant with the purposes of the institution for which they are made. The board undoubtedly had some discretion in excluding patients, said the court, but held that all must be accepted in a public hospital who genuinely require hospitalization and for whose ailments the hospital possesses the required facilities. For example, a regulation excluding all patients over 30 years of age or a regulation excluding all physicians but one would be void. Such regulations would convert the hospital into a private clinic. Further, the court continued, if the right of the general public to use the hospital is to have any meaning, they must have the concurrent right to be treated by their own physicians, unless the latter are excluded for adequate cause. The nature of a public hospital imposes an actual, although implied, limitation upon the authority to restrict arbitrarily the use of the hospital by the public, whether a physician or a patient.

In one sense, said the court, there is no constitutional right to practice medicine in a public hospital any more than there is an absolute right to sell alcoholic beverages or to drive an automobile. Valuable privileges, however, are entitled to the protection of law. The petitioner has enjoyed the use of the Fulton city hospital since 1946. On the record before the court, it appears that he is a capable and qualified surgeon who has developed a large practice representing a substantial investment. The determination complained of, in effect, deprives him of the right to practice medicine in the area of Fulton without notice of charges and without hearing. There was in this case a lack of procedural due process in arriving at the determination. "We conclude," said the court, "that a qualified physician admitted to practice in a public hospital acquires a species of tenure and cannot be capriciously excluded, and thereby injured financially and professionally, without notice and an opportunity to be heard."

The petitioner was therefore entitled to use the facilities of the hospital for the treatment of his patients. He was not, however, entitled to be reinstated as a member of the active staff, which consists of "those physicians who have been selected to regularly attend patients in the hospital and to whom all patients shall be assigned." Appointments to the medical staff are made by the board for a term of one year, and the respondent's failure to reappoint him to the staff gives rise to no legal remedy, nor is such reappointment necessary. He may use the facilities without staff membership so long as he obeys all reasonable rules and regulations and gives no cause for his removal. This result gives the board a free hand to control the internal management of the hospital.

For what seems to be the first time the court recognized two concurrent rights not previously separated: staff membership on the one hand and the right of a physician to use the facilities of a hospital for the treatment of his private patients regardless of staff membership.

One of the logical results of this decision is that, at least in New York, a physician may take advantage of all of the facilities that a modern, well-equipped hospital may possess without having to participate in any way in caring for the charity patients and emergency patients who are served by that hospital. Only the staff members are obligated to perform those activities. The plaintiff was given the rights of staff membership without having to assume the obligations.

---

1. Application of *Alpert v. The Board of Governors of the City Hospital of Fulton*, 145 N. Y. S. (2) 534.

MEDICAL NEWS

ARKANSAS

Conference for the Handicapped.—An Arkansas Conference for the Handicapped has been scheduled for Oct. 9-10 at the Marion Hotel in Little Rock. Complete financial support for the conference is being furnished by the Nemours Foundation, Wilmington, Del., a charitable corporation for the furtherance of work with the handicapped child. The objectives of the conference are (1) to evaluate the presently available resources for meeting the needs of the handicapped in Arkansas, (2) to determine the present unmet needs for a program of adequate care for the handicapped, and (3) to set the course for a coordinated program for the handicapped in Arkansas.

CALIFORNIA

Course on Gastroenterology.—A course in Pathological Physiology of the Gastrointestinal Tract (limited to 30 students) will be offered on Wednesdays, 7:30-9:30 p.m., Sept. 12-Nov. 21 at the University of California Medical Center, Los Angeles, under the auspices of University Extension. The course chairman is Dr. Ralph R. Sonnenschein, associate professor of physiology. Requests for applications or information should be made to: Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, Los Angeles 24.

COLORADO

State Medical Meeting in Estes Park.—The 86th annual session of the Colorado State Medical Society will convene at the Stanley Hotel, Estes Park, Sept. 5-8 under the presidency of Dr. Robert T. Porter, Greeley. The opening session, Wednesday morning, will be devoted to the following program on "Future of Medical Practice":

Views of Labor on Medical Care, William A. Sawyer, Rochester, N. Y.
Supermarket Medicine, Francis T. Hodges, San Francisco.
A Physician's Concept of the Future of Medicine, Joseph D. McCarthy, Omaha.

Panel discussion will follow.

The topic for Thursday morning will be "Radioactive Isotopes in Diagnosis and Treatment." The incoming president, Dr. George R. Buck, Denver, will deliver his presidential address at 10 a.m. Dr. John H. Lawrence, Berkeley, Calif., will present "Diagnostic and Therapeutic Applications of Radioactive Isotopes and Nuclear Radiations in Medicine" immediately preceding the noon panel discussion of the morning presentations. A noon panel discussion will also be held after the Friday morning program on "The Patient, the Doctor, and the Hospital," which will include the following papers by out-of-state speakers:

The Hospital's Responsibility to the Patient, Mr. George Bubgee, New York City.
The Generalist, the Hospital, and the A. M. A., John S. DeTar, Milan, Mich.
The Specialist and the Hospital, Leland S. McKittrick, Brookline, Mass.
Accreditation, Its Purposes and Problems, Kenneth B. Babcock, Chicago.

A symposium on vertigo will conclude the Saturday session on neurological disorders. The sports events program includes bowling and fishing and a golf tournament, which is scheduled for Wednesday at the Estes Park Golf Club. Prizes will be awarded at the banquet on Friday. The women's auxiliary will meet concurrently.

CONNECTICUT

Symposium on Occupational Noise.—A conference will be presented Sept. 17 by the Yale University School of Medicine (department of surgery, section of otolaryngology, and department of public health, section of occupational health) and the Grace-New Haven Community Hospital (Hearing and Speech Center) in cooperation with the Liberty Mutual Insurance Company. The day-long session will end with panel discussions of noise and its measurement, effects of noise on man, legal and economic aspects of noise, a comprehensive conservation of hearing program, and prevention of hearing loss by engineering control. Physicians participating will include Dr. Aram Glorig Jr., Los Angeles, director of research, subcommittee of noise in industry, American Academy of Ophthalmology and Otolaryngology, and Dr. Meyer Fox, chief, ear, nose, and throat department, Mount Sinai Hospital, Milwaukee. The conference, planned for industrial executives, physicians, safety engineers, and others who are concerned with problems of occupational noise, will be held at Fitkin Amphitheater, Yale–New Haven Medical Center, 789 Howard Ave., New Haven. The fee, $15, includes luncheon. Only those who have registered in advance will be admitted. Further information may be obtained by writing to the Assistant Dean of Postgraduate Medical Education, Yale University School of Medicine, 333 Cedar St., New Haven 11.

GEORGIA

Society News.—The Georgia Society of Ophthalmology and Otolaryngology recently elected Dr. William L. Barton, Macon, president; Dr. F. Phinizy Calhoun Jr., Atlanta, vice-president; and Dr. Walter P. Rhyne, Albany, secretary-treasurer. The 1957 meeting will be held aboard ship, cruising from Charleston, S. C., to Nassau in the Bahamas, in April.

Meeting of Heart Association.—The eighth annual meeting and scientific sessions of the Georgia Heart Association will be held Sept. 14-15 at the General Oglethorpe Hotel, Savannah. Registration is free to all physicians, interns, and medical students. Out-of-state speakers and their presentations will include:

Robert P. Glover, director, Thoracic and Cardiovascular Research Laboratory, Presbyterian Hospital, Philadelphia, A Comparison of Long-Term Results in Mitral and Aortic Stenosis. Experimental and Clinical Results of Surgery for Mitral Insufficiency Employing Circumferential Constriction of the Mitral Annulus.
Stewart G. Wolf, professor and head of the department of medicine, University of Oklahoma School of Medicine, Oklahoma City, Preliminary Study of Lipoproteins and Life Adjustment in Coronary Occlusion. Personality and Hypertension.
William B. Schwartz, assistant professor of medicine, Tufts College Medical School, Boston, Electrolyte Problems in Congestive Heart Failure—Parts I and II.
Eugene A. Stead Jr., professor of medicine, Duke University School of Medicine, Durham, N. C., Low Fat Cookery. The Autonomic Nervous System and the Circulation.

MICHIGAN

Medical Alumni Conference.—The sixth triennial Medical Alumni Conference of the University of Michigan Medical School will meet in Ann Arbor, Sept. 27-29. A special program of scientific presentations, panels, and clinics has been arranged. The social program includes a banquet, special convocation of the medical school, and the Michigan–University of California at Los Angeles football game. Information on housing, program, and reservations can be obtained by writing to Dr. Albert C. Furstenberg, Dean, University of Michigan Medical School, Ann Arbor.

NEBRASKA

Crippled Children's Clinics.—Crippled children's clinics have been scheduled for Sept. 8 at the Senior High School Building, North Platte, and Sept. 22 at the Elks Club, Chadron.

University News.—Dr. John B. Davis, Omaha, who has just completed a four-year residency in surgery at the Research and Educational Hospitals, University of Illinois, Chicago, has been appointed a clinical assistant in surgery at his alma mater, the University of Nebraska College of Medicine, Omaha. Dr. Davis has become the third generation of his family to join the faculty

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

of the University of Nebraska College of Medicine. Both his father, Dr. Herbert H. Davis, and his grandfather, the late Dr. Byron B. Davis, have served as chairman of the department of surgery.

NEW YORK

Dr. Hoch Honored.—Dr. Paul H. Hoch, commissioner of mental hygiene for the state of New York, has been given the Man of the Year award of the International Rho Pi Phi Pharmaceutical Fraternity. The award cited Dr. Hoch for his "outstanding leadership in the research and treatment of mental illness, and his dedication to the welfare of its victims." Dr. Hoch joined the staff of the New York State Psychiatric Institute in 1943 and became director of the department of experimental psychiatry in 1948. He is also associate professor of clinical psychiatry at Columbia University College of Physicians and Surgeons, New York City, and an attending psychiatrist in the university's Psychoanalytic Clinic for Training and Research. Last year he received the Adolf Meyer Memorial award for his outstanding work in psychiatric research.

New York City

Personal.—Dr. Harold Brandaleone, assistant clinical professor of medicine (assigned to rehabilitation) at the New York College of Medicine, has been elected treasurer of the Alumni Federation of New York University, which in 1951-1955 he served as president. Dr. Brandaleone is president of the New York State Society of Industrial Medicine and medical director of the Third Avenue Transit System.——Dr. John H. Garlock, clinical professor of surgery at Columbia University College of Physicians and Surgeons and director of surgery at the Mount Sinai Hospital, is on an extended teaching tour of South America, where he is scheduled to give a series of lectures and hold didactic operative clinics in important medical centers. His itinerary includes Colombia, Chile, Peru, Argentina, and Brazil.——The American College of Surgeons awarded its third research scholarship to Dr. Sigmund A. Wesolowski, then assistant instructor in surgery at the State University of New York College of Medicine at New York City, Brooklyn, and a resident in surgery at Kings County Hospital. The scholarship, established in 1952 to support promising young surgeons who are interested in academic surgery and to promote surgical research, pays the recipient $20,000 over three years. On July 1, Dr. Wesolowski completed his residency training at Kings County Hospital and was promoted to instructor on the state university faculty, where he will devote full time to teaching and research. He hopes to spend a year in England during the period of the scholarship to study cardiovascular surgery under Sir Russell Brock at Guy's Hospital, London. During the war, as captain in the Army Medical Corps, Dr. Wesolowski did research in cardiovascular surgery at Walter Reed Army Hospital, Washington, D. C., for two years.——Drs. M. Ralph Kaufman, chief of psychiatry at Mount Sinai Hospital, and John A. Millet, who is affiliated with Presbyterian Hospital, have been named as consultants to the New York State Department of Mental Hygiene. Both men were charter members of the State Mental Hygiene Council and recently completed their terms of office after serving five years. Dr. Kaufman, who is clinical professor of psychiatry at the Columbia University College of Physicians and Surgeons, is a neuropsychiatric consultant to the surgeon general of the Department of the Army. He is the author of more than 30 papers on psychiatry and psychoanalysis.

NORTH CAROLINA

Meeting of Heart Association.—The annual meeting of the North Carolina Heart Association will be held at the Battery Park Hotel in Asheville Sept. 15-16 under the chairmanship of Dr. James V. Warren, Durham. The featured speaker will be Dr. Robert W. Wilkins, Boston, president of the Massachusetts Heart Association and vice-president of the American Heart Association. The theme of the session will be "Prevention of Coronary Heart Disease." A program on health education under the chairmanship of Dr. William L. Fleming of the University of North Carolina School of Medicine, Chapel Hill, has been scheduled for Saturday morning. All physicians are invited to attend this and other sessions of the association.

OHIO

Courses in Occupational Health for Nurses.—A series of courses in Occupational Health for Registered Nurses is offered by the Institute of Industrial Health of the University of Cincinnati College of Medicine to acquaint nurses already in industry, as well as other interested nurses, with current concepts and practices in the field of occupational health. The first lecture course, scheduled for the fall semester of 1956, will consist of 16 weekly evening sessions. The second lecture course, scheduled for the spring of 1957, will be concentrated in a period of one week, full time. The faculty for both courses, to be held at the college of medicine, will be composed of members of the college, representatives of the nursing profession, management, and other recognized authorities in this field. The registration fee is $25. For additional information write: Secretary, Institute of Industrial Health, College of Medicine, Cincinnati 19.

UTAH

State Medical Meeting in Salt Lake City.—The 61st annual meeting of the Utah State Medical Association will convene at the Hotel Utah, Salt Lake City, Sept. 5-8, under the presidency of Dr. Ralph O. Porter, Logan. At the president's banquet for doctors and their wives Friday evening, Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will have as his subject "The Physician and His Hospital." Other guest speakers and their first presentations will include:

Mark M. Ravitch, Baltimore, Surgical Approach to Ulcerative Colitis.
Harris B. Shumacker Jr., Indianapolis, Management of Abdominal Aortic Aneurysms.
Ralph K. Ghormley, Rochester, Minn., Present Status of Surgery of the Hip Joint (accompanied by film).
Lowell A. Rantz, San Francisco, Modern Management of Rheumatic Fever.
Russell R. de Alvarez, Seattle, Bleeding of Late Pregnancy.
Mr. Harry Becker, Chicago, Voluntary Prepayment Insurance at the Crossroads.
Henry M. Weyrauch Jr., San Francisco, Modern Treatment of Urinary Infection.
Robert A. Aldrich, Portland, Ore., Present Status of Tuberculosis in Childhood.
Hugh F. Hare, Los Angeles, Radiation Treatment of Carcinoma of the Breast.
Charles R. B. Blackburn, Sydney, Australia, Contraindications for Adrenalectomy in Carcinomatosis—A Physician's Appraisal.
Howard P. House, Los Angeles, The Doctor's Responsibility to the Hearing Handicapped.

Morning sessions will open at 8 a. m. with motion pictures. On Thursday at 10:50 a. m. Dr. Russell M. Nelson, Salt Lake City, will serve as moderator for a symposium on intestinal obstruction. Panel discussions on surgery and on obstetrics and pediatrics are scheduled for noon luncheon meetings. The Friday symposium (10:50 a. m.), "Current Topics in Internal Medicine," will be sponsored by the department of medicine, University of Utah School of Medicine, Salt Lake City, and will have as moderator Dr. Maxwell M. Wintrobe. Noon luncheon discussions Friday will be on internal medicine, pediatrics, and urology. At 3:20 p. m. the specialty groups will have panel discussions with guest speakers participating. The women's auxiliary will meet Sept. 6-7.

VERMONT

Personal.—Dr. Bernis D. Colby, Sudbury, honorary member of the Rutland County and the Vermont State Medical societies, received the honorary degree of doctor of science at the annual commencement of the University of Vermont, Burlington.

Symposium on Electrolytes.—A Symposium on Electrolytes and the Circulation, open to all interested persons, will be held in Burlington, Sept. 8-10, under the sponsorship of the Vermont Heart Association and the University of Vermont College of Medicine, Burlington. Topics will include the electrolyte metabolism in congestive heart failure and the role of electrolytes in myocardial metabolism, the electrocardiogram and cardiac arrhythmias, and vascular reactivity and hypertension. Further information can be obtained from Dr. Eugene Lepeschkin, University of Vermont College of Medicine, Burlington.

WISCONSIN

Head of Orthopedic Surgery.—Dr. Walter P. Blount, chief of orthopedics at Milwaukee Children's Hospital, has been appointed clinical professor and director of the department of orthopedic surgery at Marquette University School of Medicine, succeeding the late Dr. Herman Schumm.

"Dr. Kate" Fund.—A special Doctor Kate Newcomb Memorial fund has been established by the Wisconsin chapter of the Arthritis and Rheumatism Foundation. The fund will be used to purchase a hydrotherapy tank for Lakeland Memorial Hospital in Woodruff. The chapter will also present a 5-ft. portrait of Dr. Kate to the hospital, which she built with penny contributions. Because of her unexpected death, the chapter canceled a testimonial dinner. Those who planned to attend the testimonial have been asked to contribute to the memorial fund.

Personal.—Dr. John S. Horning, Milwaukee, left for Costa Rica in August to take a year of language study, preparatory to setting up a medical clinic among the Quechua Indians near Quito, Ecuador.—Dr. Harold M. Coon, superintendent of the University Hospitals, Madison, since 1941, has been appointed administrator of Milwaukee County Hospital as of Sept. 1, to succeed Dr. Harry W. Sargeant, who will retire Nov. 27. Dr. Coon, who serves also as professor of hospital administration at the University of Wisconsin Medical School, is the son of the late Dr. John W. Coon, who was superintendent of the county hospital for about one year.

Circuit Teaching Programs.—The council on scientific work of the State Medical Society of Wisconsin (in cooperation with the state board of health, the medical schools of the University of Wisconsin in Madison and Marquette University in Milwaukee, the Wisconsin Academy of General Practice, the Wisconsin Heart Association, Wisconsin Anti-Tuberculosis Association, and the Wisconsin division of the American Cancer Society) has scheduled a series of 12 circuit teaching programs. During September these clinics will be held at the St. Francis Hospital, La Crosse, Sept. 11; Sacred Heart Hospital, Eau Claire, Sept. 12; and St. Mary's Hospital, Superior, Sept. 13. The faculty will consist of Drs. John Z. Bowers, Madison, arthritis; George R. Barnes, Iowa City, pediatrics; James E. Conley, Milwaukee, surgery; and Donald M. Ruch, Milwaukee, dermatology. The registration fee, which covers a full afternoon and evening of instruction and dinner, is $6. Participants are requested to attend both sessions, as the meetings will be correlated, and those who attend both sessions will receive credit for Academy of General Practice membership requirements. Requests for reservations should be sent to the State Medical Society of Wisconsin, P. O. Box 1109, Madison.

GENERAL

Meeting on Instrumentation.—The Instrument Society of America will hold its 11th annual meeting in the new Coliseum, New York City, Sept. 17-21. The program lists presentations on recent developments in medical and biological instrumentation, including Photo Counters for Chromatographic Densitometry in the U. V. Region, Electrical Method for Objective Determination of Blood Pressure Utilizing Standard Electrocardiographs, New Artificial Respiration Machine, Heat Flow Transducer with Indicating and Recording Equipment for Physiological and Biochemical Research, Automatic Particle and Bacterial Colony Counter, Counter-Current Distribution Apparatus Using 3-Phase Solven System, Low Frequency Analyzers in Electroencephalography, and Research on Mechano-Electronic Transducer Blood Pressure Manometers.

Nuclear Scientists Invite Papers.—The American Nuclear Society invites the submission of papers for its meeting Dec. 10-12 in the Sheraton-Park Hotel, Washington, D. C. The society was formed about 18 months ago in response to a demand for a single organization encompassing all the professional disciplines of science and engineering applying to the atomic energy field. Authors desiring to present papers at the December meeting are requested to send titles and estimates of presentation time to L. D. O. King, Ph.D., Los Alamos Scientific Laboratory, P. O. Box 1663, Los Alamos, N. Mex., by Oct. 1. Abstracts of the papers must be received not later than Nov. 1. The society publishes its own journal, *Nuclear Science and Engineering.* Contributors to the journal should send their papers to J. G. Beckerley, Ph.D., P. O. Box 2175, Houston, Texas.

Conference on Clinic Organization.—A symposium, "Policies and Methods of Determining Income of Physicians," scheduled for Friday noon, will be a program feature of the West Coast Conference on Financial and Human Problems of Clinic Organization in Santa Barbara, Calif., Sept. 21-23. According to the University of California at Los Angeles School of Medicine, School of Public Health, and University of California Extension, which are planning the conference in cooperation with the National Association of Clinic Managers, Western Section, such problems as financial insurance and legal aspects of clinic management will be considered. Numerous intensive study groups, as well as a tour of local clinics and the new campus of the University of California, are planned. Registration for the conference is being accepted at the offices of University of California Extension, Los Angeles 24. Fee for the session is $50.

Conference on Pharmacotherapy in Mental Illness.—A conference on the evaluation of research on pharmacotherapy in mental illness will be held at the Hotel Statler in Washington, D. C., Sept. 21-22 under the joint sponsorship of the division of medical sciences of the National Academy of Sciences—National Research Council, the National Institute of Mental Health, and the American Psychiatric Association, with Dr. Ralph W. Gerard, Chicago, as leader. The conference will be based on presentations of several *ad hoc* working groups, whose reports on the methodological, theoretical, and administrative problems involved in evaluating tranquilizing and other drugs, both at preclinical and clinical levels, will be reviewed in closed committee sessions during the two preceding days. Those interested in attending the conference should write to the executive secretary of the project, Dr. Jonathan O. Cole, National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C.

Northwest Association of Occupational Medicine.—The Northwest Association of Occupational Medicine was recently organized, with Dr. Eugene P. Owen of Portland, Ore., as president; Dr. Wilhelm J. Sittner, Portland, Ore., secretary; Dr. Charles M. McGill, Tacoma, Wash., vice-president; and Dr. Bradford C. Scudder of Hanford, Calif., and Dr. Forrest E. Rieke, Portland, Ore., board members. The association will hold its first technical meeting Sept. 9, the day before the opening of the third annual Northwest Industrial Health Conference. Speakers at the technical meeting will include Drs. Hedwig S. Kuhn, Hammond, Ind.; Jermyn F. McCahan, Boston; R. Christopher Leggo, Palo Alto, Calif.; Roger Anderson, Seattle; William J. McNamara, New York; and Mr. William Lawrence, attorney from Seattle. The meeting will be open to all interested physicians, nurses, attorneys, insurance representatives, and lay officials of health agencies. The association, with membership in Oregon, Washington, Idaho, British Columbia, and Alaska, is open to qualified physicians whose practices are partly or entirely devoted to industrial medicine or surgery.

Borden Award in Nutrition.—Nominations are solicited for the 1957 award and gold medal made available by the Borden Company Foundation, Inc. The American Institute of Nutrition will make this award in recognition of distinctive research by investigators in the United States and Canada that has emphasized the nutritive significance of the components of milk or of dairy products. The award will be made primarily for the publication of specific papers during the previous calendar year, but the jury of award may recommend that it be given for important contributions made over a more extended period of time. Nominations, which may be made by anyone, should include the name of the award for which the candidate is proposed and a statement as to the basis of the nomination (this may include a pertinent bibliography, but reprints are not required). To be considered for the 1957 award, five copies of all documents, including seconding statements, must be sent before Jan. 1, 1957, to the chairman of the nominating committee, Cosmo G. Mackenzie, Sc.D., Department of Biochemistry, University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver 7.

Essay Contest in Dermatology.—The American Dermatological Association offers a series of awards for original work not previously published and relative to some fundamental aspect of dermatology or syphilology: $500, $400, $300, and $200 for first, second, third, and fourth places respectively. Manuscripts, not exceeding 10,000 words, typed in English with double spacing and ample margins as for publication, together with illustrations, charts, and tables, all of which must be in triplicate, are to be submitted not later than Nov. 15 to Dr. J. Lamar Callaway, Secretary, American Dermatological Association, Duke Hospital, Durham, N. C. Papers should be submitted under a nom de plume and should be accompanied by a plain sealed envelope bearing the nom de plume and the full name and address of the author. Competition is open to scientists generally—not exclusively to physicians. The results will be announced before Jan. 1, 1957. The candidate winning first award may be invited to present his paper before the annual meeting of the American Dermatological Association with expenses paid, in addition to the award. Further information regarding this essay contest may be obtained by writing to the secretary of the association.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

	Aug. 4, 1956		
Area	*Paralytic* Type	Total *Cases* Reported	Aug. 6, 1955, Total
New England States			
Maine	..	..	11
New Hampshire	..	..	16
Vermont	1	2	2
Massachusetts	..	5	309
Rhode Island	..	4	19
Connecticut	..	1	38
Middle Atlantic States			
New York	8	25	102
New Jersey	2	6	21
Pennsylvania	..	10	30
East North Central States			
Ohio	4	30	42
Indiana	9	16	28
Illinois	105	184	68
Michigan	6	26	78
Wisconsin	8	17	105
West North Central States			
Minnesota	2	6	28
Iowa	1	26	45
Missouri	4	17	9
North Dakota	..	..	2
South Dakota	..	4	8
Nebraska	3	11	28
Kansas	3	9	19
South Atlantic States			
Delaware	..	..	7
Maryland	4	5	8
District of Columbia	..	1	5
Virginia	7	12	25
West Virginia	1	4	6
North Carolina	7	12	23
South Carolina	..	2	21
Georgia	4	14	15
Florida	4	9	12
East South Central States			
Kentucky	..	4	37
Tennessee	5	9	6
Alabama	..	2	4
Mississippi	2	4	9
West South Central States			
Arkansas	11	17	9
Louisiana	28	42	14
Oklahoma	3	12	21
Texas	30	47	81
Mountain States			
Montana	1	1	4
Idaho	3	6	16
Wyoming	1	2	..
Colorado	4	9	9
New Mexico	1	4	6
Arizona	3	4	4
Utah	..	17	1
Nevada	..	4	2
Pacific States			
Washington	1	6	13
Oregon	4	10	10
California	51	101	33
Territories and Possessions			
Alaska	..	..	2
Hawaii	1	1	8
Puerto Rico	..	..	4
Total	332	760	1,423

Congress on Clinical Chemistry.—The first International Congress of Clinical Chemistry will convene Sept. 9-14 at the Hotel Barbizon-Plaza, New York, under the auspices of the American Association of Clinical Chemists. A session on electrolytes, dedicated to the memory of Dr. John P. Peters, author of "Quantitative Clinical Chemistry," is planned for Monday morning. Other topics of the congress include: lipids and cholesterol, blood and bile pigments, standardization of clinical chemical measurements, and enzymes and vitamins. A symposium on proteins is scheduled for Friday morning. The program includes a reception Monday evening and a dinner Tuesday evening. Information and registration forms may be obtained from the congress secretary, John G. Reinhold, Ph.D., 711 Maloney Bldg., University of Pennsylvania, Philadelphia 4. Membership applications should be sent with $7.50 to the secretary. A week-end tour of Philadelphia and Washington has been planned especially for visitors from outside the country; others may participate, if space is available. The complete cost (excluding tips) will be $35 to $40. The tour will leave New York Saturday morning, spend Saturday in Philadelphia, proceed to Washington Sunday, and, after sight-seeing, visit the National Institutes of Health in Bethesda, Md., and other laboratories, if time permits, on Monday. It will end in Atlantic City, N. J., Monday evening. Those interested should inform Dr. Harry Goldenberg, Hillside Hospital, Glen Oaks, N. Y. Tickets will be on sale at the congress.

Memorial Hospitals Dedicated.—On June 2, 150 years after the initiation of coal mining in the United States, the following memorial hospitals were dedicated by John L. Lewis, chairman of the board of trustees, United Mine Workers of America Welfare and Retirement Fund, "in memory of those men who died without hospitals": Harlan (Ky.) Memorial Hospital, McDowell (Ky.) Memorial Hospital, Middlesboro (Ky.) Memorial Hospital, Wise (Va.) Memorial Hospital, Hazard (Ky.) Memorial Hospital, Whitesburg (Ky.) Memorial Hospital, Beckley (W. Va.) Memorial Hospital, Man (W. Va.) Memorial Hospital, Pikeville (Ky.) Memorial Hospital, and Williamson (W. Va.) Memorial Medical Center. The 10 hospitals, forming a three-state network (The Journal, March 27, 1954, pages 1101-1103; June 18, 1955, page 571) were "consecrated to the care of the sick, the prevention of disease, and the preservation of the health of the people, as far as they can reach. They will serve as the nucleus and inspiration for the development of other vital services around them." Physicians who addressed the meeting included Dr. Elmer Hess, Erie, Pa., then President of the American Medical Association; Dr. Warren F. Draper, Washington, D. C., executive medical officer, United Mine Workers of America Welfare and Retirement Fund; Dr. Frederick D. Mott, Washington, D. C., medical administrator, Miners Memorial Hospital Association; and Dr. Howard A. Rusk, chairman of the department of rehabilitation and physical medicine, New York University College of Medicine, New York City.

Research Grants and Fellowships in Cardiology.—The Chicago Heart Association, 69 W. Washington St., Chicago 2, offers grants-in-aid for the fiscal year, July 1-June 30, that may be renewed on application and annual review. Completed application is due Nov. 1, to be effective the following July 1. For information and forms write to: Chicago Heart Association, Attention: Program Coordinator.——The American Heart Association, 44 E. 23rd St., New York 10, provides (1) established investigatorships ($6,000-$9,000 a year) for one to five years, subject to annual review (application deadline, Sept. 15); (2) grants-in-aid for equipment, technical assistance, and supplies to experienced scientists working on approved projects for one to five years (application deadline, Nov. 1); and (3) research fellowships ($3,500-$5,600 a year) for one to two years to young scientists to train in research under experienced supervision (application deadline, Sept. 15). For information write to: Medical Director, American Heart Association.——The National Institutes of Health, Division of Research Grants, Bethesda 14, Md., awards (1) research grants for any research directly or indirectly related to problems of health or disease, without limitation on the size of a grant, the number of grants, the total amount awarded in research grants that may be made to any one investigator or any one institution in a fiscal year, or requirement of matching research grant funds; (2) research fellowships, including predoctoral research fellowships ($1,400; first year of graduate study $1,600, terminal year $1,800 plus $350 for each dependent; a minimum basic tuition allowance); (3) postdoctoral research fellowships ($3,400 a year plus $350 for each dependent; plus $300 on renewal for second and third year; plus $500 to the institution to defray expenses); and (4) special research fellowships, determined by the surgeon general at the time of the award. For information and forms write directly to the Division of Research Grants, National Institutes of Health, Bethesda 14, Md.—The Life Insurance Medical Research Fund, 345 E. 46th St., New York 17, offers (1) postdoctoral fellowships for research training in cardiovascular function or disease, with consent of an experienced investigator to serve as a supervisor (minimum $3,800 per year with allowances for dependents; an increase of $300 on renewal; $500 to institution to help defray expenses) for 12 months beginning on any one of the following dates: July 1, Aug. 1, Sept. 1, Oct. 1, with complete application for 1957-1958 fellowship year due Oct. 15, 1956, and (2) grants-in-aid for research broadly concerned with cardiovascular disease or function (usual range: $1,000-$15,000 a year), with complete applications for 1957 grants, including renewals, due Nov. 1, 1956. For information and forms, sponsors should correspond with: Dr. Francis R. Dieuaide, New York, Scientific Director.

FOREIGN

Meeting on Industrial Medicine.—The Austrian Society for Industrial Medicine announces that the third Austrian Congress on Industrial Medicine will be held in Vienna, Oct. 1-4, to discuss "Success by Early Diagnosis and Preventive Measures." The subjects will include:

> Medical examination for fitness and ensuing selection; examinations with regard to employment or reemployment.
> Prevention of poisoning by proximate causes (technical expedients)
> Prevention of illness (periodical examination and transfer to another post, medical prophylaxis).
> Prevention of damages caused by prolonged work under conditions detrimental to health (violent motion and draught, prevention of accidents).
> Economic value and advantages of preventive measures taken by industrial medicine.

Persons interested in attending or in reading papers on these subjects may apply to the Organizing Secretary, Dr. Ch Frieberger, Austrian Society for Industrial Medicine, Kinderspitalgasse 15, Vienna, Austria. There is no registration fee.

Congress on Speech and Voice Therapy.—The 10th Congress of the International Association of Logopedics and Phoniatrics will convene in Barcelona, Spain, Sept. 3-7. Reports will be presented on "Studies of the Onset and Development of Stuttering," "Neurology and Speech and Language Disorders," "Nonverbal Tests of Intelligence and Maturity," and "Amusia." Further details may be obtained from the Organizing Secretary. Dr. J. Perello, Provenza, 319, Barcelona (9), Spain.

Congress on the History of Science.—The eighth International Congress for the History of Science will convene in Florence, Italy, Sept. 3-9 under the auspices of the International Academy and the International Union for the History of Science. The program will include a session on the history of chemistry and pharmacy and a session on the history of medicine and biology. Information may be obtained from the Office of the Secretary General, Dr. M. L. Bonelli, Instituto di Ottica, Arcetri, Florence, Italy.

Congress on Dietetics.—The second International Congress of Dietetics will be held in Rome, Italy, Sept. 10-14, in the Congress Palace of Esposizione Universale Roma. The Italian Dietetic Association will be the host. The program will include recent findings of nutritional research, methods of education in nutrition, principles and problems of feeding large numbers of people, and problems of training dietitians. All persons interested in nutrition and dietetics may attend sessions of the congress on payment of the registration fee. Participants in the program will include Charlotte M. Young, Ph.D., professor of medical nutrition, Cornell University, Ithaca, N. Y., who will contribute to a symposium on obesity; Alice H. Smith, chief nutritionist of the Michigan Department of Health, who will speak on the "Educational and Social Aspects of Malnutrition in Relation to Tuberculosis"; and Jean Mayer, Ph.D., associate professor of nutrition, Harvard University, Boston, who will be a member of the discussion group concerned with "Obesity: A Nutritional Problem of Increasing Importance and Its Relationship to Economics, Social and Health Conditions." An entire morning will be devoted to programs on child feeding. Information on the congress and postcongress tours may be obtained from the American Dietetic Association, 620 N. Michigan Ave., Chicago 11.

CORRECTION

Dr. Huebner's Name Misspelled.—In the leading article in The Journal of Aug. 18, 1956, on page 1521 and on The Journal cover, the third author's name was misspelled and should read "Robert J. Huebner, M.D., Bethesda, Md."

EXAMINATIONS AND LICENSURE

American Board of Dermatology: *Oral* St Louis, Oct 12-15 Final date for filing applications was April 1. Sec, Dr. B. M Kesten, One Haven Ave, New York 32.

American Board of Internal Medicine. *Written* Oct. 15, 1956 Final date for filing application was May 1. *Oral Examinations in 1956* New York City, Sept. 21-25. Final date for filing application was April 1. Exec Sec., Dr. William A. Werrell, 1 West Main St, Madison 3, Wis

American Board of Neurological Surgery Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time Sec., Dr. Leonard T Furlow, Washington University School of Medicine St Louis 10

American Board of Obstetrics and Gynecology *Part I* 1957 Applications for certification for the 1957 examinations are now being accepted Candidates making new application or requesting the reopening of an application must do so before Oct. 1, 1956. Applications are to be accompanied by a list of hospital admissions. *Written. Part I* Various cities of the United States, Canada and military centers outside the continental United States, Feb. 1. Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology. *Practical Examination* St. Louis, Oct. 20-24. *Written* Jan. 21, 1957. Applications must be filed before July 1, 1956. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery *Oral Part II* Chicago, January 1957. Final date for filing application is Aug 15. Sec, Dr. Sam W Banks, 116 South Michigan Ave., Chicago 3

American Board of Otolaryngology. *Written and Oral.* Chicago, Oct. 8-11 Sec., Dr Dean M. Lierle, University Hospitals, Iowa City

American Board of Pathology. *Written for Pathological Anatomy and Clinical Pathology*, Oct. 4-6. Final date for filing application is Sept 1 Sec, Dr Edward B. Smith, 1040-1232 W Michigan St., Indianapolis 7.

American Board of Pediatrics *Oral, Part II* New York City, Oct. 12-14, and San Francisco, Dec. 7-9. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa

American Board of Plastic Surgery Miami, Oct. 17-19. Corres. Sec, Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine. *Oral and Written Public Health* Philadelphia, Nov. 8-10. Sec, Dr. Ernest L Stebbins, 615 N. Wolfe St., Baltimore, Md

American Board of Proctology. *Oral and Written* Philadelphia, Sept. 29 Final date for filing application was June 28 Sec., Dr Stuart T. Ross, 520 Franklin Ave, Garden City, N. Y

American Board of Psychiatry and Neurology *Oral* New York, Dec. 10-11 and New Orleans, Mar. 18-19. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W, Rochester, Minn

American Board of Radiology. Los Angeles, Sept. 30-Oct 4. Final date for filing application was June 1. Sec., Dr. B R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery. *Part I.* Various Centers Throughout the United States and in Certain Military Centers Abroad, Oct. 31. *Part II.* Buffalo, Sept. 24-25, Chicago, Oct. 15-16, New Haven, Nov. 19-20, Kansas City, Kan, Dec. 10-11, Los Angeles, Jan. 14-15; San Francisco, Jan. 17-18, Houston, Feb. 18-19, Nashville, Mar. 11-12, Boston, April 8-9, and New York, June 10-11.

American Board of Urology: February 1957. Sec., Dr. William Niles Wishard, 1711 N. Capital Ave., Indianapolis 7.

Board of Thoracic Surgery: *Written* Various centers throughout the country, Sept. 7. Final date for filing applications was July 1. A subsequent written examination will be held in February 1957, and the closing date for registration is Dec. 1, 1956. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Ruth, Henry Swartley ⊕ Penn Valley, Pa.; born in Philadelphia Aug. 12, 1899; Hahnemann Medical College and Hospital of Philadelphia, 1923; emeritus professor of anesthesiology at his alma mater, where he was clinical professor of anesthesia from 1933 to 1940 and later professor and head of the department of anesthesiology; specialist certified by the American Board of Anesthesiology, of which he was at one time vice-president and president; in 1918 served in the Student Army Training Corps; director of courses in anesthesiology for the U. S. Army and Navy during World War II; president of the American Society of Anesthesiology in 1938, vice-president the previous year, and served for many years on its board of directors, in 1952 was presented with the Distinguished Service award of the American Society of Anesthesiologists; past-president of the Philadelphia Society of Anesthesiology and the Pennsylvania Society of Anesthesiology; formerly vice-president of the American Society of Regional Anesthesia; member of the International Anesthesia Research Society and the World Medical Association; fellow of the International College of Surgeons, Secretary, Section on Miscellaneous Topics, Section on Anesthesia, American Medical Association, 1939-1940; chief, division of anesthesia at the Philadelphia General Hospital from 1933 to 1940 when he became consulting anesthetist; civilian consultant for the U. S. Naval Hospital in Philadelphia from 1948 to 1952; chief, anesthetic service, West Jersey Homeopathic Hospital in Camden, N. J., 1941-1942; for many years on the staffs of the Hahnemann and St. Luke's and Children's hospitals in Philadelphia; author of section on anesthetics, revision service volume, "Cyclopedia of Medicine," in 1944, and section on regional anesthesia, Bancroft's "Operative Surgery," in 1941; associate editor of anesthesia subjects in "Cyclopedia of Medicine, Surgery, Specialties," from 1939 to 1952; first editor of *Anesthesiology* and served in that capacity until his retirement last year, remaining as editor emeritus; on the advisory board of the *American Journal of Surgery*; died June 7, aged 56, of cerebral concussion with edema and hemorrhage, as the result of a fall.

Christie, Arthur Carlisle ⊕ Crescent City, Fla.; born in West Sunbury, Pa., Dec. 29, 1879; University of Wooster Medical Department, Cleveland, 1904; specialist certified by the American Board of Radiology; member and past-president of the Medical Society of the District of Columbia, American Roentgen Ray Society, and the American College of Radiology, receiving its Gold medal in 1953; in 1937 elected president of the Fifth International Congress of Radiology, honorary fellow of the British Faculty of Radiologists; member of the American Radium Society; fellow of the International College of Surgeons and the American College of Physicians; formerly professor of operative surgery and roentgenology at the Army Medical School, Washington, D. C., professor of radiology, George Washington University School of Medicine in Washington, D. C., and professor of clinical radiology at the Georgetown University School of Medicine in Washington, D. C.; a president of the board of trustees of the American University in Washington, D. C.; on the board of honorary consultants, Army Medical Library; received the second Dr. Frank E. Gibson Award in recognition of "meritorious contributions to medical science"; formerly member of the Committee on the Costs of Medical Care; veteran of World War I; served as consultant in radiology to the U. S. Army, the Veterans Administration, and the National Research Council; from 1924 to 1929 editor of the *American Journal of Roentgenology and Radium Therapy*, author of "Economic Problems of Medicine" and other books, died June 22, aged 76.

Wahl, Harry Roswell ⊕ Kansas City, Kan.; born in Minnesota City, Minn., in 1886; Johns Hopkins University School of Medicine, Baltimore, 1912; professor of pathology at the University of Kansas School of Medicine, where he was dean for many years; specialist certified by the American Board of Pathology; member of the American Association of Pathologists and Bacteriologists and the College of American Pathologists; consulting pathologist at Veterans Administration Hospital in Excelsior Springs, Mo., Bethany and St. Margaret's hospitals; in recognition of his services, the Kansas Board of Regents voted recently to change the name of the Medical Science Building at the Medical Center to Wahl Hall; for many years pathologist and superintendent of the University of Kansas Hospitals; died in the University of Kansas Medical Center June 18, aged 70, of carcinoma of the urinary bladder.

Barnett, Irving Francis ⊕ Chicago; born in Chicago in 1891; University of Illinois College of Medicine, Chicago, 1913; associate clinical professor of ophthalmology at Stritch School of Medicine of Loyola University; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; awarded the Victoria Cross for medical service in the British Army during World War I; for two years county jail physician; senior ophthalmologist at the Henrotin Hospital, where he died June 26, aged 64, of cerebral thrombosis.

Hynes, Frank Joseph ⊕ New York City; born in New York City Oct. 16, 1908; University and Bellevue Hospital Medical College, New York City, 1933; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological, Rhinological and Otological Society, American Trudeau Society, and the American College of Allergists; fellow of the International College of Surgeons and the American College of Surgeons; served on the faculty of Cornell University Medical College, on the staffs of the Manhattan Eye, Ear and Throat Hospital and the New York Hospital; died June 7, aged 47.

Berman, William ⊕ White Plains, N. Y.; born in Rochester July 22, 1900, Cornell University Medical College, New York City, 1925; certified by the National Board of Medical Examiners; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychoanalytic Association, American Psychiatric Association, Association for Research in Nervous and Mental Diseases, and the American Psychopathological Association; on the staffs of the Grasslands Hospital in Valhalla, St. Agnes Hospital in White Plains, and the United Hospital in Port Chester; died March 12, aged 55.

Durkin, Harry Anthony ⊕ Peoria, Ill.; Harvard Medical School, Boston, 1915; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served as a member and president of the city board of health; past-president of the Illinois Heart Association and the Peoria Heart Association; veteran of World War I; past-president of the board of the Peoria Municipal Tuberculosis Sanitarium; on the staffs of the Methodist Hospital of Central Illinois and St. Francis Hospital, where he died May 20, aged 65, of nephrosclerosis and general arteriosclerosis.

Barbour, Guy William ⊕ West Stewartstown, N. H.; Kentucky School of Medicine, Louisville, 1908; died May 10, aged 73, of heart disease.

Barbour, William Jay ⊕ Shell Rock, Iowa; State University of Iowa College of Medicine, Iowa City, 1947; formerly an officer in the U. S. Air Force Reserve; died in the Veterans Administration Hospital, Iowa City, May 8, aged 32, of toxic myocarditis.

Rowan, Henry Madison ⊕ Trenton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1920; director of the department of obstetrics and attending obstetrician at the Mercer Hospital, where he died April 12, aged 61, of carcinoma of the esophagus with metastasis to the brain.

Rummage, Leland Charles, Nanticoke, Pa.; Medico-Chirurgical College of Philadelphia, 1913; a member of the board of education; served as vice-president and president of the First National Bank; president of the board of the Retreat State Hospital in

---

⊕ Indicates Member of the American Medical Association

Hunlock Creek, where he was consultant; chairman of the board of Nanticoke State Hospital, where he died May 29, aged 69, of rupture of the arch of the aorta, atherosclerosis, and hypertension.

Ruskin, Thomas Morris, Wapakoneta, Ohio; Ohio State University College of Medicine, Columbus, 1954; interned at the Mercy Hospital in Springfield; veteran of World War II; on the staff of St. Rita's Hospital in Lima; died April 28, aged 29, of melanosarcoma.

Safley, Agnes Isabel ⊕ Cedar Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1904; on the staff of St. Luke's Methodist Hospital, where she died April 26, aged 80, of myocardial infarction.

Sangmeister, Henry John Augustus ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1916; fellow of the American College of Surgeons; served on the faculty of his alma mater; veteran of World War I; on the staffs of St. Joseph's, St. Agnes, and St. Vincent's hospitals; for many years on the staff of the Philadelphia General Hospital; died in the Lankenau Hospital May 5, aged 66, of intestinal obstruction.

Santos, Pedro Martir ⊕ Chicago; Meharry Medical College, Nashville, Tenn., 1914; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the International College of Surgeons; for many years on the staff of Provident Hospital; died in Milwaukee June 25, aged 69.

Saylor, Melvin Alvin, North Wales, Pa.; Jefferson Medical College of Philadelphia, 1915; emeritus professor of physiological chemistry at Temple University School of Medicine in Philadelphia; served on the faculty of his alma mater; member of the American Chemical Society, American Association of University Professors, and the American Association for the Advancement of Science; died in the North Penn Hospital, Lansdale, April 11, aged 81, of heart disease.

Scanlan, Peter Lawrence, Prairie du Chien, Wis.; Rush Medical College, Chicago, 1891; died Feb. 29, aged 93, of generalized arteriosclerosis, diabetes mellitus, and carcinoma of the prostate.

Schell, Warren W., Jacksonville, Fla.; Meharry Medical College, Nashville, Tenn., 1905; on the staff of the Brewster Hospital, died April 23, aged 76, of myocardial degeneration.

Schlesinger, Jacob ⊕ Hammond, Ind.; Chicago College of Medicine and Surgery, 1914; member of the American Academy of General Practice; at one time secretary of the Lake County Medical Society; veteran of World War I; vice-president of the active staff of St. Margaret Hospital, where he died March 14, aged 64, of acute coronary occlusion.

Schmitt, Gustav, Milwaukee; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; died in St. Mary's Hospital April 7, aged 83, of cardiac infarction.

Schram, David Leo ⊕ Chicago; Northwestern University Medical School, Chicago, 1900; on the staff of Michael Reese Hospital, where he died April 29, aged 79, of acute myocardial infarction.

Schub, Rosa Brind, Trenton, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1931; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; on the staff of the New Jersey State Hospital, where she died April 10, aged 57, of coronary occlusion.

Schwartz, Alfred John Charles ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the Missouri State Medical Association; veteran of World War I; died in the American Hospital June 3, aged 76, of carcinoma of the stomach.

Scott, Dwight Ferdina, Sault Sainte Marie, Mich.; Northwestern University Medical School, Chicago, 1934; on the staff of the Chippewa County War Memorial Hospital, where he died May 2, aged 48, of massive gastric hemorrhage.

Scott, Francis Joseph ⊕ Waterford, N. Y.; Albany (N. Y.) Medical College, 1905; formerly health officer; served on the staffs of the Cohoes (N. Y.) Memorial Hospital and the Leonard Hospital in Troy, where he died April 12, aged 73, of cerebral hemorrhage.

Scott, Henry, New York City; University of the City of New York Medical Department, New York City, 1895; on the staffs of the Harlem and St. Luke's hospitals, and New York Hospital–Cornell Medical Center; died in Nashville, Tenn., May 8, aged 84, of arteriosclerotic heart disease.

Senseny, Herbert Milford ⊕ Fort Wayne, Ind.; Johns Hopkins University School of Medicine, Baltimore, 1910; veteran of World War I; past-president of the Allen County Medical Society; served as president of the medical staff at St. Joseph Hospital, where he died March 12, aged 71, of coronary occlusion.

Seward, Frederic Henry, Madison, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; an associate member of the American Medical Association; on the staffs of the All Souls and Morristown Memorial hospitals in Morristown; died in Maplewood May 10, aged 78.

Sessoms, M. Perry, Savannah, Ga.; Leonard Medical School, Raleigh, N. C., 1906; died May 16, aged 75, of coronary occlusion and arteriosclerosis.

Shaweker, Max ⊕ Canton, Ohio; Northwestern University Medical School, Chicago, 1914; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; veteran of World Wars I and II; served on the board of education in Dover; chief pathologist at the Mercy Hospital; formerly on the staff of the Union Hospital in Dover; died April 18, aged 67.

Sheid, Zachariah T., Norfolk, Ark. (licensed in Arkansas in 1903); died in Mountain Home, April 26, aged 82.

Short, William Henry ⊕ Captain, U. S. Navy, retired, La Jolla, Calif.; Georgetown University School of Medicine, Washington, D. C., 1904; entered the U. S. Navy May 20, 1907; retired June 30, 1936; died in the U. S. Naval Hospital, San Diego, May 15, aged 75, of a heart attack.

Siddall, William Glenn, Alliance, Ohio; Western University Faculty of Medicine, London, Ontario, Canada, 1915; fellow of the American College of Surgeons; on the staff of the Alliance City Hospital; died April 13, aged 65.

Sims, William Scott ⊕ Hamtramck, Mich.; Meharry Medical College, Nashville, Tenn., 1932; interned at the Provident Hospital and Free Dispensary in Baltimore; veteran of World War II; on the staffs of the Kirwood General and Trinity hospitals in Detroit, died June 11, aged 50, of coronary occlusion.

Sisler, Franklin Herbert ⊕ Bristow, Okla.; College of Physicians and Surgeons, Baltimore, 1910; on the staff of the Bristow Memorial Hospital, where he died April 7, aged 68, of cerebrovascular accident.

Small, Harold Ernest ⊕ Fullerton, Calif.; University of Vermont College of Medicine, Burlington, 1915; fellow of the American College of Surgeons; for many years practiced in Augusta, Maine, where he was on the staff of the Augusta General Hospital; served on the staff of the Cary Memorial Hospital in Caribou, Maine; on the staff of St. Joseph Hospital in Orange, where he died May 17, aged 69, of coronary occlusion and posterior myocardial infarct.

Smith, Charles Russell, Harrisburg, Ohio; Starling Medical College, Columbus, 1894; for many years president of the Pleasant Township School Board; served on the staff of the Mount Carmel Hospital in Columbus; died April 6, aged 84, of injuries received in an automobile accident.

Smith, Joseph G. ⊕ Bartlesville, Okla.; Medico-Chirurgical College of Kansas City, Mo., 1903; died in the Jane G. Phillips Memorial Hospital May 7, aged 85.

Smith, Leighton Alexander ⊕ Quitman, Ga.; University of Louisville (Ky.) Medical Department, 1915; died in the John D. Archbold Memorial Hospital in Thomasville May 7, aged 64, of myocardial infarction.

Smith, Rockwell Emerson ⊕ Henderson, Ky.; University of Virginia Department of Medicine, Charlottesville, 1910; died in the Methodist Hospital April 30, aged 72, of cerebral thrombosis.

Smith, William Morgan, Boston; Tufts College Medical School, Boston, 1904; died in Woburn April 8, aged 75.

Standefer, Rufus Edd, Dunlap, Tenn.; Emory University School of Medicine, Emory University, Ga., 1915; died in the Sequatchie Memorial Hospital May 23, aged 72, of acute myocardial infarction, coronary occlusion, and generalized arteriosclerosis.

Staufft, Hannah Ophelia, Elkhart, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; died in Goshen Feb. 20, aged 87, of cerebral hemorrhage.

Steele, William Arthur ⊕ Havana, Ill.; Barnes Medical College, St. Louis, 1896; a member of the advisory board of welfare commission of Mason County; died April 13, aged 88, of bronchogenic carcinoma.

Steinberg, James ⊕ Los Angeles; Cornell University Medical College, New York City, 1911; specialist certified by the American Board of Urology; member of the American Urological Association; fellow of the American College of Surgeons; for many years associated with the Cedars of Lebanon Hospital; on the staff of the Mount Sinai Hospital and Clinic; died April 23, aged 66, of coronary thrombosis.

Steinharter, Stephan, Hempstead, N. Y.; Ludwig-Maximilians-Universität Medizinische Fakultät, Munchen, Bavaria, Germany, 1906; an associate member of the American Medical Association; in 1953 retired as clinical assistant in the medical division of Mount Sinai Hospital in New York City; died May 9, aged 75, of hypostatic pneumonia, hemiplegia, and arteriosclerosis.

Stelling, Richard Nunnally, Greensboro, N. C.; Medical College of Georgia, Augusta, 1930; member of the Medical Society of the State of North Carolina; veteran of World War II; died in the Moses H. Cone Memorial Hospital April 11, aged 53, of third degree burns.

Stephenson, Gordon Arnold ⊕ Summit, N. J.; University of Buffalo School of Medicine, 1929; certified by the National Board of Medical Examiners; fellow of the American College of Surgeons; for many years on the staff of the Overlook Hospital, where he died May 4, aged 53.

Stewart, James Golden, Sheridan, Wyo.; Northwestern University Medical School, Chicago, 1907; member of the Wyoming State Medical Society; died April 30, aged 74, of coronary thrombosis.

tewart, Omer Hall ⊕ Aurora, Ind.; Hospital College of Medicine, ouisville, Ky., 1907; served overseas during World War I; died in the Christ Hospital, Cincinnati, March 24, aged 74, of uremia following an operation for acute cholecystitis.

Stotts, Roscoe Glenn, Kenova, W. Va.; Starling Medical College, Columbus, 1906; an associate member of the American Medical Association; served as health officer; died May 22, aged 74.

Stringer, J. H., Memphis, Tenn.; Meharry Medical College, Nashville, Tenn., 1897; died May 4, aged 84.

Strout, Arthur Chester, Dexter, Maine; College of Physicians and Surgeons, Boston, 1904; member of the Maine Medical Association; served as vice-president of the Penobscot County Medical Society; on the staff of the Plummer Memorial Hospital; died April 14, aged 75.

Strunk, Aloysius C., Chicago; Jenner Medical College, Chicago, 1916; on the staff of the Woodlawn Hospital; retired member of medical staff, Swift & Company; died June 25, aged 70.

Sullivan, Gerald Augustine ⊕ Dwight, Ill.; Marquette University School of Medicine, Milwaukee, 1917; veteran of World War I; medical director of the Kelley Institute; died in the Veterans Administration Hospital May 6, aged 63, of carcinoma.

Sullivan, John Joseph, Jr. ⊕ Morristown, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; past-president of the Lackawanna County Medical Society; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; veteran of World War I; on the staff of the All Souls Hospital in Morristown; served on the staffs of St. Mary's, Scranton State, and Mercy hospitals in Scranton, Pa.; died in the Morristown Memorial Hospital April 12, aged 78, of ruptured aneurysm of the aorta.

Taylor, Mary Caroline, San Francisco; Cooper Medical College, San Francisco, 1905; an associate member of the American Medical Association; died Feb. 20, aged 89, of multiple fractured ribs and generalized arteriosclerosis.

Test, Frederick Cleveland ⊕ Glen Ellyn, Ill.; Georgetown University School of Medicine, Washington, D. C., 1895; associate professor of orthopedic surgery emeritus at Northwestern University Medical School, Chicago; member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons; veteran of World War I; served on the staff of the Cook County Hospital in Chicago; died in Wheaton July 8, aged 87.

Tincher, Edward Harper, Columbia, Mo., Homeopathic Medical College of Missouri, St. Louis, 1895; died in the Boone County General Hospital March 28, aged 87, of carcinoma of the pancreas.

Touhill, Neal Joseph ⊕ Dexter, Mo.; St. Louis University School of Medicine, 1929; died April 21, aged 52.

Tracht, Robert Russell ⊕ St. Paul; Loyola University School of Medicine, Chicago, 1932; specialist certified by the American Board of Ophthalmology; on the faculty of the University of Minnesota Medical School, Minneapolis, and the University of Minnesota Graduate School, Minneapolis-Rochester; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, and the Association for Research in Ophthalmology; on the staff of the Charles T. Miller Hospital; died May 25, aged 56, of heart disease.

Treat, David L. ⊕ Flint, Mich.; Starling Medical College, Columbus, 1898; fellow of the American College of Surgeons; at one time postmaster of Flint; served three terms as mayor, for many years president of the National Bank of Commerce; formerly chief surgeon of Buick Motor Division; in 1938 vice-president of the Michigan Association of Postmasters; died April 23, aged 82, of coronary thrombosis.

Umburn, Le Roy ⊕ Albion, Pa.; University of Pittsburgh School of Medicine, 1910; served overseas during World War I; vice-president of the First National Bank; school physician for 30 years; died in the Hamot Hospital, Erie, May 28, aged 71, of dissecting aneurysm of the aorta and arteriosclerosis.

Vande Roovaart, John Frank ⊕ Chicago; Northwestern University Medical School, Chicago, 1896; served on the staff of the Roseland Community Hospital; died June 21, aged 84.

Van Kirk, George Hiram ⊕ Kentland, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; veteran of World Wars I and II; died in St. Elizabeth Hospital, Lafayette, Feb. 14, aged 76, of acute coronary occlusion.

Van Meter, Julius Niel, Monrovia, Calif.; Drake University Medical Department, Des Moines, Iowa, 1913; an associate member of the American Medical Association; served as grade school trustee; died May 25, aged 69, of coronary thrombosis.

Vanni, Frank Lewis ⊕ Baltimore; New York Medical College, Flower and Fifth Avenue Hospitals, New York City, 1943; certified by the National Board of Medical Examiners; fellow of the International College of Surgeons; served during World War II; on the staffs of the Bon Secours, Maryland General, and St. Joseph's hospitals; died in the Johns Hopkins Hospital May 19, aged 39, of malignant hypertension.

Vasenius, Frederick Walter, Chisholm, Minn.; George Washington University School of Medicine, Washington, D. C., 1909, health officer; served as a medical missionary in Africa for the Seventh Day Adventist Church; died in the Chisholm Memorial Hospital April 23, aged 82.

Vornholt, Otto A. ⊕ Gallipolis, Ohio; the Hahnemann Medical College and Hospital, Chicago, 1919; fellow of the American College of Surgeons; on the staff of the Holzer Hospital, where he died June 13, aged 65, of lymphoma.

Walker, Louis Kyle ⊕ Ahoskie, N. C.; University of Maryland School of Medicine, Baltimore, 1911; chief of staff of Roanoke-Chowan Hospital, where he died May 17, aged 67, of pneumonia and cerebral hemorrhage.

Waller, Percy Gardiner ⊕ New Baltimore, N. Y.; Albany (N. Y.) Medical College, 1893; chosen the state's outstanding general practitioner for 1951 by the council of the Medical Society of the State of New York; served as president of the Greene County Medical Society; for many years health officer; member of the staff of the Memorial Hospital of Greene County in Catskill; died April 27, aged 85, of cerebral arteriosclerosis and chronic nephritis.

Ward, Gertrude Potter, Bloomfield, N. J.; Cornell University Medical College, New York City, 1900; an associate member of the American Medical Association; at one time health officer of Bloomfield and Glen Ridge; served as president of the Bloomfield Savings Bank; died May 20, aged 80, of cancer.

Warren, James Walter, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1904; member of the Louisiana State Medical Society; died in the Touro Infirmary April 15, aged 80.

Warren, William Ernest ⊕ Fort Payne, Ala.; Medical College of Alabama, Mobile, 1905; veteran of World War I; served on the staff of the Tennessee Coal, Iron and Railroad Company, Birmingham, and the Emergency Hospital in Ensley; died May 9, aged 77, of a brain injury received in an automobile accident.

Watson, Fred Cecil, Petersburg, Va.; Vanderbilt University School of Medicine, Nashville, Tenn., 1906; fellow of the American College of Surgeons; veteran of World Wars I and II; died April 19, aged 71.

Weedn, Alton James ⊕ Duncan, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1935; past-president of the Stephens County Medical Society; chief of staff, Weedn Hospital, where he died April 27, aged 48, of ventricular fibrillation and nephrosis.

Weir, Edward Claude ⊕ Council Bluffs, Iowa; State University of Iowa College of Medicine, Iowa City, 1900; member of the staff of the Jennie Edmundson Memorial Hospital; died May 29, aged 79, of coronary occlusion, arteriosclerosis, and congestive heart disease.

Weisel, William Francis, Quakertown, Pa.; Medico-Chirurgical College of Philadelphia, 1912; an associate member of the American Medical Association; past-president of the Bucks County Medical Society; for three terms local school director, serving as past-president and treasurer of the board; one of the founders of the Quakertown Community Hospital, where he was for many years medical chief of staff, and a past-president of the hospital board; died May 23, aged 73, of adenocarcinoma of the pancreas.

Weiss, Adolf Abraham ⊕ New York City; Columbia University College of Physicians and Surgeons, New York City, 1914; member cf the American College of Gastroenterology; on the staff of the Mount Sinai Hospital, where he died April 23, aged 65, of myocardial insufficiency.

Wells, John Bridger, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1916; veteran of World War I; died May 3, aged 76.

Wenzel, Henry George, Westfield, N. J.; Long Island College Hospital, Brooklyn, N. Y., 1898; died in St. Petersburg, Fla., April 11, aged 91.

Westheimer, James Russell, Americus, Ga.; University of Toronto Faculty of Medicine, Toronto, Canada, 1927; died April 15, aged 60.

Whetstone, William Berry, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1903; an associate member of the American Medical Association; on the staff of the Presbyterian Hospital; died May 14, aged 77, of cancer.

White, George Martin ⊕ Rockmart, Ga.; Atlanta College of Physicians and Surgeons, 1906; served as president of the Polk County Medical Society; first chief of staff at Rockmart-Aragon Hospital; director of the Rockmart Bank; died in the Rockmart-Aragon Hospital April 11, aged 76, of aspirational pneumonia and cerebral thrombosis.

Wiborn, J. Auburn, Santa Barbara, Calif.; Dartmouth Medical School, Hanover, N. H., 1897; at one time on the staff of the French Hospital in San Francisco; died in the Santa Barbara Cottage Hospital April 17, aged 84, of arteriosclerotic and hypertensive heart disease.

Wildman, Otis ⊕ Captain, U.S.N., retired, Washington, D. C.; Indiana University School of Medicine, Indianapolis, 1917; specialist certified by the American Board of Pathology; fellow of the American College of Physicians; entered the U. S. Navy Sept. 7, 1917; retired Nov. 1, 1943; veteran of World Wars I and II; died in the U. S. Naval Hospital, Bethesda, Md., May 14, aged 65, of myocardial infarction.

Williams, John Charles, New York City; University of Vermont College of Medicine, Burlington, 1912; for many years on the staff of St. Luke's Hospital; died April 25, aged 67.

Williams, John Hugh, Muncie, Ind.; Starling Medical College, Columbus, 1907; member of the Indiana State Medical Association; served as county coroner and city health officer; died May 12, aged 76, of carcinoma of the rectum.

Wilson, Doxey Robert ⊕ San Jose, Calif.; Cooper Medical College, San Francisco, 1908; fellow of the American College of Surgeons; formerly superintendent of the Santa Clara County Hospital; veteran of World War I; died in the O'Connor Hospital May 1, aged 72, of injuries incurred in a fall.

Wilson, George Kissick ⊕ Streator, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907; on the honorary staff of St. Mary's Hospital, where he died May 3, aged 76, of cerebral hemorrhage.

Wise, Louis John, Cleveland; Starling Medical College, Columbus, 1901; died May 31, aged 77.

Wood, Granville Numan ⊕ Palo Alto, Calif.; Stanford University School of Medicine, San Francisco, 1924; also a lawyer; for many years city councilman; died in the Palo Alto Hospital May 2, aged 67, of heart disease.

Wood, William Charles, Pleasantville, N. J.; Jefferson Medical College of Philadelphia, 1908; specialist certified by the American Board of Otolaryngology; member of the Medical Society of the State of Pennsylvania; served on the faculty of the University of Pennsylvania Graduate School of Medicine, Philadelphia; formerly on the staffs of the Children's Hospital, Mary J. Drexel Home, and the Lankenau Hospital, Philadelphia; died in the Graduate Hospital of the University of Pennsylvania, Philadelphia, June 4, aged 70, of ruptured aortic aneurysm.

Worten, Divonis ⊕ Pawhuska, Okla.; University of Nashville (Tenn.) Medical Department, 1902; donor of the Worten Athletic Field at the Oklahoma Baptist University at Shawnee; died May 24, aged 85.

Wright, Edward Mack, Warsaw, Ohio; Eclectic Medical Institute, Cincinnati, 1896; past-president of the Coshocton County Medical Society; served as county coroner, on the city board of health of Coshocton, and on the board of education of Coshocton and Warsaw; died in the Rochester (Minn.) Methodist Hospital April 25, aged 83, of bronchopneumonia.

Wright, Walter Nelson ⊕ Rose Hill, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; for many years mayor; served as president of the school board; died in Oskaloosa May 8, aged 89.

Youngblood, Fred ⊕ Huntsville, Ark.; Beaumont Hospital Medical College, St. Louis, 1897; died Feb. 24, aged 79, of coronary thrombosis.

Zacks, Morris Joseph ⊕ Conneautville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1933; past-president of the Crawford County Medical Society; served on the Conneaut Valley school board; on the staff of the Meadville (Pa.) City Hospital; died in Everett April 5, aged 49, of coronary occlusion.

CORRECTION

Herman, Harold.—In THE JOURNAL (Aug. 4, 1956, page 1405) an obituary of Dr. Harold Herman, who is currently in practice at 229 E. 79th St., New York City, was erroneously published. Dr. Harold C. Herrman of 639 W. 173rd St., New York City, died April 13, 1956.

FOREIGN LETTERS

AUSTRIA

Endocranial Complications in Otorhinolaryngology.—At the meeting of the Society of Physicians of Vienna on June 22, Dr. E. Bauer reported a series of seven patients with endocranial complications, including three with meningitis, three with sinus thrombosis, and one with extradural abscess, all of which conditions developed without their characteristic symptoms. The fact that the endocranial complications of the inflammatory diseases in the field of otorhinolaryngology are becoming increasingly less typical is attributed to modern chemotherapy. In addition to the local symptoms caused by the primary disorder (otitis and sinusitis, acute and chronic), the various complications exhibit only such vague symptoms as headache, fatigue, lack of drive, and exhaustion, often simulating influenza. Because of this lack of characteristic symptoms, the disease may persist and progress in a latent form. This favors the development of complications. Examination of the spinal fluid is particularly important in these patients, because this simple test can be carried out at any time and permits the recognition of an incipient endocranial complication. Otologists should not dispense with modern chemotherapy but should use it only for exact indications and with attention to time of onset and dosage. They should also remember that, despite the use of sulfonamides and antibiotics, endocranial complications that require surgical treatment may develop.

Oxygen Therapy in Failure of the Peripheral Circulation.—At the same meeting Dr. W. Möller of Kassel, Germany, said that oxygen therapy has advanced beyond the experimental stage and has become an integral part of the conservative treatment of failure of the peripheral circulation in many clinics. A comparison of the sphygmograms of the pulse in the extremities after the insufflation of oxygen reveals that the painful reactions caused by the embolic occlusion and blockage of the vessels, as evidenced in formation of gangrene, are effectively counteracted by the oxygen therapy. Oxygen-foam therapy represents a further advance in oxygen therapy. In order to adjust the size of the foam vesicle to the smallest blood vessels, the oxygen is incorporated into fluids compatible with blood. These vesicles pass through even the minutest capillaries so that they do not involve the danger of embolization. It is impossible to effect complete recovery by means of oxygen therapy, but the function can be restored and the patient freed from symptoms. Clinical and arteriographic findings show that a collateral circulation capable of meeting the functional demands requires from three to six months for its complete development. The treatment proved successful in 70% of the outpatients and in 80% of the hospital patients. The best therapeutic results can be expected when treatment is begun during the early or "silent" phase, or during the atypical ischemic stage. No treatment can be regarded as effective in all patients. The insufflation of oxygen must be complemented by oxygen therapy in the form of cer-aerosols (Lanthasol), cellular therapy (particularly by placental therapy), short-wave diathermy, breathing exercises, and diet. These various methods must in turn be complemented by giving oxygen.

BELGIUM

Infectious Embryopathies.—At the Society of Gynecology and Obstetrics, François and Verriest said that rubella or embryopathy is chiefly characterized by congenital malformations, localized (1) in the eye (central or total cataract, microphthalmia, and dystrophy of the retina); (2) in the inner ear (complete or partial deafness and disturbances in the labyrinth); and (3) in the heart (patent ductus arteriosus and interauricular septal defect). Other deformities are rare. The earlier the maternal infection, the more likely is the lens to be affected. If the mother has rubella in the first trimester of her pregnancy, the fetus may be aborted, stillborn, or born with an embryopathy. The percentage of children affected varies from 10 to 50 according to the virulence of the infecting agent. Deformities are probably due to the direct action of the virus or its toxins on the developing organs. Treatment must be preventive and consists of immunization of the mother with convalescent serum during the incubation period of the disease. Mumps, chicken pox, poliomyelitis, and infectious hepatitis cause embryopathy but rarely.

Children of Tuberculous Parents.—Graffar and Asiel in *Acta tuberculosea belgica* reported on the children of tuberculous parents in Brussels who had been divided into those who had and those who had not been vaccinated with BCG. In an attempt to protect the latter group, the tuberculous parent is hospitalized or the child is isolated in a preventorium. The reluctance of many parents to be separated from their children for a long time has interfered with this attempt and has led to a high incidence of tuberculosis among these children. The incidence of tuberculosis was four to seven times greater in the unvaccinated group.

Androgenic Smears.—Pundel of Luxembourg reported to the Society of Gynecology and Obstetrics that testosterone given in sufficient doses to a castrated woman or one in the menopause causes hyperplasia of the external basal and intermediate layers of the vaginal epithelium and the smears show basal external and intermediate cells characterized by nuclear and cytoplasmic hypochromatism. The same findings that the author designates as pure androgenic reactions may appear spontaneously in a woman at the menopause and in young women in a certain state of adrenocortical hyperactivity, but, in addition to these purely androgenic smears, there are others that show mixed estrogen-androgenic, progesterone-androgenic, and other even more complicated findings.

Herniation of the Nucleus Pulposus.—At the University of Louvain, Van der Bergh studied a series of 80 patients who had undergone surgical treatment for herniation of the nucleus pulposus. In 50 the sciatic pain was relieved, and in the rest there was complete cure; 48 patients were able to return to work. Hernias between the fifth lumbar and first sacral vertebrae were the easiest to heal. The best results are obtained with large hernias. Only 50% of persons doing physical work recovered completely as compared with 80% for those doing mental work.

Lead Poisoning.—At a meeting of the Society of Radiology, Chairdon stated that, at the time of the periodic hematological examinations of the members of the x-ray service of the Military Hospital of Brussels, serious lead poisoning was observed in more than half the personnel. This manifested itself by an increase in basophilic granulations in the erythrocytes. Similar poisoning was observed at another military hospital. It is principally due to the handling by the workers of cassettes contaminated by lead dust, which comes from the passage of the cassettes through the lead-lined cassette holders and from the handling of lead-identifying figures and cases. Among the preventive measures suggested was painting the lead figures, plates, and other lead accessories used in x-ray services with a durable varnish.

Medical Inspection in Schools.—Medical inspection of school children is required by law, but its application is inadequate, especially at the high school levels. It also neglects the hygienic supervision of the teaching staff and other school employes. Professor Goossens proposed to the Belgian Association of Hygiene and Social Medicine amendments in the present legislation and advocated the creation of a central bureau to advise the local services and coordinate the school medical inspection services. The school medical inspection should be supervised by a physician trained in school hygiene, physical education, otolaryngology, ophthalmology, orthopedics, psychiatry, and the reading of roentgenograms of the chest.

The items in these letters are contributed by regular correspondents in the various foreign countries.

BRAZIL

Blood Groups.—Although the blood groups do not in themselves constitute a sure means of anthropological classification, they may be used as a valuable aid to such a classification. A study of the O, A, B, and AB blood groups in 482 adults and a study of the M and N groups in 100 adults in Goa (Portuguese India) was carried out by Dr. A. X. da Silva. A great predominance of the O group in both Christians and Hindus was observed. The serologic difference between Hindus and Moors was striking. In the Moors a predominance of the A group was noted. This predominance has also been noted in Europeans, but, while the order of predominance is A, B, and O in the Moors, it is A, O, and B in the Europeans. The higher incidence of the B group in the Moors as compared with the Europeans is perhaps due to the Dravidian influence in the peoples of southern India with whom they had been crossed. There is a great predominance of the M factor over the N factor in the population of Goa. A high incidence of the M factor is observed in those belonging to the O group. The N factor was not found in those of the A group.

CANADA

Carbutamide.—In a symposium on carbutamide in the June 15 issue of the *Canadian Medical Association Journal*, Sirek and Sirek report that this drug lowered the blood sugar level in 67% of a series of depancreatized and depancreatized and hypophysectomized (Houssay) dogs. It appeared to potentiate insulin, 1 unit every 8 to 10 days being sufficient to control the blood sugar level in a dog previously requiring 24 units daily. The presence of insulin appeared to be necessary for the action of carbutamide, since when no insulin was given the blood sugar level tended to rise. Campbell noted that the effect of carbutomide on the depancreatized dog given insulin was greater than on the dog with diabetes induced by hypophysectomy. The drug lowered sugar excretion, the fasting blood sugar level, and the insulin requirement. Its influence on metabolism was limited. On withdrawal of insulin, it did not prevent glycosuria in the hypophysectomized diabetic or severe upsets in the depancreatized animal.

Clarke and co-workers performed in vitro studies. Carbutamide inhibited glucose production by liver slices incubated in a phosphate-saline medium. Hence carbutamide may exert a hypoglycemic action by reducing the glucose output of the liver. Adding insulin or glucagon nullified the effect of the drug. The drug also increased the oxygen consumption of liver slices in a pyruvic acid substrate, inhibited cytochrome oxidase, and reduced glucose uptake by isolated rat diaphragm. Wrenshall and Best attempted to answer the question whether the effectiveness of orally given sulfonylureas in restoring blood and urinary sugar levels to normal in diabetics depends on the presence of a supply of endogenous insulin. They showed that there are basic similarities in pattern between the presence or absence of appreciable amounts of extractable insulin at autopsy and the effectiveness or ineffectiveness of carbutamide in restoring the blood sugar level to normal in human diabetics. This accounts for the effectiveness of the drug in adults whose diabetes is of short duration. Whether the extractable insulin is a measure of the ability of the pancreas to produce insulin or not remains to be seen.

Hawkins and co-workers showed that carbutamide in rats depressed the glucose-6-phosphatase activity of the liver. Freidlich and co-workers injected the drug intravenously into rats three hours before giving glucose by mouth and found that it reduced the rate of glucose absorption from the intestine, as shown by the greater residue of reducing substances in the gastrointestinal tract of rats treated with carbutamide. Ashworth and Haist showed that administration of carbutamide to rats for three to five weeks leads to a significant increase in islet tissue, suggesting that the islets are stimulated by the drug.

Ogryzlo and Harrison described the effect of carbutamide on a patient who had undergone pancreatectomy several years previously. The drug lowered the blood sugar level to some extent but could not replace insulin and was erratic in its effect. It is admitted that some pancreatic tissue might have persisted. Leibel studied five patients whose diabetes came on after they reached maturity but who did not require insulin. Only three of them gave a good response to carbutamide. The effect of the drug tended to appear after a delay of up to two weeks, a fact already noted in Germany. Watt reported the failure of carbutamide to control labile diabetes in two patients. Charles noted that of four elderly diabetics only one achieved fairly good control with carbutamide therapy alone. Metzler had two patients (one elderly and one middle-aged) with mild diabetes who were satisfied with carbutamide; in the third patient, a younger person, treatment was a failure. Chase noted a good hypoglycemic effect in only one of her two patients; a troublesome rash developed in the other. Hall and co-workers obtained adequate control in three of five adults, but saw no results in a thin diabetic receiving 2 gm. of carbutamide by mouth daily. Spaulding produced hypoglycemia in nondiabetic subjects within three or four days and also noted a response in three persons with mild diabetes. Chute and Bain recorded the appearance of blotchy erythema and pruritus without hypoglycemia in three recently discovered juvenile diabetics; in two other cases of longer standing, only one patient achieved a slight hypoglycemic effect.

Smith and Kumar tried to devise a test for response to carbutamide by constructing insulin-tolerance curves before and after administration of the drug. Among the first 15 patients studied, they found 4 types: those with (1) a fall in the curve; (2) little change in the curve but a fall in the fasting blood sugar level; (3) a combination of 1 and 2; and (4) no change. Type 2 would benefit from carbutamide but not type 1, since type 2 must have an endogenous supply of insulin. The response in type 3 was unpredictable. The general opinion after these studies is that about 10% of all diabetics will benefit from carbutamide. It is useless for children and patients with acidosis and is most likely to help the obese pyknic adult with a mild diabetes of short duration. The full impact of the drug takes several days to develop and may continue for several days after its withdrawal. Some experiments with animals suggest that caution is necessary in patients already taking sedatives (the sleeping time after administration of a barbiturate was potentiated by carbutamide), tranquilizers, and possibly even alcohol.

C. M. A. Annual Meeting.—For its 89th annual meeting in June, the Canadian Medical Association went back to Quebec, where it was founded in 1867 and which it had not visited for 30 years. In addition to guests from the United States such as Dr. P. R. McDonald of Philadelphia and Dr. Lawrence Fallis of Detroit, there were speakers from the United Kingdom: Sir Howard Florey, who talked about micrococcic (staphylococcic) infection, and Professor McCance, the Cambridge nutritionist, who discussed unconsidered mechanisms in the maintenance of stability of the internal environment. The outgoing president, Dr. Clarence Routley, installed his successor, Dr. Renaud Lemieux, head of the department of medicine at Laval University, Quebec, in the presidency. Dr. Lemieux, who has been a member of the executive committee for some time, is the first French-Canadian to become president for several years.

Traffic Accidents.—The growing toll of automobile accidents has led to the sponsorship by the Canadian Medical Association of a Canadian Medical Traffic Accident Research Foundation with the aid of the Association des Médicins de Langue Française du Canada, the Royal College of Physicians and Surgeons of Canada, and the Canadian Bar Association. The purpose of the proposed foundation, for which there is a likelihood of substantial funds from industry, is collection of data and their analysis to assist in lowering morbidity and mortality due to traffic accidents. It is believed that the epidemiological approach may fruitfully be applied to these problems. To stimulate further interest by physicians in the problems of traffic accidents, a symposium was held at the annual meeting. The statistics for Canada show that accidents cause about 3,000 deaths in Canada annually and the loss of 50 million dollars through direct property damage. The number of accidents and the number of deaths are steadily increasing, and the automobile is now the chief cause of death in the 5-23 year age group. Of concern to physicians are medical and physical standards for drivers, research into psychiatric factors involved in accidents, development of a simple test for alcoholic intoxication, the organization of good first-aid treatment, efficient transportation for casualties, and adequate hospital care for the injured. Collection of statistics and analysis of data are necessary, if only as a basis for making proposals to nonmedical organizations, including the automobile industry. The role of alcohol was variously assessed by speakers; one thought that in his province it had a direct relation to 90% of accidents, while another held that in his area it was concerned only in 4%. This is an area in which more objective figures are needed.

College of General Practice.—The College of General Practice of Canada held its second annual meeting in Quebec in conjunction with the meeting of the Canadian Medical Association. This was purely a business meeting, but the college plans to inaugurate a scientific meeting next winter. The college committee that has been studying intern training for general practice has turned in a detailed report, in which a second year of intern training, specifically called a residency in general practice, is recommended. The college believes that this second year should be different from that leading to specialization and should include three months of general medicine, including dermatology, three months of obstetrics and gynecology, three months of general emergency surgery, one month of anesthesiology, and two months of pediatrics. After completion of this program, the college recommends two to four weeks of preceptorship with a senior practicing physician.

FRANCE

Complications After Smallpox Vaccination.—In the *Semaine des hôpitaux de Paris* (June 6, 1956, page 1962) Lamache and co-workers presented a series of 30 complications following smallpox vaccinations, which they divide into four groups: (1) local accidents, (2) allergic manifestations (chiefly asthma and eczema), (3) a sudden senescence with a rapid decline of physical and intellectual activity, and (4) aggravation of disease (cancer of the breast, tuberculosis, cirrhosis of the liver, nephritis, rheumatism, and organic and functional neurological disorders). In a 70-year-old woman cerebral arteriosclerosis and hemiplegia of the left side caused by encephalomalacia followed vaccination. A hyperacute nephritis developed, and she died. The authors concluded that, in patients with epitheliomas, acute hemopathies, tuberculosis, or severe cerebral arteriosclerosis, smallpox vaccination is absolutely contraindicated. The average interval between the vaccination and the complication was 15 days.

Psoriasis.—At the May 11 meeting of the Medical Society of Paris Hospitals, Billiottet reported a series of 10 patients with psoriasis treated with nicotinic acid derivatives. Good results were observed in five, and, although the duration of the disease did not appear to affect the results, the best results were obtained in those who had the most florid eruption.

INDIA

Leukoderma.—Fernandes and Mehta in the *Journal of the Indian Medical Profession* for June state that, although at one time leukoderma was of interest only to the dermatologist, today it is being studied by the internist, endocrinologist, radiologist, and surgeon. After any intestinal disorder is excluded, the disease is treated locally with natural or artificial ultraviolet light. Treatment with methoxsalen and gold has also been tried. Some patients however, especially those whose condition is chronic, fail to respond to any of the treatments mentioned, and these may be treated surgically. Formerly the patches were first abraded with a special sandpaper and then treated with a solution of gold chloride and tannic acid. The results were not satisfactory, as the degree of pigmentation could not be controlled. Later, therefore, intradermal pigmentation after the method of Conway was performed under anesthesia. The pigments used must be insoluble and free from harmful local or systemic effects. The border of hyperpigmentation that is almost always present surrounding an area of leukoderma is removed with electric drills. Surgical treatment alone cannot prevent the development of new patches, and, in the spreading type of the disease, the cause should be found and removed if possible.

In the *Bulletin of the Calcutta School of Tropical Medicine* for April, 1956, Chakrabarti and Banerjee reported the results of treatment in 75 patients who had leukoderma with a methoxsalen paint. The lesions varied from a few small patches to numerous and extensive areas, and the duration of the disease ranged from a few weeks to several years. The period of treatment varied from three months to two years. The treatment consisted of local application of the paint combined with ultraviolet ray therapy. The oral administration of methoxsalen was found to be of little value. Only 2 patients with small patches of recent origin were completely cured, while 34 showed no improvement and 39 were improved in varying degrees. Response was better in cases of recent origin. Lesions on the trunk and face responded better than those on the extremities Lesions on mucous membranes, palms, and soles showed hardly any change. Some of the side-effects observed were local erythema, dermatitis, change in consistency of the skin, which became hard and scaly, and hyperpigmentation. Sometimes hyperpigmentated patches with fine exfoliation developed in regions distant from the site of application of the paint. The treatment was thus found to be of help in only a small percentage of patients, and it was affected by the size, duration, and location of the pigmented patches.

Activity of the Adrenal Cortex.—Chakrabarti and Banerjee (*Indian Journal of Medical Research*, April, 1956) studied the adrenocortical activity in patients suffering from various common infectious diseases with a view to the rational therapeutic use of corticotropin. There is a profound fall in the circulating eosinophils after the injection of corticotropin, epinephrine, and 11-oxysteroids. This led to the development of a four-hour eosinopenic response test to parenterally given epinephrine as a means of evaluating the functional integrity of pituitary-adrenal axis. A 50% fall in the circulating eosinophils indicates normal adrenocortical function. In the present investigation, the eosinopenic response, four hours after the injection of 0.3 cc. of a 1:1,000 solution of epinephrine, was studied, and levels of serum sodium and potassium and blood ascorbic acid were estimated in patients suffering from pneumonia, meningococcic meningitis, tuberculous meningitis, typhoid, and tetanus during the active phase of the disease, to study the adrenocortical activity, and compared with values obtained in healthy adult subjects. The series contained 28 normal subjects, 25 patients with meningitis, 25 with tetanus, 17 with tuberculous meningitis, 23 with typhoid, and 22 with pneumonia. The mean fall in the circulating eosinophils was 59.8% in normal subjects, while the average response in the diseases mentioned varied between 25.6 and 35.4%. There was a significant decrease in the serum sodium value and blood ascorbic acid level and an increase in the serum potassium contents in all the patients. All these readings indicated hypoactivity of the adrenal cortex in the disease studied.

Congestive Heart Failure.—The good effects of Karrel's diet in the treatment of peripheral edema in congestive heart failure are due to its low caloric value and low sodium content. While studying the electrolyte composition of coconut water, Shah and co-workers (*Indian Journal of Medical Research*, April, 1956) found that it was low in sodium and high in potassium content, especially when compared to milk. They used it to treat a series of patients with congestive heart failure who had peripheral edema. Group 1 was given coconut water, and group 2 received Karrel's diet. The patients were weighed on admission. During the study, each patient's weight, total fluid intake, and urine output were charted. Examination of blood urea, nonprotein nitrogen, and urine was carried out, and electrocardiograms were made. Daily estimations of sodium and potassium content of the coconut water were made with a flame photometer. One 0.25-mg. tablet of digoxin was given three times a day to patients in both groups. It was noticed that coconut water administered in sufficient quantity is a potential diuretic. All the patients in group 1 had a marked diuresis with significant increase in the excretion of sodium and a marked loss of weight, as compared to group 2. Three of the patients on Karrel's regimen required mercurial diuretics after five days, while none of the patients in group 1 required any supplementary therapy. The clinical improvement was also striking.

The diuretic effect may be due to the low sodium and high potassium content of the coconut water. No toxic reactions were observed, but in patients with renal damage it should be used with caution.

Serum Cholinesterase.—In a report in the *Bulletin of the Calcutta School of Tropical Medicine* for April, Dutta and co-workers state that the main site of synthesis of cholinesterase is the liver. An estimation of this nonspecific enzyme in the serum may therefore be of value in assessing the degree of liver derangement associated with different lesions. The authors compared the cholinesterase content of the serum of 175 unselected hospitalized patients and 20 normal controls by measuring changes in pH. This usually ranged between 0.50 and 0.90. Low values of 0.22 to 0.40 were obtained in many patients with cirrhosis of the liver, nutritional edema, ascites, and severe anemia. Values within the normal range were obtained in patients with diabetes mellitus, hyperthyroidism, rheumatic fever, bronchial asthma, allergy, tropical eosinophilia, hypochlorhydria, duodenal ulcer, tonsillitis, giardiasis, appendicitis, and obesity. Simultaneous measurements of the cholinesterase and serum albumin were made on 30 random samples. No constant relation was found between the two, although a normal cholinesterase activity was generally found only in association with a normal serum albumin level. Low albumin levels were associated with low enzyme activity. Serial estimations rather than the single determination of cholinesterase and serum albumin may be of value in assessing liver function during the progress of a disease.

NORWAY

Campaign Against Obesity.—The Norwegian National Association for Diet and Health took a practical step in the campaign against overweight by issuing Prof. Haakon Natvig's new height-weight tables, which enable the reader to see at a glance whether he or she weighs too much. Natvig and co-workers in *Tidsskrift for den norske lægeforening* (June 1, 1956) point out that a strictly scientific basis by which to define the ideal or normal height-weight relationship is still lacking. Their own material has included both the fat and the lean, and more cannot be claimed for it than that it is based on a collection of about 15,000 healthy persons fit for work. Judged by this somewhat arbitrary standard, every third Norwegian between the ages of 30 and 49 years is overweight.

SWEDEN

Driving Licenses for Diabetics.—The liability of diabetics to develop diseases of the retina and lens has been considered so serious that up to 1950 the diagnosis of diabetes was enough in itself to disqualify an applicant for a driving license in Sweden. As the hardships thus inflicted seemed unnecessary in some cases, protests were made in parliament, and steps were taken to differentiate between diabetics with and without disqualifying retinal damage. In 1952 the public health service instituted a follow-up examination of 25 diabetics whose applications for driving licenses had been rejected earlier because they were suffering from diabetic retinopathy. Eight were considered fit to drive, 10 others were borderline cases, and 7 were clearly disqualified. Since 1952 the regulations governing the issue of driving licenses to diabetics have been modified with a view to a fairer discrimination in individual cases. At the same time the precaution has been taken to limit the duration of such a license to one year, after which reexamination is required. In 1955 Dr. Tore Kornerup found evidence of diabetic retinopathy in 47% of 1,000 unselected diabetics. His latest publication, in *Nordisk medicin* for May 24, 1956, deals with 1,137 diabetics over the age of 15 years who were examined with special reference to their fitness to drive a car. In 48% there was no sign of diabetic retinopathy, and in 34% the diabetics were fit to drive in spite of their retinopathy. Kornerup draws attention to the fear of sudden deterioration of vision on account of hemorrhages into the eyes of diabetics. This fear should be corrected by the fact that his material does not include a single patient in whom vision had suddenly been impaired by a hemorrhage or by an exudative retinopathy. To be sure, a sudden hemorrhage into the vitreous body may occur in a patient with advanced proliferative retinopathy, but for such patients driving is already out of the question.

Pulmonary Tuberculosis Relapses.—It has lately been argued that the frequency of relapse in patients with pulmonary tuberculosis has risen with the introduction of modern remedies. Hillerdal and Spangberg reported their observations on this matter in *Svenska läkartidningen* for May 11. They chose the year 1944 as representative of the preantibiotic era and the three years 1949-1951 as representative of the antibiotic era. In 1944 the death rate for sanatorium patients was 15%, and in the period 1949-1951 it was 5%. In 1944 the relapse rate for 104 sanatorium patients was 39%, whereas in the period 1949-1951 for 255 such patients it was 36%. These findings were based on a follow-up examination brought up-to-date in the autumn of 1955. A scrutiny of the 255 case reports showed that, whereas the relapse rate for the total was 36%, it was only 25% for those patients in whom chemotherapeutic measures had been combined with operative treatment. On the other hand, the relapse rate was 41% for those receiving chemotherapeutic treatment without operation. It would thus seem that the relapse rate in patients with pulmonary tuberculosis has fallen rather than risen in response to modern treatment.

Asbestosis.—The first case of asbestosis in Sweden was diagnosed in 1953. The patient was a 63-year-old man who had been employed in the asbestos industry for 17 years. When he first came under medical supervision he was suffering from dyspnea, cyanosis, and other manifestations of advanced asbestosis. This case led to a search for asbestosis among 60 workmen between the ages of 43 and 63 years who had been employed in the asbestos industry for periods ranging from 5 to 17 years. In eight of these, some degree of asbestosis was discovered. These men did not, however, present symptoms that could be traced to this condition. The discovery of these cases has now led to the inclusion of asbestosis among the reportable diseases and the adoption of measures calculated to prevent it in the future. The growing importance of asbestos as a possible source of industrial disease was emphasized by Ahlborg and Hansson in *Svenska läkartidningen* for May 25.

SWITZERLAND

Medical Education.—Many foreign students get their medical education in Switzerland, where a complete medical course is offered in Zurich, Bern, Basel, Geneva, and Lausanne. The course consist of 13 semesters, of which the first 5 are devoted to basic sciences. There are no clinical clerkships such as are found in France, but the student is initiated in the examination of the patient during a semester of preliminary clinical work. After 13 semesters of medical education the student must take a federal examination. Once in possession of his diploma, valid in all the Swiss cantons, the young phisician must take at least one year of internship. The interns work full time and are paid by the state. After four of five years a physician may qualify as a specialist and receive the title of F. M. H. (Federatio Medicorum Helveticorum). As a rule, every physician, even the most modest practitioner living in a suburb or the country, will not begin to practice before having served two or three years as an assistant physician in a large hospital. After that, at the age of about 30 years, he settles when and where he wishes. The university hospital clinic is a therapeutic and diagnostic center for medically indigent outpatients, a few of whom may be admitted to the infirmary (polyclinic). At the polyclinic each neophyte is responsible for one of the city's quarters, and he follows each patient's course after discharge from inpatient status.

Few physicians in Switzerland devote full time to scientific research, as the time of the assistant physicians is completely filled with caring for the sick. Recently, however, the larger chemical manufacturers have undertaken the total support of an assistant physician and provided him with a laboratory and technicians; the Swiss Academy of Medical sciences has granted research scholarships and subsidies; and the National Fund for Scientific Research has been created.

Clinical tradition and the struggle against excessive specialization characterize the spirit of the medical schools. For a population of more than 4 million, Switzerland depends on 4,500 practicing physicians (about one for every 1,000 people) and more than 2,500 assistant physicians in the hospitals. Furthermore, Switzerland has been able to maintain a free medical profession at a time when many other countries are organizing national health services in response to social necessities that Switzerland does not know.

Swiss Tuberculosis Association.—At a meeting of the Swiss Tuberculosis Association at Neuchâtel in April, Dr. M. Chauvet of Geneva said that, although the diagnosis of pulmonary diseases is being continually improved, there remain a certain number of puzzling cases in which biopsy of the prescalene ganglions or anatomic reflection of the hilar ganglions may provide valuable information. The operation is easy, can be done on an ambulatory basis, and presents no risk. Positive results are often obtained in patients with cancer, tuberculosis, Boeck's sarcoid, lymphogranuloma, and lymphosarcoma. Dr. Van Epereum of Davos, discussing chronic bronchitis accompanying tuberculosis, stated that the diagnosis depends on the search for eosinophils in the sputum and on the simultaneous establishment of a reduction of the pulmonary function in relation with the diminution of the caliber of the bronchioles. This diagnosis is important, as much because of the functional consequences of this disease as for the fact that the therapy of subjacent pulmonary tuberculosis is frequently efficacious only after this nonspecific factor has been eliminated.

Dr. Duggeli of Davos-Wolfgang reported his results with pyrazinamide. This product shows lasting activity only in combination with isoniazid. Duggeli used it on 65 patients with chronic cavitary disease after failure with other methods of treatment, giving 30 to 40 mg. of pyrazinamide and 4 to 6 mg. of isoniazid per kilogram of body weight. The effect, although irregular, appears to depend principally on the sensitivity of the bacilli to isoniazid. When there is resistance to 5 mcg. of isoniazid per cubic centimeter of stock solution, clinical and radiological improvement is observed in 75% of the patients, when there is resistance to 10 mcg., improvement is observed in only 50%. If there is a partial resistance, a halt in progress or an exacerbation occurs after about eight weeks, and, if there is total resistance, there is no radiological improvement. The secondary effects consist essentially in a hepatotoxic attack ithout aggravating the pulmonary tuberculosis, in contrast to e behavior of patients with epidemic hepatitis. Because of its xicity pyrazinamide should be reserved for special cases. Dr. Nick of Arosa used pyrazinamide alone on nine patients who were resistant to all other medicaments. In all nine, drug resistance appeared after four to eight weeks with either a sudden or a progressive exacerbation of the disease. In three patients a combination of pyrazinamide and aminosalicylic acid gave good results.

Dr. Marki of Arosa said that cycloserine is eliminated in high concentration in urine, which explains its value in urogenital tuberculosis. Such secondary effects as anorexia, constipation, neurological disorders with epileptiform fits, fever, and sometimes purpura have been observed. Bacterical resistance develops rapidly. Cycloserine must be given with another antibiotic. Marki gave 12 patients 1 gm. of cycloserine three times a week alternated with 1 gm. of streptomycin twice a week. Even under these conditions, resistance may develop quickly. The method of action of cycloserine is unknown, since it is not very active in vitro. Professor Daddi used the drug on three patients and observed no resistance. He believes that it is advantageous to give it on three or four consecutive days followed by two or three days of rest. Dr. Favez of Lausanne said the indications for use of cortisone in the treatment of pulmonary tuberculosis depend principally on its anti-inflammatory action and include tuberculous pneumonia, recent miliary infections, and serous effusions. Cortisone, by diminishing the capillary permeability and the permeability of the ground substance, produces a functional isolation of the tuberculous focus. In old lesions this action is undesirable since it prevents antibiotics from reaching affected zones. On the other hand, in exudative lesions, where the specific focus is not important in regard to perilesional reaction, cortisone is of some benefit, for the patient is sick more from this excessive reaction than from his tuberculosis. Cortisone must always be applied under cover of antibiotics. At the beginning of such treatment, there is the risk of massive liberation of bacilli.

Drs. Tredelenburg and Vischer of Davos-Wolfgang reported that isoniazid-resistant bacilli are characterized by a slow growth, a reduced catalasic activity, and a reduction of the index of virulence for the guinea pig. The clinical course of infection with these organisms is usually favorable because they rarely produce thickening of the cavitary walls or distant disseminations.

UNITED KINGDOM

Toxicity of Carbimazole.—Fraser and his co-workers have surveyed the effect of carbimazole, with special reference to its toxicity, on 1,046 patients receiving it for thyrotoxicosis (*Brit. M. J.* 1:1453, 1956). It blocks the production of thyroid by interfering with the organic binding of iodide into tyrosine, probably by preventing the oxidation of iodide to iodine. The survey was carried on over a mean period of 9.2 months, and during this period 0.5% of the patients showed major and 1.5% showed minor toxic reactions. The minor reactions included rashes, nausea, headache, jaundice, gastric distress, and allergic phenomena (swelling, urticaria, and polyarthritis); major reactions were depression of blood-forming tissues and the drug-fever syndrome. Granulocytopenia occurred in only one patient. Most of the reactions were of the allergic type and occurred in patients with a history of allergy. The authors point out that carbimazole is the least toxic of the antithyroid drugs. It was responsible, however, for the death of one patient from aplastic anemia.

Serum Proteins in Pulmonary Tuberculosis.—Gilliland and his co-workers examined the serum proteins of 327 tuberculous patients by means of paper electrophoresis and correlated the pattern obtained with the clinical condition of the patients, using 28 contacts living in the same environment as controls (*Brit. M. J.*, 1:1460, 1956). The patient's condition was recorded clinically, radiologically, and bacteriologically. In the tuberculous patients, there was a progressive fall in albumin concentration and a progressive rise in the gamma$_2$-globulin concentration as the extent of the lesion increased. These fractions were restored toward normal levels as the disease became arrested. There was no difference between the albumin–gamma$_2$-globulin ratio in patients with recent cases of tuberculosis and those with long-standing cases. The ratio became progressively lower, however, with increasing evidence of activity. After successful treatment with antituberculous drugs, the albumin–gamma$_2$-globulin ratio returned to normal. Whereas only 7 of the 327 patients had normal serum protein levels, nearly 50% had a normal sedimentation rate, showing how insensitive the latter is as an indicator of tuberculous activity. The authors concluded that the albumin–gamma$_2$-globulin ratio provides the most sensitive single index of the serum protein changes. Changes in the ratio appear to reflect the extent and activity of tuberculous infection and to mirror the recovery of the patient more closely than does the sedimentation rate.

Report of British Empire Cancer Campaign.—The annual report of the British Empire Cancer Campaign, which distributed over a million dollars for cancer research in 1955, has been published. At St. Bartholomew's Hospital, tobacco tar, tobacco tar plus dead tubercle bacilli, benzpyrene, and benzpyrene plus dead tubercle bacilli have been injected directly into the lungs of rats after thoracotomy. No tumors developed in the lung or the chest wall of the 10 rats injected with tobacco tar or the 9 injected with the tar plus dead tubercle bacilli, but, among the 9 injected with benzpyrene, one carcinoma and one sarcoma developed in the lung and one sarcoma arose in the chest wall at the site of the thoracotomy. The carcinoma developing in the lung as a result of benzpyrene injection is of added interest, as in this case the benzpyrene was dissolved in cholesterol, which the workers at this hospital found on histological examination to be present in increased amounts in the human lung where there has been any chronic inflammatory process. At the Royal Beatson Memorial Hospital, Glasgow, 5 mg. of cigarette-smoke tar and 0.25 mg. of resin from cigarette-smoke condensations dissolved in 0.2 ml. of arachis oil were injected into the right lung of 36 mice of mixed stock. The experiment was started in May, 1953, and all the mice are now dead. An adenocarcinoma developed in one mouse, in four others an adenoma developed in the right lung, and in one an adenoma developed in the left lung. As adenomas occur in about 20% of untreated mice over one year old, these tumors in the experimental mice are considered to be spontaneous.

Other Studies of Tobacco Tars.—At the Chester Beatty Research Institute, two experiments set up in order to test for carcinogenicity of cigarette tar, by its application to the skin of the mouse, were completed during the year. Both gave completely negative results. No malignant tumors were obtained, either with the whole cigarette tar or with the neutral fraction. In the experiment with the whole tar, one small papilloma appeared in the 21st month but had regressed three weeks later. These results are at complete variance with those of Wynder, Graham, and Croninger (1953). Equally negative results were obtained from injecting fresh cigarette tar subcutaneously into rats (no tumors after 20 months). Hamsters that had cigarette tar, either alone or mixed with soot, injected into the left bronchus, were tumor-free after 18 months. In other experiments, cigarettes made entirely from cigarette paper, in which chopped paper was substituted for tobacco, were smoked in the smoking machine, and the resulting tar was condensed. This tar, which is different in physical and chemical properties from cigarette tar, was shown by fluorescent spectroscopy to contain benzpyrene, but no tumors had arisen in 10 rats or 10 mice injected with the tar subcutaneously after one year. By means of the smoking machine, hamsters were exposed for five days a week to the entire smoke of 50 cigarettes daily, smoked at the rate of 6 an hour, for periods ranging from 12 to 20 months, without showing any tumor of the respiratory tract. In spite of the fact that their coats are stained yellow through exposure to the smoke, no skin tumors have developed. This agrees with Professor Passey's observation that life-long staining of the skin by tobacco smoke in man has never induced an epithelioma.

At Birmingham University, no skin tumors developed in a group of 50 mice painted twice weekly with a 20% solution of crude cigarette tar in acetone. Thirty mice survived 12 months and 12 survived 18 months. In another experiment, 30 mice were painted for one week with a 0.3% benzpyrene solution and subsequently painted twice weekly with the solution of tobacco tar. Four of them developed papillomas in the 18-month period, but no tumors occurred in this time in another group that received only benzpyrene. This suggests that the tar solution has a weak co-carcinogenic action. In a further series of animals given an initial treatment with tar followed by administration of croton oil weekly, only two small papillomas were obtained. This was to be expected from the application of croton oil alone. At the University of Leeds, 0.5 ml. of a solution containing 1 ml. of tar (the product of smoking 65 cigarettes in a smoking machine) in 50 ml. of arachis oil was introduced into the esophagus of 96 mice twice weekly for eight months. A control group of 96 mice were given the arachis oil alone, and an untreated group served as controls. No definite carcinoma of the lung had developed by the end of June. Eleven adenomas were observed: six in the experimental group, two in the arachis oil–treated group, and three in the untreated controls. Less than half the animals are still alive. In another experiment the tar was injected intratracheally into the lungs of a recently killed mouse. Incisions of the lungs after removal showed droplets of tar on the cut surface. Portions of the surrounding lung that contained droplets of tar were excised and implanted subcutaneously into animals of the same strain. No tumors developed at the site of injection.

At the Strangeways Research Laboratory, Cambridge, the effect of tobacco tar on human fetal lung tissue in vitro was studied. The neutral fractions of the condensate, obtained from individually smoked cigarettes, and tar from a smoking machine were used, the substances being suspended in serum. Doses containing about 0.014 gm. per milliliter of 3:4-benzpyrene revealed growth-promoting properties. After a fortnight's treatment, the condensate produced slight hyperplasia in 36% of the explants, but the smoking-machine tar induced more extensive hyperplasia in 62%. In contrast to benzpyrene, which induces hyperplasia in pneumomeres and bronchioli independently of their size, the growth-promoting effect of tobacco tars appeared mainly in the larger bronchioles. The hyperplasia consisted of increased proliferation of the bronchiolar lining, with enlargement of the cells and abnormal mitosis. At St. Bartholomew's Hospital, Finnish and Turkish cigarettes were found to have a very low arsenic content (0 to 5 mcg. per cigarette). Danish cigarettes, like British, American, Canadian, and Norwegian cigarettes, had a high arsenic content (60 to 90 mcg.). On the other hand, the small Danish cigars, or cigarillos, had a much lower arsenic content: 16 mcg. Italian cigarettes contained little or no arsenic: 0 to 1.5 mcg.

Soot.—At the Royal Beatson Memorial Hospital, Glasgow, soots from various sources were assayed for the presence of possible carcinogens. Railway engine soot, from funnels, yielded only trace amounts of 3:4-benzpyrene. In this regard, therefore, the railway engine is considered relatively unimportant as a source of air pollution. On the other hand, the gross particulate phase of diesel exhaust yielded 27% of acetone-extractable material, and a preliminary assay on the neutral fraction of this indicated the presence of an appreciable amount of 3:4-benzpyrene.

An examination of the case records of several hundred patients admitted to the Royal Marsden Hospital for cancer of the lung showed that in 422 men the average time in which smoking had been habitual was 39.3 years and the average age when smoking started was about 17 years.

Desoxyribonucleic Acid.—As formation of new desoxyribonucleic acid is known to occur exclusively in relation to mitosis and is considered to be the most significant event in the mitotic process, it has been presumed that the systems involved in desoxyribonucleic acid synthesis regulate the mitotic activity of tissues and that the malignant transformation might arise through irreversible changes in such systems. From studies of the duplication of desoxyribonucleic acid at mitosis as well as of various aspects of desoxyribonucleic acid biogenesis and catabolism, a possible relationship between the activity of nuclear desoxyribonuclease and the incidence of mitosis has been suggested. A histochemical approach seemed necessary in order to verify the conclusions drawn from studies with tissue homogenates. An attempt was therefore made at the Chester Beatty Research Institute to devise a method for localizing desoxyribonuclease in tissues. The general principle is to effect contact between a tissue section and a film of desoxyribonucleic acid, to allow sufficient time for the tissue desoxyribonuclease to act on its substrate in the film, and then to stain the unattached desoxyribonucleic acid remaining. Preliminary assays indicate that desoxyribonuclease can be localized in tissues by this method and that a satisfactory resolution can be attained.

Leukemia.—Resistance to busulfan (Myleran), in the sense of a specific refractoriness to the drug developing early in the course of leukemia, has not been seen in patients at the Royal Marsden Hospital who have been on maintenance therapy for long periods. After months or years, however, the activity of the disease gradually overcomes control by busulfan, although such control can sometimes be regained by increasing the dose. If busulfan is withheld, relapse is rapid, so that if another form of therapy is begun it should be given in addition to busulfan, which may later be withdrawn when control has been secured with the alternative therapy. It is reported that increasing numbers of patients with chronic granulocytic leukemia have now been treated continuously with busulfan for three or four years and for the most part have been in good health, living normal lives throughout. This is in contrast to the unstable state with recurrent relapse that occurs with conventional intermittent treatment by means of x-rays or drugs. Busulfan is as useful as any other drug used to treat chronic granulocytic leukemia and has definite advantages over the alternatives. It has yet to be shown, however, that radiotherapy followed by busulfan therapy is capable of prolonging life significantly.

At the Royal Marsden Hospital, 29 patients were treated with *p*-di-(2-chloroethyl)amino-L-phenylalanine, including 11 patients with Hodgkin's disease, four with lymphosarcoma, 13 with carcinoma, and one with malignant melanoma. The indications are that it will be of similar therapeutic value to *p*-di(2-chloroethyl) aminophenylbutyric acid in Hodgkin's disease and lymphosarcoma. In one of two patients with ovarian carcinoma, the rate of accumulation of ascitic fluid was slowed, and in the patient with carcinoma of the breast included in the series, skin recurrences regressed, although serous effusions were not influenced. The drug was of no benefit in cases of bronchial (7), gastric (2), or pancreatic (1) carcinoma or in malignant melanoma. It was given orally in doses of 2 to 10 mg. No gastrointestinal side-effects were encountered, but patients who received the larger doses developed severe thrombocytopenia and neutropenia; however, they recovered rapidly from this when the drug was withdrawn.

Miscellaneous.—Eight children with verified neuroblastoma were treated at the Hospital for Sick Children, Great Ormond Street, with massive doses of cyanocobalamin, with injections of 1,000 mcg. on alternate days, the course being maintained for from two to two and one-half years where survival permitted. Of the first 19 patients treated, 6 were alive and well two to five years after the onset of the disease. Two of these survivors received only a short course in conjunction with operation and radiotherapy, but in the rest the response could be attributed to the cyanocobalamin—a survival rate of 25%. In addition to these long-term survivals, definite but temporary regression of the tumor was observed in four children and similar regression was apparent in two who were still under treatment. Thus, the administration of cyanocobalamin has led to temporary or lasting arrest of tumor growth in nearly 50% of the patients The frequency with which regressive phenomena were noted indicates that this is a therapeutically induced and not a spontaneous effect.

A report from the department of radiotherapeutics at Cambridge indicates that intravenous administration of menadiol sodium diphosphate has a small but useful effect as a radiosensitizer in the radiotherapy of inoperable carcinoma of the bronchus. Although the effects are not spectacular, the results suggest that it is possible to improve the response of some human malignant tumors to radiotherapy by means of chemical radiosensitizers. A report from Harefield Hospital, Middlesex, gives details of an experiment to evaluate the effect of repeated administration of cortisone on the development of radiation damage in normal and malignant tissues of guinea pigs and mice. To date, the results indicate that the administration of 20 mg. of cortisone is more effective in reducing the damage to heavily irradiated skin when given daily for 21 days, beginning three weeks after irradiation, than when given before irradiation or daily for the 21 days immediately after radiation.

In the field of diagnostic radiology, positive correlation between the ultrasonic findings and the results of ventriculography and arteriography has been achieved in a number of cases of calcified tumor, astrocytoma, and glioma of certain areas of the brain. From a study of 265 intracranial tumors occurring in children, a new classification of such growths has been evolved at the Hospital for Sick Children, Great Ormond Street. This has proved to be both simple and prognostically significant. From this point of view, the worst types of tumor are the differentiating medulloblastoma and the diffuse astrocytoma, both of which appear to be universally hopeless. The cerebellar nodular astrocytoma gives the best prognosis. Although a longer follow-up will be necessary for certainty of an improvement in the management of these diseases, it would seem that such has possibly been the case in regard to the subtentorial astrocytoma, meningioma, and subependymal glioma.

At the Middlesex Hospital, a study of 80 patients with mucous gland tumors other than those of the major salivary glands has confirmed the fact that the prognosis of these tumors in such places as the palate, lip, and nose is worse than in the parotid, partly because of the increased frequency of the characteristically infiltrative basaloma and partly because of the increased difficulty of diagnosis and radical resection in some of these locations. Although the basalomas may show a good initial response to radiotherapy, recurrence always eventually takes place.

Bacillary Dysentery.—Dr. R. I. Hutchinson (*Month. Bull. Min. Health* 15:110, 1956) reported on the bacteriological examination of the bedclothes, patients' clothes, toys, dust, floor, floor brushes, furniture, walls, door handles, toilet seats, and lavatory floors in two residential nurseries during three outbreaks of Sonne dysentery—in the infants' department of a primary school during one outbreak, in one private house in which two families lived and in which 10 of 12 occupants were excreting Shigella sonnei, and in the nursery of a colony for mental defectives in which cases of diarrhea were occurring.

The results suggested that there is not a very great scatter of organisms into the environment from an infected person. Of 21 positive swabs from over 450 collected, 12 were from places or articles closely associated with the disposal of feces: the toilet seat, the lavatory floor, and chamber-pots; 4 were from clothes or bedding in intimate contact with a child passing frequent loose stools; and the remaining 5 were from dust in the vicinity of lavatories or from toys being handled by sick children. Of 34 toilet seats swabbed in houses or institutions in which there was a known excreter of S. sonnei, 11 were contaminated with this organism: 24 swabs were taken in institutions and 6 of these were positive; 10 were taken in private houses and 5 of these were positive. Blotting-paper patterns of the seats of 17 lavatories were made, and each one was placed over the original. A solution of gentian violet was emptied into the pan and flushed. In every case, macroscopically visible splashes appeared on the blotting paper. This experiment was repeated with a specimen of formed feces, a specimen of formed feces thoroughly triturated with broth, 5 ml. of an overnight broth culture of S. sonnei, and 100 ml. of heavily positive fluid feces. Only with this last sample were positive results obtained when the splashes were cultured. In other words, contamination of the toilet seat is likely to occur from flushing only in the early stage of the acute illness when heavily positive fluid stools are being passed.

Of 37 children observed while at stool, 17 handled the seat with either one or both hands while settling themselves on it. Six of these 17 children touched their face and mouth to a greater or lesser degree or sucked their fingers, thus transferring organisms from the toilet seat to the mouth. Hand swabbing after the children had visited the toilet for micturition, but before hand washing, no child having defecated immediately prior to the swabbing, gave the following results: In a primary school, during the seventh week of an outbreak, 2 of 118 children swabbed gave positive results. In two day nurseries, during the second and fifth weeks of an outbreak, no positive swabs were obtained from a total of 75 pairs of hands. In another day nursery, during the second week of an outbreak, 17 positive swabs were obtained from 35 pairs of hands. In a private house, the surprise swabbing of three asymptomatic children while at play produced positive swabs from the hands of a 5-year-old girl whose stool had been positive three days previously. Experimental contamination of the fingers in the laboratory showed that the organisms remained alive on the fingers for about three hours. The permeability of toilet paper was investigated by wrapping double thickness of the paper over the fingers, which were then pressed lightly on to solid, semisolid, and fluid stools for a few seconds. Five different types of paper were used, including two proprietary disinfectant brands, and in every case organisms penetrated through to the fingers with the fluid and semisolid stools. With the solid stools, 80% of the papers allowed the passage of organisms through to the fingers. It was found that S. sonnei could survive on a wooden toilet seat in a public lavatory for 17 days when the number of organisms in the contaminating drop was above 27,000 and for 3 days when the number of organisms deposited was 14,000. Less than 10,000 organisms died out in 24 to 48 hours. This was under conditions of light, temperature, and relative humidity occurring in a lavatory in daily use by the public.

Further investigations indicated that the survival time of S. sonnei outside the human body is increased by the absence of light and the presence of a low temperature and a high relative humidity but that an increased temperature, in spite of a high relative humidity, greatly curtails it. This suggests that the conditions found in many lavatories favor the survival of S. sonnei when contamination of inanimate objects occurs but that soiling of the perianal skin and the clothes in intimate contact with the body will not result in a long survival of the organisms, owing to the body temperature and skin humidity. It is therefore recommended that lavatories be placed in a brightly lighted, warm, and sunny position in all new constructions. As contamination and subsequent handling of the toilet seat and the use of easily permeable toilet paper are probably major factors in the spread of S. sonnei in private houses and institutions, the elimination of these hazards by proper placing of lavatories would do much to prevent spread of the organism, and thereby reduce the severity of epidemics.

CORRESPONDENCE

WHOLE BLOOD CLOTTING

To the Editor:—Certain aspects of the article "Effect of Bishydroxycoumarin (Dicumarol) on Clotting Time of Whole Blood" by Mayer and Connell in THE JOURNAL, June 30, page 806, merit further discussion. Until the appearance of this paper, there were serious questions about the rationale of Dicumarol usage. The general opinion had been that it did not affect significantly the clotting time of whole blood. Previous attempts to show changes in clotting time had given contradictory or inconclusive results. Accordingly, the question persisted, "If Dicumarol doesn't change the clotting time in the dosage given, how can one be sure it is an anticoagulant?" Because this question went unanswered, the argument for Dicumarol was weakened, and I believe that as a result many physicians were reluctant to use this drug. The details were discussed by me in a recent review article (*Am. J. M. Sc.* 229:534 [May] 1955).

The report by Mayer and Connell, however, now answers this question. These authors showed clearly that Dicumarol does increase the clotting time of blood under conditions of clinical usage, as measured by an accurate technique, but that the latent period before attainment of the peak effect on clotting time is 10 days. Also, they showed a poor correlation between prothrombin time and coagulation time. This probably explains why earlier studies did not reveal an effect on clotting time: measurements were performed too soon after the onset of therapy. Very likely, the findings of Mayer and Connell also explain the troublesome anomalies in Dicumarol therapy, i. e., the occurrence of thrombosis at low prothrombin percentages and bleeding at prothrombin levels considered safe. In addition, they suggest a possible way to avoid these situations by using their standardized clotting time measurement, and by employing heparin until the standardized clotting time has reached 15 minutes. It is hoped that their technique for control of coumarin-derivative therapy will prove to be entirely satisfactory for general adoption in clinical medicine. On numerous occasions it has been found that some techniques, while satisfactory in the hands of the original investigators, are too difficult for others to reproduce. However, even if their method of measuring the clotting ability of the blood is not widely adopted, their findings are highly significant, in that they show that Dicumarol in clinical doses does increase clotting time. By answering the most serious objection to Dicumarol therapy, Mayer and Connell have greatly strengthened the argument for this type of treatment, and their report should go far toward overcoming the reluctance of many physicians to use Dicumarol where adequate laboratory facilities are available.

SOLOMON GARB, M.D.
Department of Pharmacology
Cornell University Medical College
1200 York Ave.
New York 21.

TOXIC EFFECTS OF AMMONIUM CHLORIDE

To the Editor:—The recent article by Sievers and Vander, "Toxic Effects of Ammonium Chloride in Cardiac, Renal, and Hepatic Disease" (*J. A. M. A.* 161:410 [June 2] 1956) and the recent extremely informative review by S. P. Bessman, "The Role of Ammonia in Clinical Syndromes" (editorial, *Ann. Int. Med.* 44:1037, 1956) point up the importance of ammonia in the production of toxic cerebral effects in cardiac, renal, and hepatic disease. Although the article of Sievers and Vander refers to the production of toxic cerebral effects after treatment with ammonium chloride, it is now known that the blood ammonia level is elevated in certain patients with heart failure, even without treatment with ammonium chloride (Bessman, A. N., and Evans, J. M.: *Am. Heart J.* 50:715, 1955). These workers showed a parallelism between the blood ammonia level and the mental state. It is generally held today that the state of hepatic coma is produced, in part at least, by the accumulation of ammonia in the blood due to the inability of cirrhotic patients to clear ammonia from their blood (Phillips, G. B., and others: *New England J. Med.* 247:239, 1952; McDermott, W. V., Jr., and Adams, R. D.: *J. Clin. Invest.* 33:1, 1954).

Sodium glutamate has been suggested by Walshe (*Lancet* 1:1075, 1953) as a therapeutic agent in hepatic coma. According to Bessman (*Ann. Int. Med.* 44:1037, 1956) this substance could prove helpful in two ways: (1) by combining with ammonia to form glutamine, which transports ammonia to the kidney for excretion, and (2) by transamination with pyruvic acid to form alpha-ketoglutaric acid, an intermediate of the Krebs cycle. It has been noted by many investigators that glutamate is not uniformly successful in hepatic coma (McDermott, W. V., Jr., and others: *New England J. Med.* 253:1093, 1955). It seems important to speculate why this is so. The synthesis of glutamine proceeds in homogenates of liver, kidney, or brain, provided adenosine triphosphate (ATP) is supplied as a source of high-energy phosphate bonds (Weil-Malherbe, H.: *Physiol. Rev.* 30:549, 1950). The reaction is formulated by the equation:

$$\text{Glutamic acid} + NH_3 + ATP \rightarrow \text{glutamine} + ADP + \text{inorganic phosphate.}$$

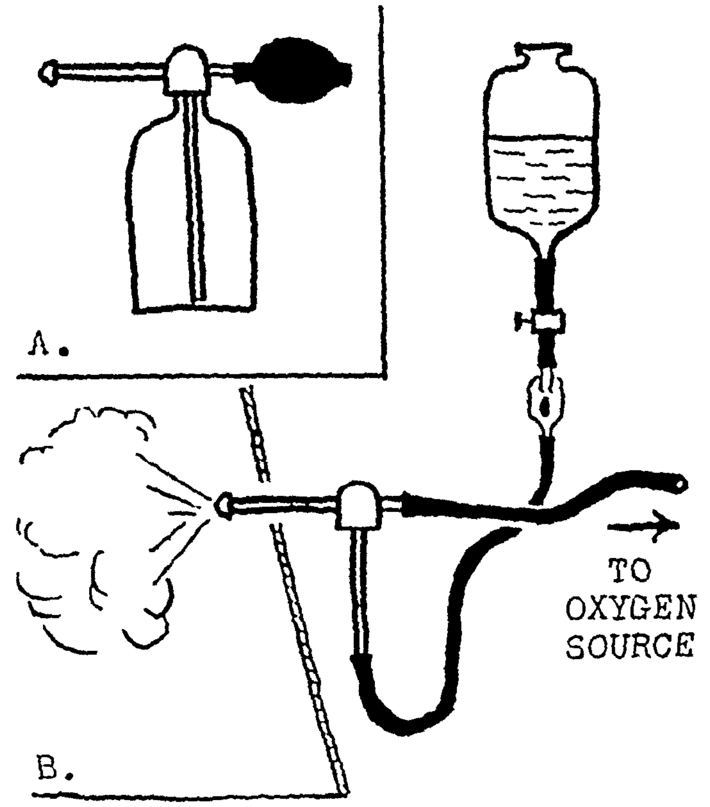
It is known that glutamic acid inhibits the anaerobic glycolysis of brain slices (Krebs, H. A.: *Biochem. J.* 29:1951, 1935). Weil-Malherbe (referred to above) believes that this phenomenon may be due to a competition between glucose and glutamic acid for available adenosine triphosphate, and accordingly the inhibition is reversed by its addition. Thus the presence of adenosine triphosphate may be the limiting factor regardless of whether glutamic acid may be of benefit in hepatic coma or in the other states where toxic actions from ammonia may cause cerebral symptoms. Glutamic acid alone may actually be harmful if excess adenosine triphosphate is not available, according to Weil-Malherbe's theory.

Recently, I treated two cardiac patients who developed mental symptoms (confusion, stupor, disorientation) associated with long-continued use of ammonium chloride. At first the results were poor after treatment with glutamic acid (L-Glutavite) for 72 hours. When adenosine-5-monophosphate (A_5MP) was added (100 mg. in gel intramuscularly daily) the response was phenomenal within four to six hours of the first dose. The glutamic acid treatment was continued. It has been shown that the injection of A_5MP causes a significant increase in the body stores of adenosine triphosphate (Albaum, H. G., and others: *J. Clin. Invest.* 30:525, 1951). In the two cases referred to above, the treatment was continued for five days with a very satisfactory result. Likewise, in one case of hepatic coma in which the patient was treated with glutamic acid given intravenously, with indifferent results over a 36-hour period, there was arousal from coma when A_5MP was given according to the technique described above. In another case of metastatic carcinoma of the liver with coma, presumed to be hepatic in nature, injections of A_5MP in the above noted dosage roused the patient from coma for several days. Subsequently, of course, the patient died from his disease. No glutamic acid was given this patient. In summary, in the toxic states caused by ammonium, besides glutamic acid, excess of adenosine triphosphate is necessary for the ammonia to be cleared, and a lack of this substance could explain some of the failures with glutamic acid reported in the literature.

LOUIS PELNER, M.D.
1352 Carroll St.
Brooklyn 13, N. Y.

SIMPLE DEVICE FOR PROVIDING HUMIDIFIED OXYGEN

To the Editor:—"Cold steam" is an important adjunct to the treatment of croup, severe pneumonia, and several other conditions. Because commercially constructed steam tents are not always at hand, a number of substitutes are in common use. The following method is suggested because of its simplicity, inexpensiveness, and accessibility. The bottle and rubber bulb are removed from any ordinary atomizer that is capable of producing a sufficiently fine spray (see figure, *A*). By means of rubber tubing, the oxygen supply is joined to the inlet from which the bulb was removed. A water reservoir is connected to the fluid inlet tube of the atomizer head through a drip chamber. This permits the flow of water and that of oxygen to be regulated independently. The nozzle of the atomizer is then introduced through an opening in the tent.



A, satisfactory type of atomizer; *B*, assembled apparatus.

This apparatus (see figure, *B*) has been found more stable and easier to regulate than other such devices. As with any oxygenating equipment, one must be careful to see that all onnections are tight. The flow of water and of oxygen should e inspected periodically. In addition, one should not allow the ater reservoir to become empty, for this would permit the entrance of air.

Henry L. Green, M.D.
13340 Northfield Blvd.
Oak Park, Mich.

TREATMENT OF EARLY MAMMARY CANCER

To the Editor:—The guest editorial "Treatment of Early Mammary Cancer" (Elman, R.: *J. A. M. A.* 161:972 [July 7] 1956) deserves commendation. The author wisely points out that the optimum treatment for early carcinoma of the breast is surgical removal while the disease is still confined to the breast. Since this, unfortunately, is not always possible, "the most that should really be claimed for therapy in cancer is significant and sometimes gratifying prolongation of life." The author has some strictures on simple mastectomy combined with radical postoperative radiotherapy that deserve comment. First, he questions whether there is supportive evidence in favor of the Edinburgh program. If he will glance at my article published in the *American Journal of Roentgenology* (72:923 [Dec.] 1954), he will see reports on 458 cases treated by such method (elsewhere than in Edinburgh) with five-year survival rates comparable to the excellent figure reported by McWhirter. Second, he quotes an evaluation of the Edinburgh method recently published by Ackerman, which does not perhaps give all the facts. Careful reading of Ackerman's report shows that the "considerable radiation morbidity" consisted of undesirable reactions in 47 of 1,882 cases, a morbidity rate of 2.5%. A little inquiry would have revealed that most of these cases had been treated during the early World War II years, when the staff was depleted and treatments were frequently interrupted by air raids. Every experienced physician knows that radical surgery also carries a morbidity rate that is occasionally quite disabling. Next, Ackerman reportedly noted a relatively high persistence of disease in the radiated cases. Well, there is unfortunately also a relatively high persistence of disease in the surgically treated field, if one considers the entire thorax; approximately one-third of persons surviving radical mastectomy 5 years unfortunately die from breast cancer before the 10th year, and additional numbers continue to die of the disease in ensuing decades. This problem exists in any therapeutic method in this particular type of cancer.

Finally, the writer of the editorial quotes Ackerman as noting no objective evidence of sterilization of lymph nodes containing cancer. A little reflection should show that this is not surprising, since the nodes ordinarily removed for study at a late stage are precisely those that have failed to respond to treatment. The hard, fixed supraclavicular and high axillary nodes of other cases that have disappeared under proper radiotherapy will not ordinarily be excised. Incidentally, McWhirter and other radiotherapists do not claim that radiotherapy sterilizes cancer in treated lymph nodes in all cases. Perhaps the most remarkable feature of the visit of this distinguished pathologist to Edinburgh was the fact that, for the first time in international cancer study, a visiting expert confirmed the diagnosis of cancer in over 98% of a series of almost 2,000 consecutive patients subjected to a given treatment program. This is a unique episode in cancer study. There are many areas in the United States where qualified radiotherapists are now readily available to patients with early mammary cancer; the evidence from Edinburgh and other sources shows that there are two effective alternate methods of treating such cases. These are (*a*) radical mastectomy, as the writer of the editorial proposes, and (*b*) simple mastectomy plus radical postoperative radiotherapy. In some hands the five-year survival rate is slightly improved by the latter program, which, incidentally, is applicable to the vast majority of patients presenting themselves for treatment, in contrast to the radical program, which is strictly applicable only to those with disease in clinical stage 1 or 2.

L. Henry Garland, M.D.
450 Sutter St.
San Francisco 8.

THE AUTOPSY

To the Editor:—The letters and comments provoked by Dr. Starr's guest editorial (*J. A. M. A.* 160:1144 [March 31] 1956) testify to the sharpness of his criticism of current postmortem practice. There can be little doubt that, to the extent that university departments of pathology fail to apply modern techniques and investigative attitudes in the assay of autopsy material, Starr's dim view of the "routine" autopsy is justified. However, neither Starr's editorial nor the comments that it elicited make mention of the autopsy in nonuniversity hospitals, where the vast majority of postmortem examinations are conducted. In the state of Connecticut, by last available report, 605 autopsies were performed at the University Hospital, in contrast to more than 3,000 autopsies in 20 nonuniversity hospitals. In eight of the latter, which had no training program in pathology, an estimated 700 autopsies were reported. In the 12 other hospitals where accredited residency training programs in pathology were operative, there were 2,300 postmortem examinations. Deficiencies of budget and staff and of instrumentation and technical skills in most nonuniversity pathology departments make it virtually impossible for postmortem examinations to be pursued on the experimental plane that Starr advocates. Even though unhappily this may be so, the autopsy in these institutions still fulfills other important ends, which he mentions only cursorily.

In the hospital with neither university affiliation nor resident training program, the autopsy may be performed simply with a view to determining, if possible, the cause of death or to provide a spot check on the diagnostic accuracy of the clinical staff. Even these limited objectives have their value. In the nonuniversity hospital with a training program in pathology, these objectives are also fulfilled, but, in addition, the so-called routine autopsy provides cumulative experience for the trainee. Of greater importance, it presents an opportunity to reconstruct the progress of the disease state from its incipiency to its culmination on the postmortem table, taking into account all of the available historical and clinical data. Each autopsy becomes a stimulating exercise in the understanding of the genesis, flowering, and end-result of the disease state. This is dynamic pathology in its conceptual sense, and for this complicated instrumentation is not essential. However much pathologists may desire to utilize available modern experimental techniques in their autopsy investigations, most pathologists, and the majority of them are located in nonuniversity institutions, view the belabored "routine" autopsy as an opportunity to increase their own store of knowledge and, through programed conferences, to transmit their findings to their clinical colleagues. This is a good that requires no defense and no apology.

Paul D. Rosahn, M.D.
Pathologist
New Britain General Hospital
New Britain, Conn.

GRANULOMA OF AXILLAS

To the Editor:—A preliminary report on the suspected cause of an unusual eruption on the axillas of women is worthwhile for diagnosing and possibly averting this new disease. Since the presentation of two cases at the Chicago Dermatological Society meeting on May 16, 1956, our colleagues have been seeing similar cases. In our series of four cases, women in the middle-age group were affected. The eruption was limited to the axillas, particularly the hairy area. The lesions were papules and nodules, with the highest point resembling a vesicle. Fluid was not obtained from the pseudovesicles. Clinically, the eruption was unlike any cutaneous disease, common or uncommon, previously seen on the axillas. For this reason, a biopsy was performed on three patients and repeated on the first one several weeks later. Histopathological findings were those of a tuberculoid reaction, suggesting the presence of a foreign body. The sections suggested the features of a silica or talc granuloma. In our cases, the source of the foreign body was probably the introduction of some substance into abraded areas, caused by shaving the axillas. This probably occurred when a stick deodorant containing zirconium was applied once or twice daily on the skin of the axillas.

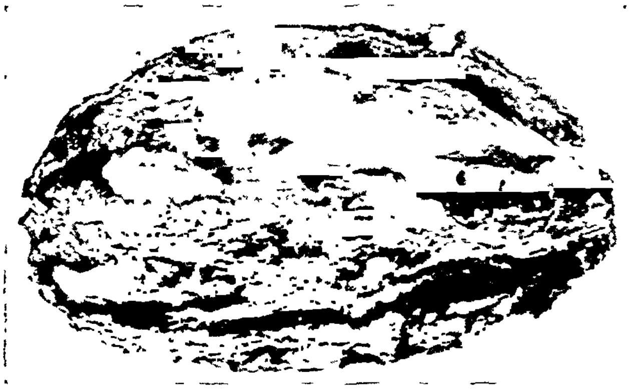
We now suspect that the cause of this unusual eruption on the axillas is zirconium, a metallic element similar to titanium and silicon. The history of contact with a stick deodorant containing zirconium is common to all four women, and it is a reasonable explanation for the localization of the eruption on the axillas. The course of the disease is unknown to us at this time. Gradual improvement of the eruption in the first patient leads us to believe that spontaneous cure, although slow, is likely.

Leonard F. Weber, M.D.
Irene Neuhauser, M.D.
Louis Rubin, M.D.
Albert H. Slepyan, M.D.
Harold Shellow, M.D.
Department of Dermatology
University of Illinois College of Medicine
840 S. Wood St.
Chicago 14.

FOREIGN BODY OF LONG STANDING

To the Editor:—A native of Scotland, who has lived in the United States for many years, has been under my observation for about 10 or 12 years, principally for recurrent episodes of pneumonitis, which were presumed to be initiated by a chronic bronchiectasis. These attacks would occur at least every six months and seemed to be of increasing severity. The patient recalled that she always "took pneumonia" easily, and she remembered her chronic productive cough as ever-present from early childhood. In the interim she married and raised three children, submitted to a cholecystectomy for cholelithiasis and cholecystitis, and was hospitalized once for a bronchoscopic examination, which was not performed because she had no sputum after a period of observation of 48 hours. Since she has been under my care I have suggested many times that a bronchoscopic examination would be enlightening, but, for some reason not clearly understood at this time, the examination was never performed. With the advent of antibiotics, her episodes of pneumonitis, while severe in the early stages, responded rapidly to therapy, and the need for more intensive investigation of the cause of the disorder seemed increasingly less important to the patient—and, I might add, to her medical consultant as well.

On Jan. 7, 1955, this patient suffered a violent paroxysm of coughing, during which marked dyspnea was present with cyanosis; as she described it, "I felt surely I could not ever breathe again." Finally, with a superphysical effort she expectorated a foreign body, which can be seen in the accompanying illustration. It resembled a piece of charcoal and was not particularly fragile. Upon further consideration the patient recalled an incident occurring in Scotland when she was 5 years of age. She was playing one day and eating beechnuts at the same time. She distinctly recalled choking on a beechnut kernel, after which she had labored breathing; her cough with the subsequent symptoms for 63 years dated from that time. For several days after expectorating this charred mass she had mild hemoptysis, but she has been asymptomatic since being free of annoying cough for the first time in 63 years. I have not searched the literature on the subject, but it seems that this case of a foreign body of this type remaining undetected in a bronchus for so many years must establish some sort of record.



W. A. Monaghan, M.D.
1217 Obispo
Long Beach, Calif.

MISCELLANY

The following memorandum was received by the Editor and will be of interest to those who have read the Guest Editorial on page 38.—Ed.

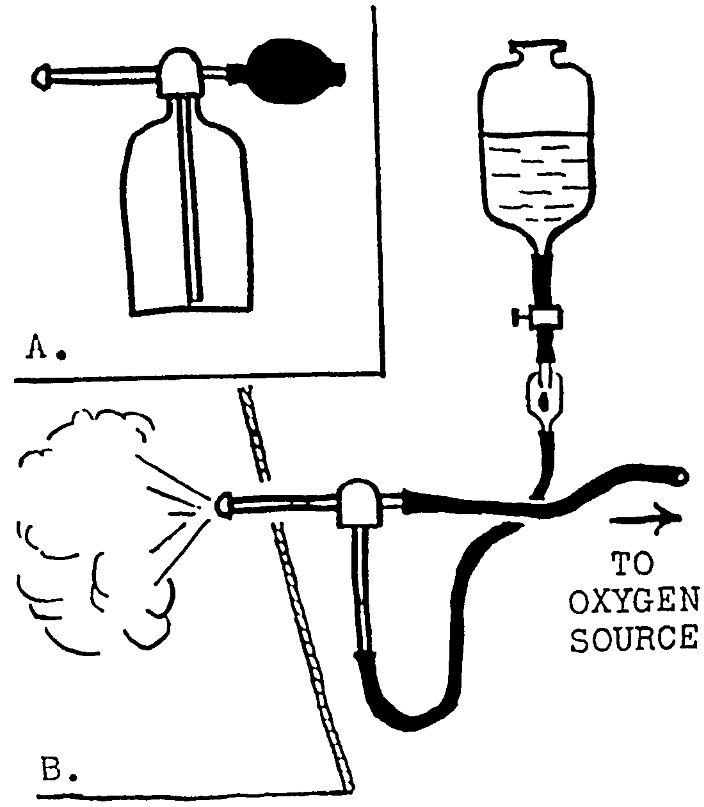
OPERATION LAOS

Aim

As the mission is now completely organized and the equipment has already left by Navy transport for Indo China, I would like to restate the plans. The aim of Operation Laos remains the same:

1) To give medical care both to the people of the mountains and of the cities through the Minister of Health of the Kingdom.

pensiveness, and accessibility. The bottle and rubber bulb are removed from any ordinary atomizer that is capable of producing a sufficiently fine spray (see figure, *A*). By means of rubber tubing, the oxygen supply is joined to the inlet from which the bulb was removed. A water reservoir is connected to the fluid inlet tube of the atomizer head through a drip chamber. This permits the flow of water and that of oxygen to be regulated independently. The nozzle of the atomizer is then introduced through an opening in the tent.



A, satisfactory type of atomizer, *B*, assembled apparatus.

This apparatus (see figure, *B*) has been found more stable and easier to regulate than other such devices. As with any oxygenating equipment, one must be careful to see that all onnections are tight. The flow of water and of oxygen should e inspected periodically. In addition, one should not allow the vater reservoir to become empty, for this would permit the entrance of air.

Henry L. Green, M.D.
13340 Northfield Blvd.
Oak Park, Mich.

TREATMENT OF EARLY MAMMARY CANCER

To the Editor:—The guest editorial "Treatment of Early Mammary Cancer" (Elman, R.: *J. A. M. A.* 161:972 [July 7] 1956) deserves commendation. The author wisely points out that the optimum treatment for early carcinoma of the breast is surgical removal while the disease is still confined to the breast. Since this, unfortunately, is not always possible, "the most that should really be claimed for therapy in cancer is significant and sometimes gratifying prolongation of life." The author has some strictures on simple mastectomy combined with radical postoperative radiotherapy that deserve comment. First, he questions whether there is supportive evidence in favor of the Edinburgh program. If he will glance at my article published in the *American Journal of Roentgenology* (72:923 [Dec.] 1954), he will see reports on 458 cases treated by such method (elsewhere than in Edinburgh) with five-year survival rates comparable to the excellent figure reported by McWhirter. Second, he quotes an evaluation of the Edinburgh method recently published by Ackerman, which does not perhaps give all the facts. Careful reading of Ackerman's report shows that the "considerable radiation morbidity" consisted of undesirable reactions in 47 of 1,882 cases, a morbidity rate of 2.5%. A little inquiry would have revealed that most of these cases had been treated during the early World War II years, when the staff was depleted and treatments were frequently interrupted by air raids. Every experienced physician knows that radical surgery also carries a morbidity rate that is occasionally quite disabling. Next, Ackerman reportedly noted a relatively high persistence of disease in the radiated cases. Well, there is unfortunately also a relatively high persistence of disease in the surgically treated field, if one considers the entire thorax; approximately one-third of persons surviving radical mastectomy 5 years unfortunately die from breast cancer before the 10th year, and additional numbers continue to die of the disease in ensuing decades. This problem exists in any therapeutic method in this particular type of cancer.

Finally, the writer of the editorial quotes Ackerman as noting no objective evidence of sterilization of lymph nodes containing cancer. A little reflection should show that this is not surprising, since the nodes ordinarily removed for study at a late stage are precisely those that have failed to respond to treatment. The hard, fixed supraclavicular and high axillary nodes of other cases that have disappeared under proper radiotherapy will not ordinarily be excised. Incidentally, McWhirter and other radiotherapists do not claim that radiotherapy sterilizes cancer in treated lymph nodes in all cases. Perhaps the most remarkable feature of the visit of this distinguished pathologist to Edinburgh was the fact that, for the first time in international cancer study, a visiting expert confirmed the diagnosis of cancer in over 98% of a series of almost 2,000 consecutive patients subjected to a given treatment program. This is a unique episode in cancer study. There are many areas in the United States where qualified radiotherapists are now readily available to patients with early mammary cancer; the evidence from Edinburgh and other sources shows that there are two effective alternate methods of treating such cases. These are (*a*) radical mastectomy, as the writer of the editorial proposes, and (*b*) simple mastectomy plus radical postoperative radiotherapy. In some hands the five-year survival rate is slightly improved by the latter program, which, incidentally, is applicable to the vast majority of patients presenting themselves for treatment, in contrast to the radical program, which is strictly applicable only to those with disease in clinical stage 1 or 2.

L. Henry Garland, M.D.
450 Sutter St.
San Francisco 8.

THE AUTOPSY

To the Editor:—The letters and comments provoked by Dr. Starr's guest editorial (*J. A. M. A.* 160:1144 [March 31] 1956) testify to the sharpness of his criticism of current postmortem practice. There can be little doubt that, to the extent that university departments of pathology fail to apply modern techniques and investigative attitudes in the assay of autopsy material, Starr's dim view of the "routine" autopsy is justified. However, neither Starr's editorial nor the comments that it elicited make mention of the autopsy in nonuniversity hospitals, where the vast majority of postmortem examinations are conducted. In the state of Connecticut, by last available report, 605 autopsies were performed at the University Hospital, in contrast to more than 3,000 autopsies in 20 nonuniversity hospitals. In eight of the latter, which had no training program in pathology, an estimated 700 autopsies were reported. In the 12 other hospitals where accredited residency training programs in pathology were operative, there were 2,300 postmortem examinations. Deficiencies of budget and staff and of instrumentation and technical skills in most nonuniversity pathology departments make it virtually impossible for postmortem examinations to be pursued on the experimental plane that Starr advocates. Even though unhappily this may be so, the autopsy in these institutions still fulfills other important ends, which he mentions only cursorily.

In the hospital with neither university affiliation nor resident training program, the autopsy may be performed simply with a view to determining, if possible, the cause of death or to provide a spot check on the diagnostic accuracy of the clinical staff. Even these limited objectives have their value. In the nonuniversity hospital with a training program in pathology, these objectives are also fulfilled, but, in addition, the so-called

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Rupture of the Heart After Myocardial Infarction. J. F. Maher, G. K. Mallory and G. A. Laurenz. New England J. Med. 255:1-10 (July 5) 1956 [Boston].

At the Mallory Institute, the pathology department of the Boston City Hospital, interest in cardiac rupture as a fatal complication of myocardial infarction was renewed by the observation of several such cases in rapid succession. This suggested an increased frequency of this complication and raised the question whether the newly introduced therapeutic methods favor cardiorrhexis. Recent or healing myocardial infarction was found in 183 of 1,928 autopsies during the two years ending June 30, 1954. Clinical histories were available in 178 of the 183 patients, and 21 patients with cardiac rupture were found among the 178 reviewed clinically. Eleven of the patients were men and 10 were women. Earlier reports also indicate that cardiac rupture occurs as often in women as in men, despite the prevalence of myocardial infarction in men. About half of the ruptures occurred during the first five days after the onset of chest pain due to myocardial infarction. Cardiorrhexis occurred in only 2 of the 66 hearts (3%) that, in addition to acute infarction, showed an old healed myocardial infarct, whereas there were 19 cardiac ruptures in 117 patients (16.2%) who had only acute or healing myocardial infarction. This agrees with earlier observations that myocardial fibrosis is much less common in infarction that terminates in cardiac rupture.

There were 123 patients who had some evidence of congestive failure, and 7 (5.7%) of these hearts ruptured, whereas of the 50 hearts not in failure 14 (28%) ruptured. Treatment with diuretics, antibiotics, or digitalis could not be considered responsible for the recent higher frequency of cardiac rupture. It may be expected, however, that the injudicious use of levarterenol or anticoagulants or the abuse of the bed-and-chair regimen might result in rupture of the heart. Prevention appears to be the only solution to the problem of cardiac rupture. Rest must be emphasized during the early period after infarction, when the diagnosis is being established. Hypertensive patients and those who have no evidence of heart failure in particular must be kept at rest if rupture is to be prevented.

The Distribution in England and Wales of Mortality from Coronary Disease. W. J. Martin. Brit. M. J. 1:1523-1525 (June 30) 1956 [London, England].

The rapid rise of mortality attributed to coronary disease during the past 30 years has been one of the chief features of the vital statistics of England and Wales. This report is concerned chiefly with the trend of mortality from coronary disease during the last 15 years. It is shown that at ages of 35 and over a twofold to threefold increase has occurred in England and Wales in the death rates attributed to coronary disease during this 15-year period. The death rate in males has increased more rapidly than that in females at the younger ages, 35 to 54 years. The regional distribution of deaths attributed to coronary disease is not very different from that of deaths from all causes, the death rates being highest in the northern counties. For both sexes mortality is high in the urban areas as compared with the rural, but the difference is more distinct for males. Although the 1951 analysis of mortality (1% sample) showed a steep gradient for mortality from coronary diseases with social class, the geographical differences in the mortality ratios in 1950 to 1952 cannot be explained by variations in the social class structure of the populations at risk. The proportion of males in social classes 1 and 2 in different areas was not correlated with the level of their mortality ratios, and it seems that some other characteristics must be responsible for the widely varying level of mortality in the different areas. In each type of area—county borough, urban district, and rural district—there was close correlation between the male and female standardized mortality ratios from coronary disease.

Serum Transaminase: New Aid in Diagnosis of Coronary Thrombosis and Hepatic Affections. N. U. Bang, K. Iversen and S. Madsen. Ugesk. læger 118:599-605 (June 2) 1956 (In Danish) [Copenhagen, Denmark].

In human serum, measurable amounts of transaminase are constantly demonstrable. Serum transaminase activity is increased in various disease conditions. Special interest attaches to the course of the reaction in acute myocardial infarct and diseases of the liver. Increased values are not found in infectious diseases, malignant diseases, metabolic diseases, or degenerative diseases when acute tissue degeneration is not present in the myocardium, skeletal musculature, or liver parenchyma. The values are considerably increased in acute myocardial infarct, rheumatic fever with active myocarditis, and especially in hepatic affections with parenchyma injury. The preliminary reports indicate that the glutamic oxalacetic transaminase increase in acute hepatitis begins as early as in the preicteric phase and seems to follow and mirror the clinical condition. According to a preliminary report, a moderately increased transaminase activity is found in occlusion jaundice as long as the occlusion lasts. Three cases, two in patients with coronary thrombosis and one in a patient with acute hepatitis, showed characteristic curves.

Pneumonia and Bronchopneumonia Treated by Sulfamides and Antibiotics. H. Durieu, F. de Clercq, A. de Coster and others. Acta clin. belg. 11:105-131 (March-April) 1956 (In French) [Brussels, Belgium].

The authors studied the therapeutic results obtained with sulfamides and antibiotics in patients with pneumonia and bronchopneumonia from records of the Clinique Médicale covering a 25-year period. Conclusions can have only an indicative value because of the disparities of the considered series and the unequal conditions of observation. The records examined were of 468 patients with pneumonia and 390 with bronchopneumonia. Of the patients with pneumonia, 126 were treated by sulfamides, 165 by antibiotics (usually penicillin), and 177 (the control group) by neither. The mortality rate in the control group was 30%, in the sulfamide-treated group 20%, and in the penicillin-treated group 5%. The seriousness of both diseases increases with age. Uremia indicates a poor prognosis, while leukocytosis seems to have little bearing on prognosis. No influence on prognosis is exerted by blood eosinophilia during the febrile phase of illness. It was encountered in 25% of the control group cases, in 13% of the sulfamide group, and in 57% of the antibiotic group. It was found in 80% of all 468 patients during convalescence. The mortality rate was higher when the patients were treated late in the course of the disease, this being especially true in those who were treated by sulfamides. Treatment during the first two days of illness seems to be a crucial factor in the mortality rate. Duration of the febrile phase is shortened in some of the patients treated with sulfamides or, especially, antibiotics. By the fourth day of illness 13% of the antibiotic-treated patients were apyretic, while only 4% of the control group and 4% of the sulfamide-treated group were apyretic at that time. Shortening of the duration of fever is the most obvious benefit derived from the antibiotics. Small doses (200,000 U.) seemed as active as the moderate (400,000 U.) or larger (1 million or more U.) doses

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1947 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

of penicillin. Signs of pulmonary consolidation regress a little more rapidly in treated patients, but by the third week the three categories of subjects had approximately the same (14-16%) proportion of significant pathological phenomena. Serious infectious complications, both local and distant, are less frequently observed in patients treated with penicillin. The use of large doses of penicillin is not justified, as the pneumococcus remains almost entirely sensitive to this drug. The fear among doctors of a regularly increasing resistance of the pneumococcus to penicillin is not verified by the findings of bacteriologists.

According to their records, the 390 patients with bronchopneumonia were divided into a control group of 254, a sulfamide-treated group of 35, and an antibiotic-treated group of 101. Since the sulfamide group was so small, valid comparisons are difficult and will have a very relative value. The mortality rate in the control group was 55%, in the sulfamide group 26%, and in the antibiotic group 16%. Although uremia is an ominous sign for prognosis, leucocytosis does not seem to have prognostic value. Contrary to the case in pneumonia, blood eosinophilia during the acute phase in bronchopneumonia seems favorable. Treatment with sulfamides and antibiotics moderately shortens the duration of fever, this effect being more evident with penicillin. Infectious complications are tremendously decreased by treatment with sulfamides and still more by antibiotics. The bronchopneumonia records showed 30% failures after treatment with sulfamides and antibiotics, whereas the pneumonia records showed 14% failures after these treatments. It is likely that the characters of the causal micro-organisms and the fragility of the host explain the high rate of failures in the bronchopneumonia cases. Penicillin may be used routinely in the beginning of the treatment, but it must be quickly replaced by a wider-range antibiotic if a therapeutic effect is not obtained after a few days of treatment.

Quantitation of the Activity of Rheumatoid Arthritis: 2. Recession of Morning Stiffness as Patients Go into Remission. J. Lansbury. Am. J. M. Sc. 232:8-11 (July) 1956 [Philadelphia].

Morning stiffness is an exceedingly common manifestation of active rheumatoid arthritis at all ages. A review of 100 consecutive cases showed that it was present in 97% of these patients at the time of the initial interview. Morning stiffness can be quantitated by observing its duration rather than its intensity. Most patients can readily distinguish stiffness from pain, and they can generally accurately identify its duration after rising in the morning. This paper considers "duration of morning stiffness" as it relates to the over-all activity of rheumatoid arthritis. The data presented were collected from records extending over a period of 10 years. The records of 45 patients personally observed by the author indicated that the average duration of morning stiffness at the time of the first office visit was 3.5 hours. There was a correlation between duration of morning stiffness and activity of the disease as measured by the sedimentation rate of erythrocytes, but the duration of morning stiffness appeared not to be related to age, sex, duration of disease, or hemoglobin concentration. The author presents three graphic analyses, which indicate that hours of morning stiffness decline in a regular trend as the patient goes into a remission. Duration of morning stiffness is, therefore, a valid index to the general or fibrositic component of rheumatoid activity and so deserves to be routinely recorded in progress notes.

Quantitation of the Activity of Rheumatoid Arthritis: 3. The Maximum 5-Minute Cutler Sedimentation Rate as an Index. J. Lansbury. Am. J. M. Sc. 232:12-16 (July) 1956 [Philadelphia].

The sedimentation rate has been accepted as a rough guide to the degree of systemic activity in cases of rheumatoid arthritis. Various methods for performing the test are in vogue, such as the Cutler, Westergren, Wintrobe, and Rourke-Ernstene techniques, but the results obtained with these various methods cannot be compared, since their values, for both the normal and the abnormal, differ from one another. The author uses the Cutler method, which differs from the others in that a wide-bore tube is employed. The graph obtained with the Cutler method furnishes two types of information: (1) the total fall of erythrocytes at the end of one hour, and (2) a series of 5-minute decrements that produce a curve from the starting point at zero to the 60-minute end-point. The shape of this curve gives information not apparent from the 60-minute end-point alone. The author has for years used the five-minute index as a measure of the activity of rheumatoid arthritis.

The maximum five-minute fall of erythrocytes observed by the Cutler sedimentation technique averaged 5.6 mm. in a series of 100 consecutive patients with rheumatoid arthritis at the time of their first interview. A statistical analysis of the five-minute erythrocyte sedimentation rate in 10 patients with rheumatoid arthritis going into remission indicated a trend toward normal, both for individuals and for the group, which is sufficiently regular to validate the Cutler five-minute erythrocyte-sedimentation rate as a quantitative index of systemic rheumatoid activity. Other sedimentation methods, such as the Rourke-Ernstene and Westergren, deserve to be similarly evaluated.

Rheumatoid Spondylitis and Aortic Insufficiency. D. P. Schilder, W. P. Harvey and C. A. Hufnagel. New England J. Med. 255:11-17 (July 5) 1956 [Boston].

The authors studied a large number of patients with aortic insufficiency who were being evaluated for surgical correction of this lesion. Rheumatoid spondylitis was present in 5 of the first 100 seen. These cases illustrate the association of rheumatoid spondylitis and aortic insufficiency and present some unusual features. The patients were remarkably similar in many respects. None had a history of syphilis. Only one had definite rheumatic fever, and one had peripheral rheumatoid arthritis. The heart disease and aortic insufficiency were severe; three patients died of it. All had free aortic insufficiency and hypertrophy of the left ventricle, and four had first-degree atrioventricular block. The rheumatoid spondylitis was advanced, and all patients were symptomatic with elevated sedimentation rates; two were anemic. There was an interval of many years between the onset of the spinal disease and clinical heart disease. Postmortem study in two patients showed aortic valves that were insufficient, thickened, and shortened, with fibrosis at the base but without commissural irregularity or obliteration. There was involvement of all layers of the aortic root, with intimal calcification in one patient. The mitral valves were normal, and no Aschoff bodies were discovered. It may be that rheumatoid spondylitis, a collagenous disease in the broad sense and closely allied to rheumatic fever and rheumatoid arthritis, occasionally causes heart disease with a predilection for the aortic valve, where it produces endocarditis and valvulitis. This would support the concept of a close relation between these diseases.

Changes in Concentration of Blood Lipids Following Prolonged Administration of Large Doses of Nicotinic Acid to Persons with Hypercholesterolemia: Preliminary Observations. W. B. Parsons Jr., R. W. P. Achor, K. G. Berge and others. Proc. Staff Meet. Mayo Clin. 31:377-390 (June 27) 1956 [Rochester, Minn.]

Diets low in fat content, administration of desiccated thyroid, use of certain vegetable sterols such as sitosterol, and administration of large doses of estrogens have been used to correct abnormal lipid metabolism when it is found in association with clinical atherosclerosis. Each of these procedures has resulted in partial or complete correction of the disturbed lipid metabolism in some patients, but frequently the results have been disappointing. The search continues for a simple, safe, and effective method of correcting abnormalities of lipid metabolism, although admittedly there is no positive evidence that such therapy would prevent the development or arrest the progress of clinical atherosclerosis. Altschul and associates found that the concentration of serum cholesterol was reduced in normal and hypercholesterolemic individuals after ingestion of nicotinic acid Previously the same investigators had noted a similar effect in rabbits when nicotinic acid was administered orally or parenterally. Interest in these results led the authors to study the long-term effects of large daily doses of nicotinic acid in patients with hypercholesterolemia.

Patients were selected for study if the pretreatment concentration of plasma cholesterol was consistently higher than 250 mg per 100 cc. The nicotinic acid was initially administered in total daily doses of 3 gm. The schedule of medication was either one capsule (500 mg.) given six times daily or two capsules given three times daily. Treatment was continued at this dosage for at least four weeks. In patients in whom the concentration of plasma chloesterol decreased to and remained at levels less than 250 mg. per 100 cc., the daily dose was reduced to 1.5 gm. In others, in whom the concentration of cholesterol failed to decrease significantly, the daily dose was increased to 4.5 gm., and in two patients to 6 gm.

The plasma cholesterol level decreased significantly in 9 of 13 patients observed for 12 weeks and in 3 of 5 other patients observed for 4 weeks. The beta-alpha$_1$ ratio was reduced in 11 of 13 patients observed for 12 weeks and in 4 of 5 other patients observed for 4 weeks. The concentration of total lipids in the plasma was reduced in most of the patients but to a lesser degree than was the concentration of cholesterol. Side-reactions, consisting of flushing and pruritus, tended to diminish rapidly after the first few days of treatment. Urticaria, nausea, and vomiting, which were observed in a few patients, subsided when the drug was withheld temporarily and did not recur when administration was resumed.

Recurrent Pulmonary Hemorrhage with Hemosiderosis: So-Called Idiopathic Pulmonary Hemosiderosis. A. J. Bruwer, R. L. J. Kennedy and J. E. Edwards. Am. J. Roentgenol. 76:98-107 (July) 1956 [Springfield, Ill.].

To date, approximately 43 cases of a disease referred to as idiopathic pulmonary hemosiderosis have been described in the literature. The term "idiopathic pulmonary hemosiderosis" is unfortunate because it does not draw attention to the fact that it is the pulmonary hemorrhages that are idiopathic, whereas the cause of the hemosiderosis, that is, the bleeding, is known. The condition has been called "idiopathic pulmonary hemosiderosis" in order to distinguish it from the cardiac type of pulmonary hemosiderosis, which is usually attributable to mitral heart disease or chronic left ventricular failure. Other terms that have been used to describe idiopathic pulmonary hemosiderosis are essential brown induration of the lungs, hemolytic anemia with pulmonary hemosiderosis, essential pulmonary hemosiderosis, and Ceelin-Gellerstedt syndrome. The authors present the histories of three new patients with clinical symptoms consistent with those of patients having so-called idiopathic pulmonary hemosiderosis. The results of autopsy studies in two of these patients are presented.

The authors stress the fact that this is an entity with characteristic clinical, roentgenologic, and pathological features. The ratio of females to males in the reported cases is about 3:2. The patient's age at onset of the disease was 5 years or less in the majority of cases reported. The commonest manifestation is recurrent pulmonary hemorrhage leading to anemia and pulmonary hemosiderosis. Pulmonary fibrosis may also be present. The disease may be acute and the result fatal in a matter of months, or it may be insidious and of prolonged duration. The prognosis is usually poor, although recovery is not unkown. It is suggested that the underlying cause of the pulmonary hemorrhage may be a hypersensitivity.

Fibroelastosis in Adults: A Review of the Literature and Report of a Case. S. R. Guraieb and R. H. Rigdon. Am. Heart J. 52:138-148 (July) 1956 [St. Louis].

Fibroelastosis (fetal endocarditis, endocardial fibrosis, congenital idiopathic hypertrophy of the heart, and congenital fibroelastosis) is a recognized pathological entity in infants, but few cases have been observed in adults. Data on the 24 cases of fibroelastosis in adults (16 years of age or over) found in a survey of the American and British literature are reviewed. The presenting clinical manifestations were those of myocardial failure in almost all of these patients. The authors report on a 38-year-old man who in 1953 had a generalized skin eruption that was diagnosed as "leukemia cutis" by biopsy. The eruption subsided after irradiation, but it later recurred. In January, 1955, the patient was hospitalized with the same type of skin eruption. A biopsy at this time showed a lymphomatous infiltration of the dermis that was considered to be a "malignant lymphoma." There was a similar lymphomatous infiltration of the bone marrow that was considered to be leukemia. He was treated with irradiation, Purinethol, and cortisone. Anemia, severe leukopenia, and thrombocytopenia developed four months before his death in May, 1955. Pathological studies revealed that the cardiac lesions were identical with those observed in infants. It is believed that even in adults the process is congenital. The histological findings in support of this opinion are the absence of any inflammatory reaction and the presence of elastic tissue and a thin band of cardiac muscle in the thickened endocardium.

The Prevention of Thromboembolic Complications in Myocardial Infarction by Anticoagulant Therapy: A Clinical-Pathologic Study. H. I. Glueck, H. W. Ryder and P. Wasserman. Circulation 13:884-895 (June) 1956 [New York].

Autopsy records of 151 patients who died of myocardial infarction in a large private hospital were reviewed. Seventy-six patients received anticoagulant therapy, and 75 patients did not. Embolic phenomena were of common occurrence in patients dying of myocardial infarction. Clinically, these were often overlooked. The utilization of anticoagulant drugs reduced the incidence of embolic complications from 41% in the "untreated" series to 9% in the "adequately treated" group. The findings of the pathologist showed that the fatal emboli were reduced from 21% in the untreated group to 4% in the patients receiving adequate therapy. Inadequate, delayed, or poorly planned therapy afforded the patients no protection from this complication. Thrombophlebitis was markedly diminished in treated patients, and fewer mural thrombi were found in patients who received adequate therapy. Extension of the infarct or occurrence of a new infarct were not influenced by anticoagulant drugs.

Hemorrhage was not a significant cause of death in the present series. Rupture of the ventricle was noted to occur in both groups regardless of therapy. The patients could not be rigidly classified on admission to the hospital in regard to their eventual prognosis. This observation, plus the difficulty of diagnosis and the unpredictability of the disease, confirmed the inference that the decision to use anticoagulant therapy should not be dependent upon rigid diagnostic criteria for infarction. The benefit to be obtained from these drugs during the acute phase of illness can be ascribed to the prevention of thromboembolic complications. They are therefore indicated whenever thromboembolism is a threat.

The Mechanism of Cough Syncope. H. D. McIntosh, E. H. Estes and J. Warren. Am. Heart J. 52:70-82 (July) 1956 [St. Louis].

The syndrome of cough syncope until recently was considered a rare form of fainting. Earlier investigators suggested that it was an epileptic equivalent or the result of a laryngeal reflex. Later, these theories were abandoned and a circulatory mechanism producing cerebral anoxia was accepted as an explanation. Twenty patients who had experienced cough syncope were questioned in detail regarding these episodes. Studies were undertaken on 13 of these patients to determine the effect on the cardiorespiratory system of single and paroxysmal coughs. The intrathoracic pressure was measured by an air-filled esophageal balloon. The systemic arterial pressure and the cerebrospinal fluid pressure were measured through indwelling needles. These pressures were recorded simultaneously by a suitable Statham strain gauge or a Sanborn electromanometer on a Sanborn four-channel direct-writing oscillograph. In some studies the "net" pressure, i. e., the arterial pressure minus the intrathoracic or spinal fluid pressure, was recorded by a Statham differential strain gauge. For comparison, similar studies were made on a heterogenous group of 100 patients with no history of cough syncope.

These studies suggest that syncope due to cough is the result of the transmission of markedly elevated intrathoracic and intra-abdominal pressure to the cerebrospinal fluid compartment causing an essentially equal rise of the latter pressure. This increased cerebrospinal fluid pressure, by increasing the extravascular pressure around the cranial arteries and veins, causes blood to be "squeezed" from the cranium. Thus, the brain becomes rapidly "bloodless," anoxia develops, and syncope may occur. The occurrence of cough syncope apparently depends on many variables. The magnitude and duration of the cough paroxysm, which depend possibly on the body build and the compliance of the pulmonary system, seem of primary importance. The facility with which blood may be "squeezed" from the cranial vessels is also of importance and apparently depends on the dynamic distensibility of the vascular system not subjected to an increased extravascular pressure, the cardiac output, the total blood volume, and other, at present unknown, factors. The susceptibility of the cerebral cortex to anoxia will determine the duration of time that a "bloodless" brain must be maintained for syncope to occur. The results of this study are in agreement with other reports which suggest that cough syncope is a common form of fainting.

Cardiac Pain from Esophageal Lesions. G. Bourne. Lancet 1:892-893 (June 9) 1956 [London, England].

The first of the two patients presented was a 54-year-old man, who had a sudden attack of pain in the chest at the level of the upper part of the sternum, whence it radiated down the left arm and up into the neck. Later in the day he had another similar attack, and two days later he had several more. All were relieved by morphine. Although on his first admission the diagnosis was of coronary thrombosis, suspicion was aroused during the second admission by the normal electrocardiogram and by the normal size and shape of the heart. Because it had been noticed that from time to time he swallowed air, the esophagus became suspect, and on radiography a diverticulum of its middle third was found. The second patient, a 67-year-old man, had symptoms of angina of effort. The pain in the chest radiated to both sides, but not to the arms or to the neck. It was induced by hurrying and by climbing hills or stairs, and it was not associated with shortness of breath. It lasted two or three minutes. The electrocardiogram, after considerable exercise by the patient, remained normal in the standard leads. The esophagus showed a sliding hiatus hernia on roentgenography. These two histories are put on record to draw attention to the necessity for a full investigation of the esophagus when pain that clinically appears attributable to coronary disease is not associated with any other abnormality, whether clinical, electrocardiographic, or radiological. The esophageal condition should be treated by advice about the proper mastication of food, by a low-residue diet, by use of aluminum hydroxide or bismuth before meals and belladonna, and by having the head of the bed raised on 9-in. blocks. The complete disappearance of symptoms after such treatment would argue for an esophageal rather than a coronary origin.

An Evaluation of Twenty-Two Patients with Acute and Chronic Pulmonary Infection with Friedlander's Bacillus. B. M. Limson, M. J. Romansky and J. G. Shea. Ann. Int. Med. 44:1070-1081 (June) 1956 [Lancaster, Pa.].

The typical pulmonary lesion produced by Friedlander's bacillus (Klebsiella pneumoniae) is a fulminating lobar pneumonia noted for its high mortality rate. Before the use of antibiotics it was fatal in from 80 to 90% of those affected. The use of streptomycin, chlortetracycline, oxytetracycline, or chloramphenicol has altered its prognosis, but the disease still presents many difficulties in management. Respiratory infections caused by Friedlander's bacillus have been classified as follows: (1) acute Friedlander's pneumonias, (2) acute mixed infections or secondary infections, and (3) chronic respiratory infections. In the latter two, Friendlander's bacillus has been the predominant organism. Twenty-two patients have been observed during the last two years at the George Washington University and Georgetown University Divisions of the District of Columbia General Hospital; 13 had acute Friedlander's pneumonia and 9 had acute and chronic mixed pulmonary diseases. The patients, all but one of whom were males, ranged in age from 16 to 70, most of them being in the middle-aged group; 15 were alcoholics, and 5 of these were in delirium tremens on admission. Nine of the 13 patients with acute Friedlander's pneumonia died. Three of those who survived were only moderately ill. Two patients received tetracycline and recovered within a week. The third was severely ill and had delirium tremens on admission. He received penicillin initially; on the third day, when the diagnosis was established, the therapy was changed to administration of streptomycin and chlortetracycline, with very good results within a week. The fourth survivor, who had arrested apical pulmonary tuberculosis, became ill with lobar pneumonia five days before admission. He received erythromycin initially, but streptomycin and tetracycline were substituted on the third day. Later, treatment was with streptomycin and chloramphenicol, and he made a slow but complete recovery on this course of treatment. The nine patients who died were alcoholics, with four in delirium tremens, and all were severely ill. There were nine patients suffering from acute and chronic mixed pulmonary diseases, and only one of these died. Therapeutic failures in the treatment of severe infections are usually due to the virulence of the organism, the factor of lowered resistance, the lack of an agent effective against the micro-organism, or delay in therapy when an effective drug is available. This is especially true of Friedlander's pneumonia. The sulfonamides have been generally disappointing, and penicillin has not been effective. The mortality rate has been reduced since the introduction of streptomycin. Tetracycline and chloramphenicol have also been found effective, but the number of cases is too small to be the basis of an accurate statistical evaluation. Friedlander's pneumonia should be suspected in alcoholics showing evidence of severe pulmonary infection, and treatment directed against Friedlander's bacillus should be instituted without delay.

A Clinical Appraisal of Radioiodine Tests of Thyroid Function. W. M. McConahey, C. A. Owen Jr. and F. R. Keating Jr. J. Clin Endocrinol. 16:724-734 (June) 1956 [Springfield, Ill.].

Tracer doses of radioiodine were given to 208 patients in whom various thyroid disorders had been diagnosed and to 181 euthyroid patients who served as controls. Ninety-two of the 208 patients had toxic diffuse goiter, 46 had adenomatous goiter without hyperthyroidism, 19 had adenomatous goiter with hyperthyroidism, 13 had myxedema, and 38 were initially suspected of having toxic diffuse goiter but were later judged to be euthyroid. Seven diagnostic laboratory procedures employing radioiodine were evaluated in terms of their economy, the time required, and the ease of administration and operation, as well as diagnostic precision. These were (1) percentage of the tracer dose collected by the thyroid in six hours; (2) percentage of the tracer dose collected by the thyroid in 24 hours, (3) percentage of radioiodine excreted in the urine in 24 hours; (4) the proportional rate of accumulation of radioiodine by the thyroid, as described by Keating and associates; (5) the proportional rate of disappearance of the isotope from the blood into all organs other than the kidneys, as described by Keating and associates, (6) proportion of radioactivity in serum that is organically bound 24 hours after a tracer dose, i. e., the conversion ratio, as described by Clark and associates, and (7) volume of plasma cleared of inorganic iodide by the thyroid per minute, i. e., thyroidal iodide clearance, as described by Berson and associates. The most precise tests for the diagnosis of toxic diffuse goiter were the six-hour thyroidal-collection test, the thyroidal iodide clearance test, and the conversion ratio. The first test is the simplest and the most rapidly performed and requires the least radioactivity; consequently, it is best for the requirements of a routine radioiodine test. Only two tests, the 6-hour and the 24-hour thyroidal-collection test, were of value in the diagnosis of myxedema. None of the seven tests was decisive in determining whether a patient with a nodular goiter had or did not have hyperthyroidism.

Direct Measuring of the Portal Pressure. C. Arullani and L Gabrielli. Policlinico (sez. prat.) 63:690-694 (May 14) 1956 (In Italian) [Rome, Italy].

The authors studied a method of measuring directly the blood pressure of the portal vein. Aspiration of material for biopsy and measuring of the portal pressure can be performed at the same time with a needle 15 cm. long and 0.2 mm. thick. Vitamin K may be given three days before the measurement to assure coagulation of the blood. The needle is introduced at the level of the trunk of the portal vein. The vein has been penetrated when there is a full flow of blood through the needle into the syringe. The syringe is then disconnected, and the needle is connected with the manometer. Except for patients with hypertension, the blood comes from the portal vein if the pressure is above 6 cm. H_2O. The blood is certainly not from the portal vein if the pressure is below 3 cm. The authors tried the method in 14 normal persons. Values below 3 cm. H_2O were obtained twice, between 4 and 6 cm. twice, and between 7 and 11 cm 10 times. Fourteen patients with severe hepatitis and four with steatosis had pressure values between 6 and 12 cm. Twenty patients with mild hepatic sclerosis and with hypertension had pressure values between 9 and 18 cm.: average 14.3 cm. Seventeen patients with atrophic cirrhosis of the liver had pressure values between 21 and 40 cm.: average 29.5. Difficulty in locating the portal vein, possibility of puncturing an artery, and difficulty in distinguishing between portal blood and suprahepatic blood are among the limitations of the method.

Retroperitoneal Hemorrhage Simulating an Acute Abdominal Lesion During Dicumarol Therapy. M. D. Reiter. West Virginia M. J. 52:205-207 (July) 1956 [Charleston].

Reiter reports on three patients in whom acute abdominal symptoms developed in the course of treatment with bishydroxycoumarin (Dicumarol). There was a sudden onset of constant, nonradiating, nonrhythmic pain involving the flank, accompanied by ileus and followed by a fall in the number of circulating red blood cells and in the hemoglobin level. Two of the patients showed hypoactive peristalsis, muscle guarding, and leukocytosis; rebound tenderness was a prominent sign in the third. These are the classic signs and symptoms of retroperitoneal hemorrhage. The first two patients later showed ecchymosis, a symptom that lent further weight to the diagnosis. The recognition of retroperitoneal hemorrhage during Dicumarol therapy is important, especially when the primary disease is a recent myocardial infarction and unnecessary surgery must be avoided.

Some disturbing factors in these patients were the absence of cutaneous or urinary bleeding and a prothrombin time that, while not normal, was not strikingly abnormal. The diagnosis could not be proved by histological section, since the patients came to neither surgery nor autopsy. The author emphasizes that, so long as Dicumarol therapy remains popular in the treatment of myocardial infarction, retroperitoneal hemorrhage may develop in other patients, the more so since hemorrhage from hypoprothrombinemia has no predilection for a special portion of the body and since Dicumarol intoxication is admittedly common.

Treatment of Diabetics with BZ-55. S. Di Lorenzo and A. Miola. Riforma med. 70:619-623 (June 2) 1956 (In Italian) [Naples, Italy].

Twenty-two diabetics were treated with BZ-55. Dosage was 2.5 gm. the first day, 1.5 gm. for the next 10 days, and 1 or 0.5 gm., depending on the patient, for the remaining days of treatment. Return to normal glycemia was noticed after 48 hours in some patients and after 6 to 10 days in others. BZ-55 was given after meals. There were no side-effects. Patients were from 42 to 72 years of age. Only four were below 45 years old. Insulin was withdrawn in 12 patients and satisfactorily replaced with BZ-55. The drug had no effect on the weight of the patients. Very good results were noticed in patients with mild disease. In only one patient was BZ-55 unable to replace insulin. The drug had no effect in a woman with a severe form of diabetes. The treatment lowered the blood sugar level and the diabetic hyperlipemia.

Viral Hepatitis: Descriptive Epidemiology Based on Morbidity and Mortality Statistics. I. L. Sherman and H. F. Eichenwald. Ann. Int. Med. 44:1049-1069 (June) 1956 [Lancaster, Pa.].

Viral hepatitis is one of the most important communicable diseases in the United States. Two separate entities are included under this term: infectious hepatitis and serum hepatitis. They are each produced by distinctly different infectious agents. The history, prior to 1952, of viral hepatitis, which is now included under the heading of infectious hepatitis in the national morbidity statistics, is obscure. Records for deaths attributable to infectious hepatitis are available since 1949 in the latest revision of the International Lists of Diseases and Causes of Death; deaths ascribed to serum hepatitis are included in the broad category of deaths due to accidents, poisoning, and violence. Within this category they are contained in two general classifications: those due to postimmunization jaundice and hepatitis and those due to therapeutic misadventure in infusion or transfusion. During World War II the disease was a major problem among the Armed Forces. Outbreaks of serum hepatitis were associated with the use of certain lots of yellow fever vaccine containing human blood serum as a buffer. It is known to be a much more severe disease than infectious hepatitis, with an appreciable death risk. The number of reported cases of viral hepatitis, comprising infectious and serum hepatitis, has increased during the four years of the present study, with the peak incidence occurring in the late winter or early spring months in all regions of the United States. The seasonal low has consistently occurred during the summer, and this has also been observed in the Scandinavian countries and in England. This cyclic behavior emphasizes the epidemic nature of infectious hepatitis; seasonal distribution of the recorded deaths in the United States, however, shows little variation during the year, suggesting that deaths may be due mainly to serum hepatitis. A geographic classification of reported case data by state and region of the United States by year suggests that there has been an actual increase in the incidence of the disease, along with improvement in the reporting of cases. Such data as have been obtained on incidence by age and sex indicate that the highest incidence occurs in persons under 15 years and that both sexes are equally susceptible to the disease. The recorded death data show increasingly higher rates with increasing age, indicating that hepatitis is more severe in older age groups or that the incidence of serum hepatitis increases in these age groups. There is an excess of deaths in females in the age groups between menarche and menopause and an excess of deaths in males in the age groups over 50 years. The reasons for these differences are not apparent.

Blood Sugar Lowering Sulfonamide Derivatives. G. R. Constam, D. Bonhôte, H. Fellmann and others. Schweiz. med. Wchnschr. 86:699-705 (June 16) 1956 (In German) [Basel, Switzerland].

Since November, 1955, carbutamide (Nadisan), a sulfonamide derivative, has been given orally to 60 women and 40 men with diabetes mellitus who were either treated ambulatorily at the Medical University Policlinic in Zurich or hospitalized in the Waid City Hospital in Zurich, Switzerland. Seventy of the 100 patients showed a good response to carbutamide; the remaining 30 responded unsatisfactorily or were therapeutic failures. The pancreas is possibly the point of attack by the sulfonamide derivative, which produces a drop in the blood sugar level. The mode and mechanism of action have not been elucidated. Blocking of the adrenals and of the glucagon present in the circulation can be definitely excluded. An inhibitory action exerted on the anterior pituitary does not seem likely. The effect of carbutamide may depend on the presence of endogenous insulin.

Carbutamide, designated BZ-55 by the German investigators, is suitable for the treatment of diabetes mellitus of less than five years' duration in sthenic patients over 45 years of age. The use of the drug is contraindicated in children, adolescents, and patients of asthenic type in whom the disease began before they reached the age of 45; in patients with acute complications, with precomatose or comatose conditions; in those with severe renal impairment; and in those with mild diabetes mellitus, who may obtain compensation with diet and exercises alone. Carbutamide may be given a trial in other patients with diabetes mellitus, and it is even indicated in patients of advanced age who are relatively resistant to insulin. The side-effects of carbutamide are mild and rare, but the occurrence of severe, fatal hypoglycemia and of uremia is possible. Consequently, carbutamide therapy should not be started without daily control of the blood sugar level. A change from insulin to carbutamide therapy requires hospitalization of patients who have previously been treated with insulin. Diet remains the basis for successful treatment with carbutamide. A diet poor in fats and relatively rich in carbohydrates (160 to 200 gm.) seems to provide favorable conditions for treatment with carbutamide. The possibility of late damage caused by carbutamide or gradual or sudden failure of the drug cannot be definitely excluded, since the patients have not yet been followed up for a sufficiently long period.

Steroid Therapy of Hypercalcemia and Renal Insufficiency in Sarcoidosis. R. W. Phillips and D. P. Fitzpatrick. New England J. Med. 254:1216-1222 (June 28) 1956 [Boston].

The authors report the successful treatment by steroid therapy of hypercalcemia in two patients with sarcoidosis and point out subsequent improvement in renal function. The first patient, a 28-year-old man, was given 100 mg. of cortisone daily for 14 days. The serum calcium level promptly fell to normal within five days, skin lesions disappeared, the appetite returned, and the patient became asymptomatic. Hypercalcemia did not recur during the two and a half years of follow-up study, although there was no further steroid medication. Renal insufficiency was present before treatment during the period of uncontrolled hypercalcemia. Improvement in renal function following cortisone therapy was minimal after three months, but at the end of two and a half years reversal of renal insufficiency had occurred, with return to nearly normal function. The second patient, a 48-year-old man, received 30 mg. of prednisone (Meticorten) daily for nine days and then 40 mg. daily for five days. The treatment failed to influence the elevated serum calcium level or the results of the urinary Sulkowitch test. Cortisone therapy (300 mg. daily for 11 days) was followed by a prompt fall of the abnormally high serum calcium levels to normal. Hypercalcemia did not recur during the 74 days of follow-up study, although there was no further steroid medication. This is admittedly not a prolonged period of observation; nevertheless, no immediate "rebound" occurred in the serum calcium level when cortisone was omitted. Renal function showed significant improvement within 45 days and had returned to nearly normal in 74 days.

The authors review data from other sources on correction of hypercalcemia in sarcoidosis with cortisone or corticotropin (ACTH) and call attention to the apparently uniform success. Maintenance steroid therapy does not appear routinely indicated, since relapse to abnormally high calcium levels does not necessarily occur. The amount of improvement in renal function with successful treatment of the hypercalcemic state was inversely proportional to the degree of renal impairment present. Little benefit was obtained in patients with advanced azotemia. Investigation of the status of calcium metabolism should be a routine procedure in all patients with sarcoidosis. If hypercalcemia is found, treatment with cortisone or corticotropin should be instituted. It is only by early use of these measures that renal insufficiency secondary to nephrocalcinosis can be prevented.

Pelger Anomaly: Pelger-Huet's Anomaly. E. Ó. Jóhannsson Ugesk. læger 118:583-588 (May 31) 1956 (In Danish) [Copenhagen, Denmark].

Pelger-Huet's anomaly is a familial anomaly with dominant inheritance and is independent of sex. It is known only by the blood picture. The typical changes in the blood picture make the anomaly easily recognizable, once it has been met with. The finding of the same blood picture in parents or children confirms the diagnosis. The hematological changes are characterized by inhibition of segmentation of the nuclei of both neutrophil and eosinophil granulocytes. There are about the same number of segmented and unsegmented nuclei among the neutrophil granulocytes. Most of the segmented nuclei have two segments, and only isolated nuclei have more segments. In Denmark and several other countries the anomaly was not described until recently, but it has long been well known in a number of countries. Cases in which the anomaly could not be established in the parents but was seen in the children are explained as recurrence of the gene by mutation. A case of Pelger's nuclear anomaly is reported in a patient in whom malignant lymphogranulomatosis was suspected. The anomaly was found in 5 of 13 members of the family, all of whom, except the patient, are well. There were no "Teiltrager" (partial carriers).

The Treatment of Barbiturate Poisoning With or Without Analeptics. J. E. Eckenhoff and W. Dam. Am. J. Med. 20:912-918 (June) 1956 [New York].

Data accumulated at the Copenhagen Narcotic Center show that supportive therapy alone is the method of choice in treating barbiturate poisoning. Mortality is strikingly low, and use of metrazol, picrotoxin, and other analeptics does not increase the survival rate and may even increase the death rate. Convulsions, vomiting with aspiration of gastric contents, and cardiac arrhythmias can be anticipated after the use of stimulant drugs. Analeptics may cause irreparable brain damage during anoxia by increasing cerebral oxygen demand in excess of available oxygen supply. The principles of supportive therapy are outlined, with emphasis on the importance of maintaining a patent airway. Comparison of treatment in two series of poisoned patients is difficult because of lack of standardization of basic treatment and inadequacy of criteria for classification of the severity of poisoning. A new method of treatment, hemodialysis, seems particularly promising, although sufficient data on its use have not appeared. The general problem is similar to that of treating a postanesthetic comatose patient, and it is suggested that a physician-anesthetist participate in the treatment of all cases of narcotic poisoning.

Sulfhemoglobinemia with Report of Case. E. Harsløf. Ugesk læger 117:551-553 (May 24) 1956 (In Danish) [Copenhagen, Denmark].

Severe sulfhemoglobinemia occurred in a patient who had been taking magnesium sulfate for 25 years. Since there had been no intake of substances forming methemoglobin, believed by most authors to be necessary for the formation of sulfhemoglobin, and since it is unlikely that magnesium sulfate alone can cause sulfhemoglobin, the case is presumably to be included under the so-called enterogenic cyanosis. In this condition, several cases of which have been reported, sulfhemoglobin is believed to be formed as the result of an intestinal disorder that causes the production of methemoglobin-forming substances in connection with hydrogen sulfide. The patient, who also had moderate anemia, together with reticulocytosis pointing to accelerated hematopoiesis, recovered after the magnesium sulfate was withdrawn and the intestinal function was regulated. Sulfhemoglobin is eliminated slowly, in the course of three or four months, in accordance with the normal breaking down of the erythrocytes, whereas methemoglobin disappears in a few hours or days.

Salt Loss in Chronic Renal Disease. A. E. Read. Brit. M. J 1:1399-1401 (June 16) 1956 [London, England].

Read reports on two patients with the "salt-losing syndrome." The syndrome in one of these patients was complicated by the appearance of a flaccid paralysis due to hyperkalemia. This responded dramatically to the intravenous administration of sodium chloride. The second patient was a woman aged 70, and in this patient the syndrome was accompanied by marked nitrogen retention. Despite this, the response to therapy with salt was most gratifying. The peripheral circulatory failure usually associated with severe sodium deficiency was absent in this case. Read stresses the importance of a thorough investigation of patients with "uremia." Analysis of blood and urine may reveal the presence of sodium depletion associated with excessive renal loss. The treatment of this aspect of the underlying renal condition is occasionally a life-saving measure. The ultimate prognosis depends on the severity of the primary lesion, usually a chronic pyelonephritis, but the salt-losing phase of the disease is very simply treated and may rescue the patient from what may appear to be a terminal phase of chronic renal failure.

SURGERY

Recent Ideas in Gastric Surgery. T. H. Somervell. J. Internat Coll. Surgeons 25:713-717 (June) 1956 [Chicago].

As a result of his experience with 6,000 patients operated on for duodenal ulcer, the author emphasizes the fact that the secretion of acid in a resting stomach or in response to a nervous stimulus, such as hunger, is to be considered entirely separately from the secretion of acid during the digestive period, which is not dependent on the vagi and is dependent on the hormone secreted by the pyloric antral mucosa. Consequently, the indiscriminate performance of vagotomy with gastrojejunostomy or some form of gastrectomy with a good free anastomosis in all cases of duodenal ulcer is to be deprecated. Highly acid fasting juice demands vagotomy. High acidity of the gastric juice in the course of the digestive period may be treated adequately by removal of the pyloric half of the stomach only. High acidity of the gastric juice throughout, i. e., in the resting phase and in the digestive phase, demands both vagotomy and hemigastrectomy Since recurrences of ulcer after resection depend on the presence of intact vagi, and since recurrences after vagotomy depend on the presence of the antrum, the combination of gastric hemiresection with vagotomy must be reckoned as the standard operation for duodenal ulcer in patients with hyperacidity.

Coarctation of the Aorta Associated with Patent Ductus Arteriosus. J. C. Cooley, J. W. Kirklin, O. T. Clagett and others. Circulation 13:843-849 (June) 1956 [New York].

The records of 193 patients in whom coarctation of the aorta was treated surgically at the Mayo Clinic were reviewed. In 14 instances (7.3%) the ductus arteriosus was grossly patent. Since the combination of patent ductus arteriosus and coarctation of the aorta poses special anatomic, physiological, and surgical problems, observations on these 14 patients are discussed. The results of operation in the group of eight patients having a patent ductus arteriosus associated with coarctation of the aorta and no pulmonary hypertension were good in every case except for one postoperative death. Of the six patients having pulmonary hypertension, patent ductus, and coarctation of the aorta, two died in the postoperative period. Of the four patients surviving operation, three obtained good results, with adequate lowering of the systemic blood pressure. One patient, in whom the ductus was divided without repair of the coarctation, obtained only a fair result.

The authors emphasize the fact that it is important to recognize before operation those patients in whom a patent ductus arteriosus is associated with pulmonary hypertension. In those with severe pulmonary hypertension and attachment of the ductus in the region of the coarctation or distal to it, considerable amounts of the blood going into the descending aorta may be coming from the pulmonary artery. The collateral circulation is sometimes poorly developed under these circumstances. Then cross-clamping of the aorta for a period long enough to allow an aortic resection and anastomosis might cause paralysis of the lower limbs. This catastrophe did not occur in any of the patients in this series. The anastomosis should, however, be made as quickly as possible. Moderate hypothermia was utilized in one case. The fact should be considered in the postoperative management of these patients that high oxygen concentrations lower the pulmonary artery pressure in most persons with pulmonary hypertension associated with congenital heart disease. For this reason, the patient is kept under high oxygen concentrations for a prolonged period after operation, in some instances from 7 to 10 days. Though this maneuver is on an empiric basis, it may lower the pulmonary artery pressure enough to take some of the strain off the right ventricle during the critical period.

The Hemodynamic Results of Surgical Correction of Atrial Septal Defects: A Report of Thirty-Three Cases. J. W. Kirklin, W. H. Weidman, J. T. Burroughs and others. Circulation 13: 825-833 (June) 1956 [New York].

Kirklin and associates describe the results of operation in the first 33 of a total of 59 patients with atrial septal defect and left-to-right shunt, who were treated at the Mayo Clinic before Dec. 1, 1955. All 33 patients had atrial septal defects with left-to-right shunting of blood across the defect; many had additional complicating features. Some had a degree of right-to-left shunting, as well. Only four patients were entirely asymptomatic. Thirty-one of the 33 patients were operated on with the atrial-well technique of Gross and associates, with minor changes in details of suturing. A suitable piece of noncompressed Ivalon sponge was used to close the defects. The technique was modified for the patients with associated and complicated defect. Hemodynamic data were obtained before, during, and after the operation. The results of operative closure of atrial septal defects were excellent in 27 cases, fair in 4, and poor in one. There was one postoperative death. On the basis of these results, it seems justified to advise repair of atrial septal defects in all patients with significant physiological derangement resulting from this anatomic malformation. In the subsequent 26 cases, bringing the entire series to 59 cases, closures have all been judged to be complete.

Gross Damage to the Portal Vein and Hepatic Artery During Cholecystectomy. N. R. Wyndham. Australian & New Zealand J. Surg. 25:292-295 (May) 1956 [Melbourne, Australia].

Division of the portal vein with delayed repair occurred in a 34-year-old woman who was subjected to a cholecystectomy. After the operation an increasingly large amount of blood came from the drainage tube. By the next day it was obvious that intraperitoneal bleeding had also occurred. For six days after the operation her condition became gradually worse, although the pulse rate and temperature did not vary significantly. On the seventh day her deterioration became more obvious. Her complexion was sallow, with some icterus. Bile and albumen appeared in the urine. On the 11th day, operation was undertaken as a desperate measure because of a sudden deterioration in her condition. A large quantity of old blood was evacuated, about half consisting of clots. The common bile duct and the hepatic artery were intact, but the portal vein had been completely divided. The hepatic end had been ligated, but the distal end was occluded by a clot. This was friable and was removed with a probe and sucker to a distance of 2.5 in. (6.25 cm.). Only a small trickle of blood resulted. The hepatic end of the vein was cleared in a similar manner and the continuity restored with fine silk sutures. Two years after the operation, the patient was well and free of all symptoms referable to the biliary tract.

Ligation of the common hepatic artery has frequently been performed for portal hypertention as a deliberate procedure. The only liver disease in the case reported here was due to a chronic biliary obstruction. The patient was a 49-year-old woman in whom a stricture of the common hepatic duct was found at operation. This was excised and repaired over a T-tube, the long limb of which was introduced through an opening below the stricture. A somewhat abnormal relation of the structures around the common bile duct was seen, the portal vein lying anterior and the common hepatic artery being anterior to the common bile duct. The immediate postoperative course was normal. On the 20th postoperative day the patient complained of epigastric pain and vomited a few ounces of blood-stained fluid. A diagnosis of intra-abdominal bleeding was made. At operation (one month after the first one) it was found that the bleeding came from a large hole in the side of the hepatic artery, which had been eroded by the T-tube. Complete obliteration of the artery with slik sutures was required. The results of ligation of the hepatic artery were awaited with some trepidation. The semicomatose, intensely jaundiced appearance of the patient was thought to be due to acute liver failure. Recovery was much more rapid than expected. In what way compensation for the loss of blood supply from the hepatic artery occurred is not clear. Apparently, numerous small vessels had penetrated the liver substance from the surrounding connective tissue. New systemic vessels were obvious at the last operation (required because of stricture of the duct), but these could have played little part in the immediate recovery phase. There has been no demonstrable damage to the liver due to the ligation of the hepatic artery in this case.

Aspects of Bronchial Adenoma. F. Holle and R. Schautz. Arch. klin. Chir. 281:583-597 (No. 6) 1956 (In German) [Berlin, Germany].

The authors discovered 7 bronchial adenomas among 100 pulmonary tumors. The bronchial adenoma stands in fifth place, when the solitary pulmonary foci are classified according to frequency. Tuberculomas, bronchial carcinomas, hamartomas, and malignant metastases are more frequent. Bronchial adenoma usually begins at a relatively early age, but its growth is slow. The tumor is extremely vascular and usually has its origin in the larger bronchi. Although the central and perihilar sections of the bronchial tree are the main areas of localization, adenomas may also occur extrabronchially and in the peripheral sections of the lung. They grow either in the form of a pedicled, cylindrical polyp extending into the bronchial lumen or within the bronchial wall growing through it toward the lumen and outward. The pedicled endobronchial polyps lead to gradual obstruction of the bronchus, which is intermittent at first and later becomes permanent. The mural adenomas, which grow through and beyond the wall, destroy the bronchial wall and the cartilages, but they remain separated from the mucosa and alveolar parenchyma by a layer of capsular connective tissue. Patients with bronchial adenoma usually have a long history of illness. Five of the authors' seven patients had had symptoms for more than seven years.

Pleuropulmonary suppurations that recur for years and finally produce a pleural empyema are the most characteristic clinical manifestation of a bronchial adenoma. Coughing, asthma-like during the two and a half years of follow-up study, although there was no further steroid medication. Renal insufficiency was present before treatment during the period of uncontrolled hypercalcemia. Improvement in renal function following cortisone therapy was minimal after three months, but at the end of two and a half years reversal of renal insufficiency had occurred, with return to nearly normal function. The second patient, a 48-year-old man, received 30 mg. of prednisone (Meticorten) daily for nine days and then 40 mg. daily for five days. The treatment failed to influence the elevated serum calcium level or the results of the urinary Sulkowitch test. Cortisone therapy (300 mg. daily for 11 days) was followed by a prompt fall of the abnormally high serum calcium levels to normal. Hypercalcemia did not recur during the 74 days of follow-up study, although there was no further steroid medication. This is admittedly not a prolonged period of observation; nevertheless, no immediate "rebound" occurred in the serum calcium level when cortisone was omitted. Renal function showed significant improvement within 45 days and had returned to nearly normal in 74 days.

The authors review data from other sources on correction of hypercalcemia in sarcoidosis with cortisone or corticotropin (ACTH) and call attention to the apparently uniform success. Maintenance steroid therapy does not appear routinely indicated, since relapse to abnormally high calcium levels does not necessarily occur. The amount of improvement in renal function with successful treatment of the hypercalcemic state was inversely proportional to the degree of renal impairment present. Little benefit was obtained in patients with advanced azotemia. Investigation of the status of calcium metabolism should be a routine procedure in all patients with sarcoidosis. If hypercalcemia is found, treatment with cortisone or corticotropin should be instituted. It is only by early use of these measures that renal insufficiency secondary to nephrocalcinosis can be prevented.

Pelger Anomaly: Pelger-Huet's Anomaly. E. Ó. Jóhannsson. Ugesk. Læger 118:583-588 (May 31) 1956 (In Danish) [Copenhagen, Denmark].

Pelger-Huet's anomaly is a familial anomaly with dominant inheritance and is independent of sex. It is known only by the blood picture. The typical changes in the blood picture make the anomaly easily recognizable, once it has been met with. The finding of the same blood picture in parents or children confirms the diagnosis. The hematological changes are characterized by inhibition of segmentation of the nuclei of both neutrophil and eosinophil granulocytes. There are about the same number of segmented and unsegmented nuclei among the neutrophil granulocytes. Most of the segmented nuclei have two segments, and only isolated nuclei have more segments. In Denmark and several other countries the anomaly was not described until recently, but it has long been well known in a number of countries. Cases in which the anomaly could not be established in the parents but was seen in the children are explained as recurrence of the gene by mutation. A case of Pelger's nuclear anomaly is reported in a patient in whom malignant lymphogranulomatosis was suspected. The anomaly was found in 5 of 13 members of the family, all of whom, except the patient, are well. There were no "Teilträger" (partial carriers).

The Treatment of Barbiturate Poisoning With or Without Analeptics. J. E. Eckenhoff and W. Dam. Am. J. Med. 20:912-918 (June) 1956 [New York].

Data accumulated at the Copenhagen Narcotic Center show that supportive therapy alone is the method of choice in treating barbiturate poisoning. Mortality is strikingly low, and use of metrazol, picrotoxin, and other analeptics does not increase the survival rate and may even increase the death rate. Convulsions, vomiting with aspiration of gastric contents, and cardiac arrhythmias can be anticipated after the use of stimulant drugs. Analeptics may cause irreparable brain damage during anoxia by increasing cerebral oxygen demand in excess of available oxygen supply. The principles of supportive therapy are outlined, with emphasis on the importance of maintaining a patent airway. Comparison of treatment in two series of poisoned patients is difficult because of lack of standardization of basic treatment and inadequacy of criteria for classification of the severity of poisoning. A new method of treatment, hemodialysis, seems particularly promising, although sufficient data on its use have not appeared. The general problem is similar to that of treating a postanesthetic comatose patient, and it is suggested that a physician-anesthetist participate in the treatment of all cases of narcotic poisoning.

Sulfhemoglobinemia with Report of Case. E. Harsløf. Ugesk læger 117:551-553 (May 24) 1956 (In Danish) [Copenhagen, Denmark].

Severe sulfhemoglobinemia occurred in a patient who had been taking magnesium sulfate for 25 years. Since there had been no intake of substances forming methemoglobin, believed by most authors to be necessary for the formation of sulfhemoglobin, and since it is unlikely that magnesium sulfate alone can cause sulfhemoglobin, the case is presumably to be included under the so-called enterogenic cyanosis. In this condition, several cases of which have been reported, sulfhemoglobin is believed to be formed as the result of an intestinal disorder that causes the production of methemoglobin-forming substances in connection with hydrogen sulfide. The patient, who also had moderate anemia, together with reticulocytosis pointing to accelerated hematopoiesis, recovered after the magnesium sulfate was withdrawn and the intestinal function was regulated. Sulfhemoglobin is eliminated slowly, in the course of three or four months, in accordance with the normal breaking down of the erythrocytes, whereas methemoglobin disappears in a few hours or days.

Salt Loss in Chronic Renal Disease. A. E. Read. Brit. M. J. 1:1399-1401 (June 16) 1956 [London, England].

Read reports on two patients with the "salt-losing syndrome." The syndrome in one of these patients was complicated by the appearance of a flaccid paralysis due to hyperkalemia. This responded dramatically to the intravenous administration of sodium chloride. The second patient was a woman aged 70, and in this patient the syndrome was accompanied by marked nitrogen retention. Despite this, the response to therapy with salt was most gratifying. The peripheral circulatory failure usually associated with severe sodium deficiency was absent in this case. Read stresses the importance of a thorough investigation of patients with "uremia." Analysis of blood and urine may reveal the presence of sodium depletion associated with excessive renal loss. The treatment of this aspect of the underlying renal condition is occasionally a life-saving measure. The ultimate prognosis depends on the severity of the primary lesion, usually a chronic pyelonephritis, but the salt-losing phase of the disease is very simply treated and may rescue the patient from what may appear to be a terminal phase of chronic renal failure.

SURGERY

Recent Ideas in Gastric Surgery. T. H. Somervell. J. Internat Coll. Surgeons 25:713-717 (June) 1956 [Chicago].

As a result of his experience with 6,000 patients operated on for duodenal ulcer, the author emphasizes the fact that the secretion of acid in a resting stomach or in response to a nervous stimulus, such as hunger, is to be considered entirely separately from the secretion of acid during the digestive period, which is not dependent on the vagi and is dependent on the hormone secreted by the pyloric antral mucosa. Consequently, the indiscriminate performance of vagotomy with gastrojejunostomy or some form of gastrectomy with a good free anastomosis in all cases of duodenal ulcer is to be deprecated. Highly acid fasting juice demands vagotomy. High acidity of the gastric juice in the course of the digestive period may be treated adequately by removal of the pyloric half of the stomach only. High acidity of the gastric juice throughout, i. e., in the resting phase and in the digestive phase, demands both vagotomy and hemigastrectomy. Since recurrences of ulcer after resection depend on the presence of intact vagi, and since recurrences after vagotomy depend on the presence of the antrum, the combination of gastric hemiresection with vagotomy must be reckoned as the standard operation for duodenal ulcer in patients with hyperacidity.

survivors have been followed for from 3 to 43 months. Substitution medicaments included, besides insulin, thyroxin, adrenocortical hormone, and also in some cases androgenic and estrogenic hormone. The blood pressure and the heart volume decreased. The glomerular filtration rate was lessened, while the renal plasma flow remained unchanged. The albuminuria was reduced. The vascular calcifications present before the operation were not affected, but new calcifications were not demonstrable after the operation. The material does not allow conclusions as to possible improvement in the renal condition. In some cases the visual capacity improved. Progress of the diabetic retinopathy was demonstrable in only one instance. The results so far are encouraging.

NEUROLOGY & PSYCHIATRY

Electroencephalography in Cerebral Apoplexy. B. Harvard and E. Skinhøj. Nord. med. 55:679-681 (May 17) 1956 (In Danish) [Stockholm, Sweden].

In the neurological department of Frederiksberg Hospital, routine electroencephalographic examination was carried out during the last two or three years in practically all patients with cerebral apoplexy as soon as the clinical condition allowed. Of the 147 patients examined, 14 showed certain signs of cerebral hemorrhage. In 54, cerebral thrombosis was probable, in 7, with heart disease complicated with perpetual arrhythmia, embolic apoplexy was likely; in 24, apoplexy was regarded as a crisis in an already present encephalopathy, arteriosclerotic or hypertensive; and in 48 differential diagnosis was not possible. In the main, no encephalographic picture was found to be specific for cerebral apoplexy; the focal and diffuse abnormalities resembled those found in other forms of brain disorder. The rare occurrence of spike activity is thought to indicate that the lesions are most often subcortical. There was a close connection between the electroencephalographic findings and the clinical condition and also the psychic condition after the acute insult was past.

Thirty-two of the 38 patients with marked delta focus and only 15 of the 53 with normal electroencephalograms were gravely affected psychically. The paralyses showed good remission in 6 of the patients with marked delta focus and in 33 of those with normal electroencephalogram. Patients with hemorrhages usually have severe focal abnormalities, as do those with embolism, while patients with thrombosis present only slight focal abnormalities or fully normal records. Electroencephalography can afford considerable help in the differential diagnosis between the different forms of apoplexy, but it is stressed that the examination of these patients, who are often exhausted, presents technical difficulties and a probably not negligible trauma for the patients. The examination is especially indicated for the patients for whom anticoagulant therapy is most desirable, i. e., patients whose prognosis for life is good but who, because of the extent of the paralyses, will be forced to lead a sedentary life for a long time. Here the attempt should be made before the start of anticoagulant therapy to make sure that there is no intracranial hemorrhage.

Cardiopathies, Electroshock, and Succinylcholine. M. Porot and E. Bisquerra. Presse méd. 64:1101 (June 16) 1956 (In French) [Paris, France].

Eleven psychiatric patients affected by more severe cardiopathies than those related to neurovegetative disorders or to hypertension without heart decompensation were treated by electroshock and did not suffer cardiac complications from it. Most of these patients, affected with valvular, permanently arrhythmic, or coronary heart disease, were treated by cardiotonics and vascodilators during electroshock. After light anesthesia and before electroshock, seven of them were given from 60 to 100 mg. of iodide of succinylcholine (celocurine), a curarizing preparation. These patients thus had the advantages of no preliminary spasm, considerable diminution of histamine liberation, only brief anoxia (as a result of artificial oxygenation), and, most important, great reduction of the muscular effort, that is the motor crisis of electroshock without curarization. Less aggressive psychiatric therapeutics should be tried on cardiac patients before electroshock. However, each case must be studied individually to see if the continued acute mental condition and psychiatric risk (especially suicide) that may be caused by not using electroshock are more serious than the risk of cardiac complications subsequent to electroshock. Since the latter risk is notably reduced by the use of the method of anesthesia and curarization with succinylcholine, cardiac contraindications for electroshock have become the exception.

Electroencephalography in Unilateral Subdural Hematoma in Adults. A. Lundervold and R. Nordlie. Nord. med. 55:681-686 (May 17) 1956 (In Norwegian) [Stockholm, Sweden].

The most typical electroencephalographic findings in chronic subdural hematoma is a focal reduction of voltage in the normal activity together with a maximum of slow waves over the hematoma. Less often the electroencephalogram can either show a reduction of the voltage or only focal slow waves. In exceptional cases, the maximum of pathological activity will be on the contralateral side, but in these cases the bilaterally synchronous waves are reduced over the hematoma, and correct focal diagnosis can also be made in these more difficult cases. Although the electroencephalogram is relatively typical in subdural hematoma, the findings are by no means pathognomic; other intracranial disorders can at times show a similar picture. The examination can, however, be of decisive significance both in diagnosis and perhaps particularly for localization of the pathological process in cases in which a subdural hematoma is suspected. For this reason and because the examination is painless, routine electroencephalography is carried out in the Rikshospital in all patients with suspected hematoma. Postoperative examination is made to determine whether the pathological activity persists. This is important in prognosis, perhaps especially so in the cases in which the clinical examination shows normal conditions. Electroencephalography can play an important part in connection with the clinical findings and possibly those of other supplementary examinations. Cooperation between the neurosurgical and the neurophysical departments is important.

GYNECOLOGY & OBSTETRICS

Anesthesia for Cesarean Sections at the University Women's Clinic in Jena. E. Rimbach. München. med. Wchnschr. 98:816-819 (June 8) 1956 (In German) [Munich, Germany].

The author describes experiences with anesthetic methods in 100 women subjected to abdominal cesarean section. In 50 of these peridural anesthesia was used and in the other 50 general anesthesia was employed (in 43 ethyl chloride anesthesia was used, and in 7 anesthesia was begun with hexobarbital [Evipal]). The peridural anesthesia caused no complications in either the mothers or the infants. General anesthesia was followed by asphyxia in a considerable number of infants. Four infants died within a few hours after delivery, most likely as the result of the general anesthesia; three of these four fatalities involved prematurely born infants. The author believes that general anesthesia is too dangerous in premature deliveries. It should be replaced by peridural anesthesia, which is induced by means of 50 mg. of tetracaine hydrochloride (Medicain).

Embolism by Amniotic Fluid. R. Garneau, J. Francoeur and F. Shooner, Laval méd. 21:793-808 (June) 1956 (In French) [Quebec, Canada].

The authors report a fatal pulmonary embolism by amniotic fluid in a 41-year-old multigravida. Her clinical symptomatology pointed to this hypothesis, confirmed five hours later by an autopsy. Noteworthy points are the highly pathological obstetric history of the patient (five miscarriages) and the dramatic character of the termination of her fifth pregnancy. This miscarriage was accompanied by abundant hemorrhage with slow formation of the coagulum, by mydriasis, and by vomiting, which might have indicated an attenuated form of amniotic fluid embolism. The sixth pregnancy was terminated at eight and one-half months, when the patient died suddenly of an amniotic fluid embolism in spite of endotrachael intubation and cardiac massage. At autopsy, a great quantity of small whitish clots (squamous debris and sealed-off pavement cells) were found in the blackish-red and uncoagulated blood of the pulmonary artery and in the right side of the heart. They were identified as debris of the amniotic liquid. Histological examination of the lungs revealed areas of atelectasis with *acidophilic serous effusion* and dust cells *in* some alveoli. In all the sections, a great number of arterioles and interalveolar capillaries contained granular debris and some lanugo. Some of these vessels were literally obliterated by masses of scales. These findings established the diagnosis of pulmonary embolism by amniotic fluid.

Intrafollicular Ovarian Pregnancy. M. L. Bobrow and L. B. Winkelstein. Am. J. Surg. 91:991-998 (June) 1956 [New York].

The case reported is the first proved instance of a primary intrafollicular ovarian pregnancy occurring at the Harlem Hospital among 587 patients operated on for ruptured ectopic pregnancy during the year 1943 to 1953. The patient was a 36-year-old Negro woman who had had three previous deliveries. A diagnosis of a ruptured ectopic gestation was made on the basis of the physical findings. Approximately 1,000 cc. of old and fresh fluid blood, together with large blood clots, was seen when the peritoneal cavity was opened. Exploration of the pelvis revealed a large mass, 20 by 15 cm., that was suspended from the uterus by the ligament of the ovary. The left tube and the ovarian mass were removed. The postoperative course was uneventful. Anemia resulting from loss of blood was corrected by transfusion. The extirpated specimen consisted of a soft cystic mass, measuring 12 by 6 by 7 cm., presenting on one surface a fallopian tube bound down by dense adhesions but anatomically separated from the cystic mass. Sectioning of the gross specimen revealed several cystic cavities, one of which was lined by a smooth shiny membrane, on its floor there was a large mass that appeared to be the maternal surface of a placenta. Further examination revealed amniotic fluid and a placenta with its membranes and cord that was attached to a fetus measuring 10 cm. from crown to rump. Microscopic examination showed infiltration of the corpus luteum by trophoblastic elements of the placenta from within the cavity of the corpus luteum itself. Examination of the cornual end of the tube showed the lumen to be obliterated as the result of chronic salpingitis. The final diagnosis was intrafollicular ovarian pregnancy and chronic salpingitis.

A review of the literature revealed 154 cases of true primary ovarian pregnancies. The final diagnosis of intrafollicular pregnancy rests with the operative and pathological findings. The causation of ovarian pregnancy is attributed to changes in the genital tract occurring as the result of pelvic infection. Proof of transmigration of the spermatozoa through the peritoneal cavity and ovarian maturation of the egg is demonstrated in the case described.

Amniotic Fluid Embolism as Cause of Death During and After Delivery. I. Martin. Geburtsh. u. Frauenh. 16:463-472 (June) 1956 (In German) [Stuttgart, Germany].

A 43-year-old woman was hospitalized for her fourth delivery. The course of the delivery seemed to be normal until she suddenly (about nine and one-half hours after onset of labor pains) complained of dyspnea and dizziness, became restless, and lost consciousness. In view of the increasing cyanosis of the mother, delivery was completed by forceps. Dyspnea and cyanosis continued after delivery, and the mother died despite all therapeutic measures. Autopsy revealed a patent foramen ovale. Compression of the cut surfaces of the lungs yielded granular particulate matter of yellowish color. The tentative diagnosis of embolism by amniotic fluid was confirmed by microscopic examination, which revealed the presence of elements characteristic of amniotic fluid in the lungs, heart muscle, and kidneys.

The author found 57 cases of amniotic fluid embolism reported in the literature. Rupture of the bag of waters seems to play an important part in its causation, because only after this occurs can amniotic fluid enter the maternal blood stream. Apparently, not every amniotic fluid embolism is fatal. Clinically, the diagnosis can only be suspected, and even at autopsy there is no macroscopic finding that corroborates this diagnosis; microscopic studies are generally necessary. A number of possible pathogenetic factors are mentioned. Embolism by amniotic fluid may escape detection because of the lack of characteristic symptoms. To obtain more information about its incidence, microscopic examination of the lungs should be carried out in every maternal fatality that occurs during or immediately after delivery. If the foramen ovale is found to be patent, the other vital organs should likewise be examined for the presence of the constituents of amniotic fluid.

PEDIATRICS

The Evolution of Infant Feeding and the Advantages and Disadvantages of Soured Milk Mixtures. W. B. Blue and W. C. Davison. Postgrad. Med. 20:41-48 (July) 1956 [Minneapolis].

The authors review the evolution of infant feeding and comment on the high mortality of artificially fed infants before the era of pasteurization, the numerous efforts to modify cow's milk, and the large number of proprietary infant foods available today. Particular attention is given to the work of Marriott, who simplified infant feeding by selecting soured whole milk or whole buttermilk (not the usual skimmed or fat-free commercial buttermilk) as a safe and digestible infant food. Marriott's original reason for using soured milk was that it diminished the work of digestion. Later, he suggested that its bactericidal action made it safer. A review of the various methods of feeding full-term and premature infants, both those who were normal and those who were ill and could not be breast-fed, led the authors to the use of evaporated milk soured with lactic acid at Duke Hospital of Durham, N. C. Lactic-acid evaporated milk can easily be prepared in the home from canned milk and it has many advantages.

Infants thrive on lactic-acid milk as well as they do on breast milk. Lactic-acid evaporated milk contains sufficient protein and calcium, but every child who is less than 3 years old should be given vitamins C and D. The milk is safe, because the evaporation process removes the risk of brucellosis, tuberculosis, typhoid fever, and other diseases that can be spread through dairies. The modification of the milk proteins by the evaporation process and acidification is also helpful for allergic infants. The addition of lactic acid prevents the growth of organisms that cause dysentery and of species of Salmonella with which flies or fingers may contaminate milk. Methemoglobinemia due to nitrate-containing well water does not occur in infants fed lactic-acid milk mixtures; this is a valuable asset in rural areas. The composition and quality of evaporated milk are much more constant than those of dairy milk. The cost of lactic-acid evaporated milk is half that of dairy milk or of many other infant foods. A disadvantage of lactic-acid milk is that concentrated lactic acid is poisonous, but using vinegar instead of lactic acid overcomes this difficulty. Some infants, especially those who previously have been fed with very sweet mixtures, dislike lactic-acid evaporated milk, but this difficulty can be overcome. All infants should be breast fed, not because human milk is necessarily better than other infant feeding mixtures but because it creates a sense of security and is of psychological advantage to the infants. When breast feeding is impossible, lactic-acid evaporated milk or vinegar evaporated milk is the best formula for infants.

The Effects of ACTH Given Intradermally to Infants with Hypertrophy of the Thymus. G. Zarbin and V. Baldi. Minerva pediat. 8:761-764 (June 2) 1956 (In Italian) [Turin, Italy].

Nine infants 3 to 16 months of age with hypertrophy of the thymus were treated for seven days with microdoses of corticotropin (ACTH). All except one were eutrophic. The characteristic symptoms presented were dyspnea, cyanosis, and postprandial vomiting. One child suffered a mild convulsive syndrome a few hours before admission to the hospital. Two had bronchitis and were given antibiotics before treatment with corticotropin. Radiological examination was made before and on the fourth and seventh days after the treatment. The clinical results differed from the radiological results. Symptoms disappeared in eight children after the treatment. Radiological observation showed that the size of the thymus had decreased in only three. Corticotropin was well tolerated. In some children the drug caused frequency of the bowels. The Thorn test was positive in five patients. In only two of these, the corticotropin therapy had reduced the hypertrophy of the thymus. The authors believe that intradermal administration of corticotropin in infants with hypertrophy of the thymus is of no particular value as far as reducing its size is concerned. Coritcotropin had only a general stimulating effect.

Considerations on the Use of Chlorpromazine in the Prophylaxis and in the Therapy of Transfusional Reactions. A. Coletta and F. Iafusco. Pediatria 64:236-244 (April) 1956 (In Italian) [Naples, Italy].

The authors studied the effect of chlorpromazine on a post-transfusional reaction syndrome characterized by shivering and hyperthermia. The syndrome is caused by the pyrogenic or the allergic effect of the transfused blood. It is centered in the neurovegetative system. Chlorpromazine in a therapeutic dose of from 1 to 3 mg. per kilogram of body weight per day does not have any significant side-effect. The effect of the drug was studied in 25 children from 4 months to 10 years of age. They had dystrophic syndromes or different types of anemia. The quantity of blood transfused was from 50 to 200 cc. Twenty children suffered the classic symptoms of the syndrome. Ten minutes or more after the transfusion they started shivering and trembling, became pale, had cyanosis and headache, and vomited. Temperatures rose suddenly to 102 and 104 F (38 and 40 C). Two children had some hypotension. Five children had intense pruritus followed by an eruption on the skin. A dose of 4 mg. per kilogram of body weight per day was given. The symptoms were checked soon after the first intake of the drug. The temperature became normal in about one hour. The drug caused drowsiness and perspiration. Breathing became less frequent and deeper. The prophylactic effect of the drug was studied in 30 children who had previously suffered transfusional combined with allergic reactions. A dose of 4 to 8 mg. was given to 20 children half an hour before the transfusion. The other 10 children were kept as a control group and did not receive the drug. Two children in the experimental group had mild and short post-transfusional reactions. Seven children in the control group suffered the classic effect of the post-transfusion reaction syndrome.

DERMATOLOGY

Contact Sensitivity to Inappreciable Exposures. F. C. Combes and G. E. Morris. Indust. Med. 25:289-290 (June) 1956 [Chicago].

This paper emphasizes the limited exposure that induces in some patients a recurrence of an eruption due to allergens to which they have been previously sensitized. The first of the patients had been employed by a manufacturer of antibiotics for nine months when a dermatitis of her hands, wrists, forearms, and face, for which she was hospitalized, developed. As the dermatitis was attributed to contact with penicillin, her job when she returned to work was restricted to packing sealed ampuls. Nevertheless, she experienced a recurrence almost immediately, and it became necessary to discontinue all contact with penicillin. Subsequently, however, she experienced recurrences of urticaria or dermatitis when she only shared a room with a patient who received an injection of penicillin or when she used the same toilet as a person who had recently had an injection of penicillin. She could not even walk past the plant manufacturing antibiotics where she had formerly worked without having a recurrence of urticaria. A second patient, who had also become sensitized to penicillin while working in the production of antibiotics, experienced a recurrence of conjunctivitis and periorbital dermatitis after working next to a girl who was sucking a penicillin lozenge.

Another case of extreme sensitivity concerned a man in whom a contact dermatitis had developed after working with naphtha; later the eruption recurred merely from entering a building where solvent fumes were present. Another man, who had become sensitized to phenol formaldehyde resins, had a recurrence of a vesiculoerythematous eruption after he talked to his coworkers, who had the fumes on their clothing. In a boy with a history of atopic dermatitis, the odor of lobster caused swelling of eyes and face.

THERAPEUTICS

The Effect of BZ-55 on Biochemically Uncontrolled Diabetes Without Insulin Treatment. B. S. Leibel. Canad. M. A. J. 74:979-982 (June 15) 1956 [Toronto].

A series of clinical trials with BZ-55 is presented. The five diabetic patients selected were those who might be presumed to have enough endogenous insulin to preserve clinical stability in the presence of protracted and abnormal biochemical findings. The method of investigation consisted of a comparison of blood sugar levels before and after BZ-55 therapy was instituted. Although their diseases were clinically similar, only three of the five patients responded to therapy. Maximum benefit from BZ-55 may be delayed for longer than two weeks.

Experience with Reserpine in the Treatment of Alcoholism. N. S. Ritter. Quart. J. Stud. Alcohol 17:195-197 (June) 1956 [New Haven, Conn.]

The present study was not concerned with the effect of the alkaloid reserpine on the acute alcoholic state but rather on the patients' drinking behavior over a period of time. The aim was to discover whether or not the drug exerted any specific action on psychological mechanisms operative in alcoholics. The patients were referred to the clinic by the magistrates of the home term court in New York City. Each patient was seen one evening per week by the internist assigned to the clinic. The patient was asked how he felt, if he was taking the prescribed medicament, and how many drinks he would estimate he had had during the preceding week. The only objective physical evaluation made was a blood presure reading. The patient was given a week's supply of medicament. Patients were randomly selected and given either reserpine or a placebo. Among 180 alcoholics studied during a one-year period, the effect of reserpine could be compared in 39 with the effect of a placebo in 36 controls. Although a sizable majority of both groups of patients seemed to improve, no decided difference between them was discernible. Both groups seemed to do better than before the start of therapy. During the past two years other forms of oral therapy have been used for similar patients, and the impression was that the fact that the patient is seen weekly and has some personal interest taken in his condition and that there is some form or oral therapy—be it with vitamins, a placebo, or reserpine—helps patients to cut down considerably on their drinking.

Synergism Between Meperidine (Demerol®) and Scorpion Venom. H. L. Stahnke. Arizona Med. 13:225-227 (June) 1956 [Phoenix, Arizona].

Physicians who have had experience with patients who have sustained scorpion stings have noted an increase in convulsive activity after the administration of morphine. Death in some of these cases should not be attributed to the scorpion venom alone but rather to the combined action of these agents. When similar reactions were reported following the use of meperidine (Demerol), the author made a pilot test of this combination, the results of which suggested a synergistic effect between meperidine and the venom of the scorpion, Centruroides sculpturatus. Experiments on rats revealed that, whereas the median lethal dose of C. sculpturatus venom alone is 0.96 mg. per kilogram of body weight in the rat, the median lethal dose of the venom drops to 0.714 mg. per kilogram when 50 mg. per kilogram of meperidine is administered, and when 100 mg. per kilogram of meperidine is administered the median lethal dose drops to 0.387 mg. per kilogram. This venom, as well as that of the rattlesnake (crotalus), is a neurotoxin, and neither morphine nor meperidine would be desirable analgesic agents for patients who have been poisoned with such toxins, at least not during the first 24 hours after the venenation. Consequently, the use of these analgesics is also inadvisable whenever a patient has suffered a venomous sting or bite and the offending animal has not been identified.

The Use of Aramine in Clinical Shock. G. H. Stechel, S. I. Fishman, G. Schwartz and others. Circulation 13:834-836 (June) 1956 [New York].

The use of metaraminol bitartrate (Aramine), a sympathomimetic amine [levo-1-(m-hydroxyphenyl)-2-amino-propanol] in normal subjects in 1951 had indicated the effectiveness of this drug as a vasopressor agent and had suggested certain advantages over other commonly used vasopressors. Aramine has now been used in 250 patients with clinical shock admitted to the first division medical service, Kings County Hospital Center, Brooklyn, N. Y. A group of 42 patients studied included a high percentage of poor-risk patients. It was found that, with administration of 300 mg. of the drug per 1,000 ml. of 5% dextrose in water, a rise in blood pressure to adequate levels could be anticipated within five minutes. Lack of response within 10 minutes usually indicated complete failure of vasopressor therapy. In many instances, therapy with Aramine was maintained for long periods of time (24 days in one case). It was noted that, after withdrawal of Aramine, the blood pressure gradually fell to levels that caused some alarm, and it seemed advisable to readminister Aramine immediately. It was found, however, that reinstitution of therapy was unnecessary in most instances, for the blood pressure gradually became readjusted to the withdrawal of the pressor agent over a period of hours. Advantages of Aramine over other pressor agents in the pilot study were verified in the present study, and several new advantages were noted, such as the fact that the blood pressure rose rapidly to the desired level, but not to the excessive levels so often observed with other pressor agents. When Aramine was withdrawn, the fall in pressure was a gradual one over a period of from 10 to 15 minutes, as contrasted with the precipitous drop in pressure often seen on withdrawal of other pressor amines. This characteristic is of particular advantage in cases where extended therapy is necessary. In no instance was there any deleterious result from infiltration of the tissues by infusion fluid containing Aramine.

PATHOLOGY

Amino-Aciduria in the Megaloblastic Anaemias. K. J. Keeley and W. M. Pohtzer. J. Clin. Path. 9:142-143 (May) 1956 [London, England].

Keeley and Pohtzer examined the urine of seven African women who were hospitalized with proved megaloblastic (but not pernicious) anemia before treatment was started. One-dimensional chromatography on urine specimens obtained in the morning showed normal amounts of amino acids. The control specimen of urine from a European patient with untreated pernicious anemia showed an excess of amino acids. The authors suggest that urinary chromatography be used to differentiate Addisonian from other megaloblastic anemias.

The Blood Pyruvic Acid Level in Renal Diseases and in Uraemic Coma. J. Kleeberg and S. Gitelson. J. Clin. Path. 9:148-152 (May) 1956 [London, England].

Sixty patients were examined with the aim of ascertaining whether pure renal diseases alter the normal blood pyruvic acid level; whether kidney diseases change the known response of the blood pyruvic acid level in other disorders; whether the blood pyruvic acid level in patients with uremic coma is different from that in patients with other kinds of coma who do not exhibit signs of renal failure; and whether hypertension, which is present in the majority of patients with nephritis, influences the blood pyruvic acid level by itself. The determination of blood pyruvic acid levels revealed normal values in 24 of 26 patients with uncomplicated chronic nephritis and chronic urinary infection regardless of whether the renal function was impaired or not. Even in patients with uremic coma and severe acidosis, the blood pyruvic acid level was at most at the upper limit of normal. The blood sugar values were normal in these patients, and no glycosuria was found. Normal blood pyruvic acid and blood sugar values were also found in 16 patients with essential hypertension who had no signs of renal damage or complications.

Elevated blood pyruvic acid levels in renal disease were obtained only in four patients who also had severe complications, such as cerebral hemorrhage, hypertensive encephalopathy, or pulmonary edema. The hyperpyruvicemia in them was accompanied by hyperglycemia and was regarded as a "stress" phenomenon. Hyperpyruvicemia was also present in six patients with cerebral coma and in eight patients with hepatic coma who had no signs of renal insufficiency. The excretion of pyruvic acid in the urine in five uremic patients was within normal limits. It is concluded that renal disease per se is unlikely to influence the blood pyruvic acid level. When hyperpyruvicemia occurs in patients with renal disease, especially in those in coma, it is presumed to be due to some other disorder known to cause hyperpyruvicemia. The level of the pyruvic acid in the blood may be of aid in the differential diagnosis of various types of coma. Pyruvic acid seems not to be a causative factor in renal acidosis.

RADIOLOGY

Practical Aspects of the Problem of Protection Against Radiation in General Roentgen Diagnosis. F. Fossati. Minerva med. 47:749-754 (March 17) 1956 (In Italian) [Turin, Italy].

Local and general biological injury is caused by excessive radiation in roentgen diagnosis. The effects manifest themselves late and may be hereditary. Protection is possible if necessary precautions are taken. Some of the effects are superficial lesions, hematological and hemapoietic alterations, formation of malignant tumors, obesity, reduction in fertility, and shortening of the length of life. The permissible professional maximal dose is 0.3 r per week, or, 48 hours of work per week. A special instrument measuring the radiation should be always worn by the radiologist. Lead should be interposed between the operator and the mechanism for radiation when it is not possible to keep at a safe distance. Protective measures could be introduced into the machines for roentgendiagnosis. Operators should wear special protective garments. Tubes should be covered with protective material. Intensity of radiation should not exceed 100 mr/h. at a distance of 1 m. from the focus. Radioscopy should be brief, with maximal opening of the diaphragm. Radioscopy with non-self-centering ducts must be avoided. The operator must be accustomed to the radioscopic vision from the beginning of the examination. Filtration and the distance from skin to the focus should be increased in order to protect the patient. Maximal radiation doses per exposure should be 0.1-0.2 r for the thorax, 2-3 r for the skull, 3-4 r for the digestive system, and 2-4 r for the spine; for kymography of the heart, the maximal dose should be about 4 r.

Nephrocalcinosis in Poliomyelitis with Respiratory Paralysis, with Special Regard to Possibilities of Tomographic Diagnosis. R. Stenstrom. Nord. med. 55:647-649 (May 10) 1956 (In Swedish) [Stockholm, Sweden].

Nephrocalcinosis was demonstrated by tomography in 9 of 32 poliomyelitis patients with respiratory paralysis admitted to Aurora Hospital between March, 1944, and January, 1955. The examinations were started in April, 1955. Eight patients were examined for the first time during respirator treatment after an average of six months in the respirator, calcinosis was established in four of these. Twenty-four patients, with an average of two months of respirator treatment, had been out of the respirator an average of six and a half months before the first examination. Of the eight, two patients with calcinosis and one patient without calcinosis have died. The calcinosis was most often in the cranial pole of the kidney. A certain relation seemed to exist between the degree of osteoporosis and the occurrence of calcinosis. Urinary infections were more frequent in the patients with nephrocalcinosis than in those without demonstrable calcifications. Nephrocalcinosis was often wholly or partly reversible after treatment. Application of tomography allows small calcifications to be discovered in an early and localized stage even though the patient's condition does not permit urography.

BOOK REVIEWS

Campbell's Operative Orthopaedics. Volumes I and II. Editor: J. S. Speed, M.D., Associate editor: Robert A. Knight, M.D. Third edition. Cloth. $40. Pp. 1103; 68; 1105-2124; 68, with 1323 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1956.

When the original volume was first written over 15 years ago by Dr. W. C. Campbell there was much comment about the value of the book. There had been a great need for this type of book in orthopedics, and the original book fulfilled that need well. With the many changes that took place during World War II, and as new procedures were established, revision was needed, and this was accomplished in the second edition. This third edition is perhaps the most outstanding book of its kind that has ever been published. The co-authors are to be congratulated for the excellence and completeness of the book. As in previous editions, the subject matter is excellently arranged and the illustrations are outstanding. The authors' decision to have special chapters contributed by eminent authorities adds to the general value of the work. The cost of these volumes is high, but, considering the amount of material contained in them, it is not excessive. The book should be made available to all universities and orthopedic departmental libraries for use of the house staff. It is an excellent reference book for practicing orthopedists and should be one of the first textbooks that the younger orthopedist purchases. Each chapter is a complete unit, and a given operative procedure can be reviewed without studying more than one or possibly two sections of the book.

Hunterdon Medical Center: The Story of One Approach to Rural Medical Care. By Ray E. Trussell, M.D., M.P.H., Executive Officer of Columbia University School of Public Health and Administrative Medicine, Columbia University, New York. Half-cloth. $3.75. Pp. 236, with 9 illustrations. Published for Commonwealth Fund by Harvard University Press, Cambridge 38, Mass.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, England, 1956.

This well-written book is a fascinating story of the effort to solve the problem of community medical care in a rural county in New Jersey. The author was the first director of and had a close association with the project for five years. In the beginning, this county, with a population of 45,000 people, had no hospital within its confines. The planners of this project believed that there was a need for such an institution and proceeded with imagination and hard work to develop a center. It is interesting and informative to read about the early experiences in the education of the people of this county regarding the needs for good medical care. Equally interesting is the emphasis on the fact that here was an opportunity to set up a center that would play an active part in providing comprehensive medical care for the citizens of the county and that, in addition, would focus attention on preventive medicine.

There are many details in this book concerning the period of development of the center—such as the effort that produced a successful financial campaign, which could be profitably followed by other communities considering the same problem, and the extent to which the people contributed even in a small way. The fundamental principles included attracting more general practitioners, having the patients in the area remain in their community for their comprehensive medical care, and enabling the institution to carry on research concerning the health of the citizens. Another important feature was the affiliation with the New York University Medical Center, in regard to both the reference of patients and the rotation of the house staff from the New York University to the center. The latter proved to be of mutual benefit. The extent to which the community has participated in the everyday running of the center is evidenced by the fact that there are so many volunteers working in the hospital.

There is so much of interest and there are so many stimulating ideas in this book that it would be wise for those contemplating the establishment of community hospitals to read it. In this day of emphasis on community action in the problems of medical care, long-term illness, and preventive medicine, this book should be invaluable. It represents not only planning but also actual experience over a two-or-three-year period since the center was established. The last chapter is devoted to the accomplishments of the center and to a frank discussion of the problems that are yet unsolved. The experiment represents a valuable contribution to the question of community medical care and clearly points the way to possible practical application of this experience to any rural community.

The Pregnancy Toxemias or the Encymonic Atelositeses. By G. W. Theobald, M.A., M.D., F.R.C.S. With chapter on Adrenal Cortex by John Dawson, M.B., Ch.B., M.Sc. Cloth. $15. Pp. 488, with 56 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1956.

The author has presented the basic facts about the toxemias of pregnancy and has collected an extensive bibliography from which he has quoted freely. The book is divided into four parts. In the first are discussed the physiology of normal pregnancy, capillary circulation, water metabolism, edema, water diuresis during pregnancy, blood pressure, essential hypertension in the nonpregnant and pregnant woman, and the relationship of the posterior pituitary gland and the adrenal cortex to normal pregnancy. The second part has a chapter devoted to the toxemias of early pregnancy and another chapter to accidental hemorrhage, but the bulk of this section is devoted to the histological pathology of eclampsia and changes in metabolism leading to this disease. The third part is devoted to the various hypotheses that have been advanced to explain eclampsia. One chapter is devoted to the mechanical theories and another to the toxemic theory. The endocrine glands as a causative factor are discussed, and the relationship of the crush syndrome and renal ischemia are considered in another chapter. Three chapters are devoted to the placental hypothesis and four to the nutritional mechanical hypothesis. The fourth part deals with antenatal care in the prevention of eclampsia. One chapter deals with the treatment of preeclampsia, and four chapters are devoted to the treatment of eclampsia. The book is well written and sets forth clearly the present state of our knowledge regarding this disease. One might disagree with the recommendation of spinal anesthesia and/or lumbar puncture in the treatment of persons with severe eclampsia. The maternal mortality of 5.6% with treatment by a modified Stroganoff method under the author's management is not impressive. The use of local infiltration anesthesia in various operative procedures is not sufficiently stressed. The danger of blood transfusion in persons with eclampsia should be mentioned, and the value of venesection is underestimated. The overuse of hypertonic glucose solution is properly criticized.

Essentials of Dermatology. By Norman Tobias, M.D., Dermatologist, St. Louis State Hospital, St. Louis. Fifth edition. Cloth. $8. Pp. 651, with 212 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada, 1956.

This textbook should remain popular with medical students and practitioners, as it has through four previous editions. The paragraphs, at the end of each chapter, on nursing aspects should make it of value to nurses also. The author has concentrated on the dermatoses encountered most frequently in practice, but he also discusses briefly many of the less common skin diseases. The rarities have been omitted. A surprising amount of information has been packed into a relatively small volume and presented in a very readable manner. Of particular value is the chapter on dermatological therapeutics, in which the author explains the general principles of topical and physical therapy and presents numerous therapeutic maxims reflecting a wealth of clinical experience. In this edition the chapters on the most common dermatoses have been expanded, the sections on therapy have been brought up-to-date, and 25 new photographs have been added. An occasional minor change in text might be suggested, such as more exact specification of dosage in a few sections and elimination of an occasional vague expression such as "general tonic treatment." In most places, however, discussions of therapy are current, specific, and adequate. These comments in no way detract from the general merit of the book, which can be recommended.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Angiocardiographic Interpretation in Congenital Heart Disease. By Herbert L. Abrams, M.D., Assistant Professor of Radiology, Stanford University School of Medicine, San Francisco, and Henry S. Kaplan, M.D., Professor of Radiology, Stanford University School of Medicine. Publication number 279, American Lecture Series, monograph in Bannerstone Division of American Lectures in Pediatrics. Edited by John A. Anderson, M.D., Professor and Head, Department of Pediatrics, School of Medicine, University of Minnesota, Minneapolis. Cloth. $11.75. Pp. 233, with 163 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

This book is based on a series of 350 angiocardiograms that cover almost all the various types of congenital cardiac defects. The angiocardiographic reproductions are excellent. Adjacent to each angiogram is a detailed black and white diagram with complete text clearly indicating the author's interpretation. An entire chapter is devoted to each congenital cardiac defect, including a brief but concise discussion of the pathological physiology and clinical features. This is then followed by the illustrations and the text on the angiocardiographic interpretation. Another chapter is devoted to technique, equipment, opaque mediums, and principles of angiocardiographic interpretation. This should be read by all who contemplate doing this type of work. Although the volume is small, it is filled with valuable information for those interested in opaque visualization of the heart and great vessels.

Modern Treatment Yearbook 1956: A Yearbook of Diagnosis and Treatment for the General Practitioner. Edited by Sir Cecil Wakeley, Bt., K.B.E., C.B., Senior Surgeon, King's College Hospital, London. Cloth. $6. Pp. 344, with 47 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; published for Medical Press by Baillière, Tindall & Cox, Ltd., 7-8 Henrietta St., Covent Garden, London, W.C.2, England, 1956.

This book is a symposium of the views of British clinicians on current methods of diagnosis and prevention of disease and forms of treatment. Thirty-seven contributors have each provided a chapter that deals with one of the many pathological conditions and medical problems commonly encountered in general practice. A chapter discussing the use of antibiotics is included. Some of the chapters are followed by references for collateral reading. A general index is provided at the end, with principal page references in bold-face type. For the most part the discussions are critical and are written with the simplicity and clarity of style for which the British are noted. In some instances the comments seem more appropriate for students than for experienced clinicians. British trade names and preferences in nonproprietary terms that are applied to certain drugs limit the usefulness of the book for American readers. The book does not mention some of the newer drugs known to American physicians nd thus cannot be regarded, for American doctors, as entirely epresentative of current knowledge in this field.

Clinical Laboratory Diagnosis. By Samuel A. Levinson, M.S., M.D., Ph.D., Director of Laboratories, University of Illinois Research and Educational Hospitals, Chicago, and Robert P. MacFate, Ch.E., M.S., Ph.D., Chief, Division of Laboratories, Board of Health, City of Chicago. Fifth edition. Cloth. $12.50. Pp. 1246, with 244 illustrations. Lea & Febiger, 600 Washington Sq., Philadelphia 6, 1956.

This book has now passed through sufficient editions to become familiar to those interested in laboratory medicine. It contains a wealth of material for the person in the laboratory as well as for the man in practice and provides a useful and practical source of reference on a host of subjects ranging from laboratory findings of special interest in relationship to the mouth to those in connection with the gastrointestinal tract and the kidneys. Also included is a great deal of information pertaining to metabolism, the blood, immunology and serology, cerebrospinal fluid, transudates and exudates, and the sputum. Those interested in general bacteriological skin tests and other biological examinations, laboratory methods in pediatric procedures, tropical diseases, milk and water analysis, histological techniques, and legal medicine and toxicology likewise will find much of practical importance. In addition to the two authors, there are five collaborators bringing special knowledge from their respective fields. This book deserves the attention it undoubtedly will receive from practitioners and laboratory personnel.

Progress in Hematology. Volume I. Edited by Leandro M. Tocantins, M.D., with 27 contributors. Cloth. $9.75. Pp. 336, with illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1956.

This summary of the present status of certain developments in hematology consists of 16 well-documented articles written in textbook style. There has been no such summary since Piney's book in 1927. The subjects covered are the absorption of vitamin B_{12}, parenterally administered iron, exchange transfusion in erythroblastosis fetalis, the life span of erythrocytes, abnormal hemoglobin, radioactive colloidal gold in the treatment of severe acquired hemolytic anemia, radioactive phosphorus in primary polycythemia vera, autoimmune thrombocytopenias, surgery in hemophilia, acute fibrinogen deficiencies, factors affecting hemostasis in gastrointestinal hemorrhage, the blood in lupus erythematosus, chemotherapy of leukemia, the biochemistry of leukocytes, hematological recovery from irradiation injury, and agammaglobulinemia. The material is well presented and gathers, in convenient form, data widely scattered in medical journals. The book should be welcomed by all workers interested in hematology.

Modern Trends in Orthopedics (Second Series). Edited by Sir Harry Platt, LL.D., M.D., M.S., President, Royal College of Surgeons of England, Manchester. Cloth. $12.50. Pp. 331, with 226 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1956.

This is the second volume dealing with modern trends in orthopedics and is part of a series of books that includes each of the major fields of medicine and surgery. Each of the orthopedic volumes was edited by Sir Harry Platt, who states in the introduction: "In this new volume, a number of topics of contemporary interest have been deliberately selected in order to focus attention on problems less widely ranging than those which form the content of the first series of Modern Trends in Orthopaedics." The text is beautifully written and printed, and the illustrations are clearly reproduced. The various chapters deal with reconstructive surgery of the hip, peripheral nerve injuries, the role of antibiotics in the treatment of bone and joint tuberculosis, congenital dislocation of the hip, muscle and tendon transposition in poliomyelitis, internal derangements of the knee, traumatic paraplegia, Pott's paraplegia, displacement of the upper epiphysis of the femur, contractures of the hand, and fractures of the neck of the femur. This is a book that all orthopedists should have in their library.

Collagen Diseases Including Systemic Lupus Erythematosus, Polyarteritis, Dermatomyositis, Systemic Scleroderma, Thrombotic Thrombocytopenic Purpura. By John H. Talbott, M.D., Professor of Medicine, University of Buffalo School of Medicine, Buffalo, New York, and R. Moleres Ferrandis, M.D., Training Fellow in Arthritis of Western New York Chapter of Arthritis and Rheumatism Foundation. Cloth. $6.50. Pp. 232, with 30 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1956.

This monograph is the culmination of the interest that the senior author has had in collagen diseases for many years. It is a concise description of these maladies, covering the historical, pathological, and clinical aspects and treatment. The colored plates are beautifully illustrative of the subject matter. The manuscript is well written, with a personal touch that makes for easy reading. Factual statements are supplemented with ample references, and the bibliography is more than adequate. The earnest enthusiasm with which the material is presented makes this monograph outstanding. This book can be highly recommended to those interested in collagen and rheumatic diseases.

The Biochemistry and Physiology of Bone. Edited by Geoffrey H. Bourne. Cloth. $20. Pp. 875, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1956.

This book, each chapter of which has been prepared by one or more recognized authorities, includes the best of most of the research that has been done in the field of biochemistry and physiology of bone during the past 25 years. Twenty-eight scientists have participated in writing it. The editor is widely known for his interest in this subject and has succeeded in producing a well-ordered arrangement of the material. There is an extensive bibliography and an author index as well as a subject index. This is a reference book rather than a textbook, and it should be of great value to every student or teacher who is interested in a better understanding of bone in health and disease.

QUERIES AND MINOR NOTES

ACETYLSALICYLIC ACID (ASPIRIN) AND ANTICOAGULANTS

To the Editor:—*What is the relative effect on clotting time of acetylsalicylic acid (aspirin) and the anticoagulants usually prescribed, such as Dicumarol. If acetylsalicylic acid is effective in this respect, what may be considered comparable dosage? Presuming that there is a comparable dosage, is there likely to be any untoward effect using such dosage of acetylsalicylic acid? Clinicians have said that there is almost never a vascular thrombosis (coronary included) when the clotting time is high. Please give an opinion on this.* *M.D., Pennsylvania.*

Answer.—Link and associates (*Am. J. Physiol.* 159:40-46, 1949) demonstrated that salicylic acid in the rat induces a hypoprothrombinemia that can be prevented by natural or synthetic vitamin K. In the rat the potency of salicylic acid was only about one-twentieth that of Dicumarol. S. Shapiro and his co-workers (*Proc. Soc. Exper. Biol. & Med.* 53:251-254 [June] 1943) demonstrated that the fundamental observations made on the rat also apply to man. Significant hypoprothrombinemia, similar to that produced by therapeutic doses of Dicumarol, has been observed after administration of 6 to 10 gm. of salicylates daily. With continued administration of salicylates, the prothrombin time tends to return to normal. Since the dosage of salicylates necessary to produce a hypoprothrombinemia that could prevent thrombosis is high enough to give rise to toxic effects on the central nervous system and to a disturbance of the acid-base balance or of the electrolyte structure of the plasma, it would appear hazardous to use salicylates for the induction of a therapeutic hypoprothrombinemia. Experience has shown that the incidence of thromboembolic phenomena can be greatly reduced by the judicious use of anticoagulants such as Dicumarol. However, on occasion, thrombosis has been observed to occur while the patient's prothrombin time was kept within the protective range of hypoprothrombinemia.

SEDATION BEFORE ELECTROSHOCK THERAPY

To the Editor:—*I would appreciate advice as to whether a mental patient, receiving electroshock therapy with succinylcholine (Anectine) chloride, should receive previous sedation with a barbiturate. If so, which kind and what dosage would be recommended?* *M.D., Nebraska.*

Answer.—The decision as to whether a patient should receive sedation previous to electroshock therapy should be made independent of whether the therapist administers succinylcholine. The administration of a sedative drug should be indicated by the patient's anxiety concerning the treatment. There are some patients whose anxiety states require sedation, with or without muscle relaxant; with other patients it is unnecessary. For short procedures such as electroshock therapy, intravenously given barbiturate and, above all, thiopental sodium are the drugs of choice. Since the effect of succinylcholine develops before that of the intravenously given thiopental sodium, it is preferable not to give both drugs at the same time. Another important point is that succinylcholine is hydrolyzed by alkaline solutions such as the solution of thiopental sodium; therefore, the solution of succinylcholine should not be mixed with the solution of the thiopental sodium in the same syringe. When administering the combined medication of thiopental sodium and succinylcholine, the dose of the succinylcholine judged to be adequate for the patient has to be determined. A test dose of 10 mg. may be given to serve as a guide to the patient's requirements and the promptness of his recovery. If this dose produces only the relaxation of the eyelids, or of the extremities (a moderate relaxation), then the patient usually requires 20 mg. for an adequate effect, while the patients who show only minimal relaxation after the test dose probably require 30 to 40 mg. The satisfactory method of induction of anesthesia is to administer the thiopental sodium slowly, until the eyelid reflex is abolished. At this time the dose of succinylcholine can be given through the same needle but from a different syringe. When both thiopental sodium and succinylcholine are administered, the aim is to adjust the dose of each drug so that the convulsion is a slight one and is followed almost at once by the return of active breathing. It seems, according to Price and Rogers (Correspondence, *Brit. M. J.* 1:1027, 1952), that, owing to the rapid action of succinylcholine, a smaller dose of thiopental sodium can be used than with other relaxants. As to the time element, the injection of succinylcholine should follow the injection of the barbiturate in 10 seconds to two minutes. After administration of the succinylcholine, the lungs are inflated with oxygen for 45 seconds; a gauze roll is then placed between the teeth, the relaxed jaw is held against it, and the electroshock therapy is given at once. It is needless to emphasize that either thiopental sodium or succinylcholine may produce respiratory arrest. Therefore, they should be used only by those skilled in the administration of controlled respiration and endotracheal intubation and only when facilities for these procedures and for adequate respiratory exchange with oxygen are immediately available.

CONJUNCTIVAL SENSITIVITY TO TOBACCO SMOKE

To the Editor:—*What is the best treatment for a conjunctival hypersensitivity to tobacco smoke? This condition has developed gradually in a 47-year-old woman who has a history of allergy to timothy grass and orchard grass pollens. Her vision is hyperopic and somewhat astigmatic, which is easily corrected by glasses. Examination of the conjunctivas shows them to be infected at such times. They gradually return to normal, but the symptoms recur regularly each time she is exposed to this irritant. She has shown some favorable although transitory response to treatment with cortisone eye drops.* *M.D., New York*

Answer.—Treatment of conjunctival hypersensitivity should include: (1) avoidance of tobacco smoke, both use and exposure; (2) local application of antihistaminics such as prophenpyridamine maleate, with or without cortisone; (3) patch tests and desensitization; (4) oral use of antihistaminics such as chlorprophenpyridamine maleate; and (5) appropriate treatment of structural and functional ocular and extraocular disease. The treatment of the secondary infection obviously depends on the organisms involved. A stained conjunctival scraping should be made to determine cells and organisms.

SLIDE CULTURE FOR TUBERCLE BACILLI

To the Editor:—*Please describe the technique of the "slide culture method" for demonstrating Mycobacterium tuberculosis. How does the accuracy of the slide culture compare with that of the usual cultural methods?* *M.D., Ohio.*

Answer.—Following is the technique of the "slide culture method" as described by Pryce (*J. Bact. & Path.* 53:327, 1941). Method 1: A 4-in. Petri dish is selected with a flat or slightly hollow bottom surface. The sputum is spread on this and dried. The film is treated with 15% sulfuric acid for five minutes. The acid is removed with a pipet and the floor flooded with about 5 cc. of sterile distilled water from a test tube. This is allowed to act for a minute or so and the washing repeated. The medium is then added and the dish placed in the incubator for a week. As medium, one can use 5 cc. of citrated blood and either 5 cc. of water, or, better, a 1% solution of saponin. When incubation is completed, the medium is washed off with water and the film

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

stained with Ziehl-Neelsen stain. Counter staining with methylene blue may be omitted. The culture is examined under the low power of the microscope while wet with water or xylene. Method 2: One or more circular patches of sputum are smeared on a glass slide and allowed to dry. A ring of Bakelite, hard fiber, or glass is immersed in melted petroleum jelly and, after draining off the excess, is applied to the glass about each patch of sputum. With a Pasteur pipet, 15% sulfuric acid is placed in the well of the ring, allowed to act for five minutes, and then removed. After the pipet is washed out, the well is filled with distilled water. Two or three washings suffice, but each change of water should be left in for a few minutes. After the final washing, the medium is added—anything from 5 drops to 1 cc. or more, according to the capacity of the ring. The culture may be incubated open to the air in a moist chamber, or closed by applying a coverslip previously immersed in petroleum jelly. Variations in this technique have been reported by Lowry and Berry (*Am. J. Clin. Path.* 20:273, 1950). The slide culture method is not as sensitive or efficient in detecting tubercle bacilli as the usual culture methods. It would not be satisfactory in a diagnostic laboratory doing large numbers of cultures. Probably its best use is in research work.

HIGH BLOOD CHOLESTEROL LEVEL

> TO THE EDITOR:—*A 31-year-old woman has had a high blood cholesterol level since October, 1951. Her blood cholesterol level was 411 mg. per 100 cc. in November, 1951. She was put on a rigid diet, and, in December, 1951, the cholesterol level dropped to 387 mg. per 100 cc., on March 23, 1955, it was 360 mg. per 100 cc. She has been checked every month since that time, and the lowest it has been is 310 mg. per 100 cc. The patient has been treated with Monichol since October, 1955, but the cholesterol level remains high. Could you offer any suggestions for treatment?*
>
> *Leland F. Zatopek, M.D., La Grange, Texas.*

ANSWER.—The response of the blood cholesterol level in the patient described to a rigid low-cholesterol diet is about what can be expected in the average patient. This relatively small drop in blood level is due to the fact that cholesterol can be synthesized by the body from simple foodstuffs, therefore, the dietary cholesterol is only a minor factor in the serum level. In addition to diet, thyroid may be effective in lowering the cholesterol level, particularly if some degree of hypothyroidism is present. No other established and satisfactory methods are at present available.

TREATMENT OF ASCARIASIS

> O THE EDITOR:—*What is the best treatment for persistent Ascaris lumbricoides? A man and wife, with no children, both have the infestation. Repeated treatment with Crystoids has yielded no results. How soon after Crystoid therapy should Ascaris disappear from the stool?*
>
> *Francis M. Lenhart, M.D., Defiance, Ohio.*

ANSWER.—Crystalline hexylresorcinol usually is considered the drug of choice in the treatment of ascariasis, but certain factors must be taken into consideration. 1. Potency of the drug. If the hard gelatin capsules are old they may not dissolve in the gastrointestinal tract and would therefore be ineffective. The preparation should be fresh and should dissolve high in the small intestine so all of the worms will be exposed to the drug. 2. Preparation of the patient. The patient should be on a light, residue-free diet the day before treatment and receive a saline purgative the night before treatment. Two hours after treatment is administered a second saline purgative is given. 3. Reinfection. Sometimes it is difficult to differentiate between failure of treatment and reinfection. If the infection has persisted for more than one year, reinfection has undoubtedly occurred, for the survival time of a mature Ascaris worm in the human intestine is relatively short, rarely exceeding a year.

Two other preparations have proved of value: piperazine (Antepar) citrate and Hetrazan (1-diethyl-carbamyl-4-methyl-piperazine citrate). Methods of treatment are as follows: 1. Crystalline hexylresorcinol (0.1-or-2-gm. hard gelatin capsules). Adult dose is 1 gm. in one dose, on an empty stomach, preceded and followed by a saline purgation as described above. 2. Piperazine citrate. Brown and Sterman (*Am. J Trop. Med.* 3:750 [July] 1954) report good results in children weighing over 60 lb. by giving piperazine citrate, 10 cc. (2 teaspoonfuls) twice daily for seven consecutive days. 3. Hetrazan. Etteldorf and Crawford (*J. A. M. A.* 143:797 [July 1] 1950) report excellent results using Hetrazan in a dose of 6 mg per kilogram of body weight three times daily for seven days. Ghanem (*Tr. Roy Soc. Trop. Med. & Hyg.* 48:73 [Jan.] 1954) reports good results using Hetrazan for 3 to 15 days. He states further that the migrating larvae of Ascaris probably are killed also. The advantage of piperazine citrate and Hetrazan is that the patient requires no preparation and no purgation. The advantage of crystalline hexylresorcinol is that the treatment is completed in one day. Reinfection should be prevented by proper personal hygiene and sanitary disposal of excreta. After the eggs are passed they become infective in 15 to 20 days but may remain viable on the soil for months or even years.

ANTIHYPERTENSIVE MIXTURES

> TO THE EDITOR:—*A man, aged 69, had a transient apoplectiform attack. His blood pressure is 230/100 mm Hg. Treatment with Mio-Pressin 1 brought his blood pressure down to 190/80 mm. Hg. He has been taking it now for 12 days. How long should he continue medication, and are there any dangerous side-effects?*
>
> *M.D., New York.*

ANSWER.—It would be undesirable to lower the arterial pressure beyond the point where it is now. This is a patient with arteriosclerotic hypertension in whom the diastolic pressure, as is to be expected, is not high. Too much lowering of pressure in such persons may lead to inadequate perfusion of the brain. Mio-Pressin, like any of the mixtures of antihypertensive drugs, fails to allow the flexibility of dosage of the individual drug components required for proper management of hypertension.

CANDIDA INFECTION OF BLADDER

> TO THE EDITOR:—*What is the best management of a 40-year-old woman with persistent Candida infection of the bladder, a normal upper urinary tract, and a few granulations about the neck of the bladder?*
>
> *M D., Texas*

ANSWER.—Persistent infection of the bladder caused by Candida occurs infrequently. On the other hand, Candida infection of the vagina is frequently observed, particularly during pregnancy. It may be assumed that infection of the bladder with Candida is secondary to similar infection of the vagina. It would, therefore, be advisable to eliminate the possibility of a persistent vaginal infection. Involvement of the bladder usually responds to lavage with a solution of gentian violet (1:1,500) or a weaker solution of acriflavine. Recently, a new drug, nystatin, has been found to be of value in treating Candida infection. Daily irrigations of the bladder with a solution made by dissolving one tablet of nystatin in a liter of water may be tried. Granulations of the neck of the bladder should be treated by topical application through the cystoscope with a 1% solution of gentian violet. It should also be remembered that bacteria commonly found with cystitis may be obscured by the Candida infection. Should these bacteria be discovered after the Candida infection has been removed, antibiotics should be administered according to the type of bacteria found.

PRECORDIAL PAIN IN MORPHINE ADDICT

> TO THE EDITOR.—*Seven months ago a 59-year-old morphine addict had an acute myocardial infarction. At present her condition is fairly good, but she still complains of periodic pain. Is it correct (according to the Federal Narcotic Law) to prescribe for her, at least from time to time, a narcotic for relief of pain?*
>
> *Julian Movchan, M.D., Oakwood, Ohio*

ANSWER.—The Federal Narcotic Law does not prohibit a physician from administering opiates to a former addict, or to an actively addicted person, for the relief of pain. The law requires that the physician prescribe or dispense narcotics "in the course of his professional practice only." This has been interpreted by the courts to mean that the physician must be acting in good faith, e. g., prescribing narcotics for what he believes will benefit his patient. The regulations set up to carry out the purposes of the narcotic law do prohibit the prescribing of narcotics for the mere maintenance of addiction, but this prohibition would not appear to apply in the case described. Although there is no legal reason why narcotics could not be given to the patient mentioned, careful consideration should be given to the actual need for narcotics. If the pain is that of angina, it could probably be relieved more quickly and more efficiently by glyceryl trinitrate than by morphine. Furthermore, *the repeated use of narcotics in any chronic disease* can lead to addiction. Since this particular patient is a former addict, the danger would be very great. The patient certainly should never be given narcotics for self-administration. In the event that the patient developed status anginosus or another infarct, opiates should, of course, be used. In such a situation the doses should be the smallest that would give an adequate degree of relief from pain. Additional doses should be given only as needed, and administration of the drug should be discontinued as soon as the patient's condition permitted.

PREPARATION OF SKIN FOR SURGERY

To the Editor:—*What antiseptic is most widely used now for painting the abdomen before surgery? Does thimerosal (Merthiolate) still hold first place, and what is its relative value in comparison to benzalkonium (Zephiran) chloride?*

M.D., Oregon.

Answer.—At present there are many agents for preparation of the skin of the operative site. Any one of these agents is satisfactory for this purpose if used properly. The area should always be cleaned well with soap and water the night before operation. If a chlorinated hydrocarbon is to be used, a soap containing this agent should be employed. In the operating room any one of the mercurial antiseptics, such as thimerosal, is a satisfactory preparation if the skin has first been cleaned with alcohol and ether. If a chlorinated hydrocarbon such as hexachlorophene is used, it is important that no other agent be employed after its application that might interfere with the protective film that is left by the chlorinated hydrocarbon. If a quaternary ammonium compound such as benzalkonium chloride or benzethonium (Phemerol) chloride is used, it must be remembered that these agents are inactivated by soap. Resorcinol compounds might be used, but these are not as good as the foregoing three groups of agents. If hexachlorophene is used, it is well to wet-wash the operative site with this agent for about five minutes; then the area should be painted with this agent and the excess dried with a sterile towel.

SENSITIVITY TO AMINOPYRINE

To the Editor:—*How does aminopyrine cause leukopenia or agranulocytosis? What, if any, are the chemical, enzymic, or vitamin changes in bone marrow, blood, or tissues before and/or during the development of granulopenia?*

M.D., Texas.

Answer.—When Madison and Squier (*J. A. M. A.* 102:755-759 [March 10] 1934) pointed out the relation between aminopyrine and the development of severe leukopenia they suggested it might be on the basis of drug sensitivity. Later, Dameshek and Colmes (*J. Clin. Invest.* 15:85-97 [Jan.] 1936) were able to produce extreme granulocytopenia in patients who had had previous attacks of the disease by injecting a small amount of the drug intradermally. It was postulated that the leukopenia occurred as a result of a sensitivity reaction in which a drug-protein linkage was involved. Moeschlin and Wagner (*Acta haemat.* 8:29-41 [July-Aug.] 1952) have done work suggesting that, as a result of this sensitivity, agglutinins are produced that cause striking agglutination of leukocytes. These, in turn, are filtered out rapidly in the lung. Moeschlin has shown that giving a patient sensitive to aminopyrine a small dose of the drug and then transfusing the patient's blood into a nonsensitive individual will produce a striking reduction in the leukocytes in the nonsensitive individual. The actual mechanics in changes in the bone marrow are probably on the basis of an emptying out of the cells from the bone marrow, so that, with prolonged administration of the drug after the reaction occurs, the cells in the marrow are at more and more immature levels.

KEROSENE SWALLOWED BY CHILDREN

To the Editor:—*Where liquid hydrocarbons, such as kerosene and furniture polish, have been swallowed by children, is gastric lavage indicated? If indicated, what technique will avoid the possibility of getting more of the hydrocarbon over into the trachea in the process?*

Harry D. Baernstein Jr., M.D., Racine, Wis.

Answer.—Current recommendations regarding gastric lavage in cases in which kerosene or related petroleum distillates have been swallowed by children are controversial. Experienced physicians make opposing recommendations for and against emptying the stomach. Reported experimental evidence is also conflicting and has been variously interpreted. A manual on accidental poisoning in childhood, published by the American Academy of Pediatrics but not an official academy statement, suggests that prompt and early lavage in cases of kerosene ingestion would be beneficial. If this lavage is carried out with the child properly restrained, flat on a table with the head lower than the feet (Trendelenburg position), the opportunities for getting the hydrocarbon into the trachea are considerably minimized. However, a substantial number of individual members of the Academy of Pediatrics and others feel this may increase the likelihood of tracheal aspiration and consequent pulmonary complications.

INTELLIGENCE TESTS

To the Editor:—*Where can I find the psychometric tests that are acceptable today and what they mean? Is the Minnesota multiphasic test one of these?*

A. L. Henricksen, M.D., Van Nuys, Calif.

Answer.—Psychometric test is a term generally applied to those tests that deal with the measurement of intelligence. The Minnesota multiphasic test is not an intelligence test but, rather, seeks to evaluate personality traits and classify the subject according to the pathological trends indicated by his response to the test. The most frequently used psychometric or intelligence tests are the Wechsler-Bellevue intelligence scale, forms I and II; the Wechsler adult intelligence scale; and the Wechsler intelligence scale for children. For children and adolescents the revised Stanford Binet (1937 revision) is also commonly employed. The personality tests in general use today are the Rorschach, the thematic apperception test, the Bender gestalt test, the Minnesota multiphasic test, and a number of sentence-completion tests. There are several books that deal with the theory and application of both the various intelligence and personality tests that are most frequently used in clinical practice today. Among these are "An Introduction to Projective Techniques" (Anderson, H., and Anderson, G.: New York, Prentice-Hall, Inc., 1951); "Projective Techniques" (Bell, J. E.: New York, Longmans, Green & Co., Inc., 1948); and "Appraising Personality" (Harrower, M.: New York, W. W. Norton, 1953). The textbooks indicated above, as well as the individual tests and test materials, are available from the Psychological Corporation, 522 Fifth Ave., New York.

TRANSFUSIONS

To the Editor:—*Can blood transfusions be given routinely with 5% dextrose solution running in the same tube at the same time? In surgery the anesthetist seems to prefer to give dextrose and saline solution in one bottle and blood in another, each connected by a wide tube to a single tube through which the infusion is given into a single vein.*

M.D., Alabama.

Answer.—It is inadvisable to give simultaneous infusions of dextrose solutions and whole blood. De Gowin and others (Blood Transfusion, Philadelphia, W. B. Saunders Company, 1949, p. 278) call attention to the danger of extravascular hemolysis resulting from the mixture of stored blood and dextrose solutions. Wilson (*Am. J. Clin. Path.* 20:667 [July] 1950) reports a transfusion reaction traceable to the clumping that occurs in a mixture of dextrose solution and citrated whole blood. Dreyfus and Salmon (*Presse méd.* 60:845 [June 7] 1952) point out the danger of clumping and of increased fragility of red blood cells exposed to dextrose solutions.

FEET OF DANCERS

To the Editor:—*An abstract in* The Journal *(Dec. 27, 1952, page 1732) on "Studies on the Feet of Dancers" indicated that the feet of children who performed modern dances nearly all were splayed or flat and that these children had other difficulties presumably due to the lack of proper support of the foot. A patient, aged 11, has been particularly active in this field, and I feel that her feet are gradually becoming more splayed and flat. How can further changes in the feet be prevented?*

M.D., New Jersey.

Answer.—Toe slippers will, of course, keep the foot narrow and small, but they tend to contract the foot and cause talipes equinus, talipes cavus, and contracture of the toes. This is true when the dancing is carried out over a long period of time. Modern dancing allows full, free use of the foot and increases its strength, but it does allow the foot to spread. If a child's foot is strained during this process, it, too, will be subjected to a type of deformity—usually hallux valgus. The idea in modern dancing is to have absolute freedom of the body, including the foot. Modern dancing when carried out on soft sand at the beach or on a lawn would not result in a deformity. It is conceivable that a shoe could be made that would prevent the foot from spreading. It would have to be soft-soled and laced. Instructors in modern dancing are of the opinion that unless the foot of a child is strained in dancing, the foot will not spread. If properly taught, modern dancing will increase the strength of the foot and improve the appearance. Exponents of modern dancing have well-appearing, perfectly normal feet to prove this. It would seem, therefore, that the best advice to prevent further changes in the feet of a child would be to permit a limited amount of dancing sufficient to increase the strength, but not sufficient to permit strain. It must be kept in mind that there are contributing factors to the spread of the foot besides the dancing. There may be an initial weakness or a congenital tendency toward flat feet, poor muscle tone, or excessive body weight.

DIETHYLSTILBESTROL FOR ORCHITIS

To the Editor:—*Would you please inform me as to the status of diethylstilbestrol in the prophylactic treatment of the orchitis secondary to mumps in males at and past the adolescent stage?*

Henry C. Zingher, M.D., Rushville, Ill.

Answer.—Hoyne, Diamond, and Christian (*J. A. M. A.* 362 [June 25] 1949) reported highly favorable results with use of 5 mg. of diethylstilbestrol daily in both prophylactic and therapeutic treatment of mumps orchitis. They observed a rather rapid therapeutic response, decrease in morbidity, and shortening of the convalescent period from three to five days. In none of their patients was operation necessary. Treatment is probably worthy of trial in some patients. Gellis, McGuinness, and Peters (*Am. J. M. Sc.* 210:661 [Nov.] 1945) used gamma globulin obtained from the convalescent mumps serum in a series of patients with mumps and obtained a significant decrease in orchitis.

CARE OF NEWBORN INFANTS

To the Editor:—*In this hospital a newborn baby is placed on the mother's abdomen and the cord is clamped with a Ziegler clamp and cut. The baby is then wrapped in a warmed receiving blanket and transferred to an electrically heated resuscitator, where suction of the oropharynx is performed After a variable length of time the baby is carried in the nurse's arms to the nursery, 122 ft. away on the same floor, and en route is shown to any of the family in attendance. The rectal temperatures of the babies so handled, on arrival in the nursery, are frequently in the 96-97 F (35.5-36.1 C) range. It has been suggested that an infant incubator be used in the delivery room to prevent heat loss by the newborn infant and that the baby be transported to the nursery still in the incubator. Any comments in reference to our present procedure would be appreciated.*

M.D., Virginia.

Answer.—In the "Standards and Recommendations for Hospital Care of Newborn Infants, Full-Term and Premature" (Evanston, Ill., American Academy of Pediatrics, 1954), section 6 on immediate care in the delivery room states, "A warmed incubator or heated bed is required for a newborn infant. This should be of a type approved by the Council on Physical Medicine of the A.M.A. and the Underwriters Laboratory as explosion proof." Under transfer to nursery is this statement: "Transfer should be by a route which is as free of contact with other persons as possible. There should be a moveable oxygen supply for infants whose respirations are not normal. A moveable heated bed should be available when needed."

SUBJECTIVELY AUDIBLE PULSATIONS

To the Editor:—*A 69-year-old woman with essential hypertension and relatively severe arteriosclerosis has been taking 0.1 mg. of reserpine twice a day. Her average blood pressure before treatment was 230/140 mm. Hg and is now 150/95. Her main problem is persistent throbbing in her head with each heartbeat. The throbbing is bilateral and worse at night. Barbiturates control this fairly well but are unacceptable to the patient because of the associated drowsiness. Is there any other treatment?*

Dale R. South Jr., M.D., Troy, Ohio.

Answer.—Awareness of the pulse, in the head, ears, or elsewhere in the body, occurs independently of arterial hypertension and/or arteriosclerosis as well as coincident to these disorders. It is not a symptom of circulatory impairment but is a common complaint in persons who are apprehensive about their health, particularly if the fears are focused on cardiovascular disease. In cardiac neurosis this symptom is frequent. Since it is subjective and associated more with apprehension of impending catastrophe than with actual present distress, it often resists therapy. Drugs are not the answer, nor is the answer simple reassurance without convincing explanation of the variability in somatic awareness associated with psychic stress. Careful inquiry regarding the onset of this complaint will usually reveal an association with some experience intensifying anxiety. The psychotherapy of the neuroses cannot be outlined here, nor would a general discussion be profitable. Each instance must be handled individually. It is most important that explanation of the insignificance of the phenomenon be clear, detailed, convincing, and sincere. If the awareness of the pulse is felt to be significant, anxiety is intensified and the symptom is perpetuated. Diversion of attention will more often than not erase the sensation. This can be used as objective evidence in instructing the patient.

SENSITIVITY TO ASPIRIN

To the Editor:—*In patients who are clinically sensitive to aspirin, what drugs may be safely employed as antipyretic and analgesic substitutes?*

M.D., California.

Answer.—Patients who are allergic to aspirin can usually take sodium salicylate, acetophenetidin, acetanilid, and aminopyrine. However, not infrequently such patients fail to tolerate some of these drugs also. Apamide (N-acetyl-*p*-aminophenol) is a good substitute for aspirin.

JOINT PAIN IN PATIENT WITH PURPURA

To the Editor:—*In* The Journal, *April 21, 1956, page 1438, is a question under the heading, "Joint Pain in Patient with Purpura." In the answer the consultant made an important omission of differential diagnosis. It seems to me that any patient receiving cortisone or related steroids, especially when therapy is continued for a long time, who develops symptoms of generalized bone and muscle aches and pains, should be considered first of all to have iatrogenic hypercortisonism or hypocortisonism. In the past this syndrome related to steroid therapy has not been properly recognized. It has been described by Slocumb in* Proceedings of the Staff Meetings of the Mayo Clinic *(28:655, 1953), by Freyberg in the book* "Corticotropin, Cortisone, and Hydrocortisone" *(Philadelphia, Lea & Febiger, 1953), and by Hench and Ward in "Medical Uses of Cortisone, Including Hydrocortisone and Corticotropin" (New York, Blakiston Company, 1954).*

G. P. Nichols, *M.D.*
7010 Chicago Ave.
Minneapolis 23.

« Washington News »

Defense Department Seeking Medical Fee Data • •
Mintner Foresees New Drug Laws Next Year • •
AEC Official Reports on Radioisotopes • •
Selective Service Asks Residency Review • •

COLLECTION OF DATA ON MEDICAL FEES

The Defense Department, with the cooperation of the American Medical Association, is collecting nationwide information on prevailing medical care charges in each state as an essential step in putting into effect the new military dependent medical care program, which under the law is scheduled to be in operation by Dec. 8. All state medical societies are being supplied with copies of a department pamphlet, "Nomenclature for Proposed Medical Charges," and are being asked to (*a*) complete the schedule of charges as far as practicable, (*b*) indicate the geographical areas of the state in which charges apply if the state insists upon a variable fee schedule, and (*c*) send the form to Dr. George F. Lull, A. M. A. Secretary-General Manager.

The nomenclature consists of 115 pages listing and defining specific medical procedures. The state societies are expected to fill in the blank spaces with the charges prevalent for each. To facilitate collection of basic information, the societies are asked to first fill out charges for about 200 of the more common procedures, indicated by asterisks, with the remainder to be completed later. Navy Captain J. V. Noel, chairman of the Defense Department's task force handling the new program, points out in a foreword that in preparing the form extensive use was made of the A. M. A.'s Standard Nomenclature of Diseases and Operations, the California Medical Association's "Relative Value Schedule," and the Blue Cross-Blue Shield's "Actuarial Statistical Manual." The objective is to arrange for the care of military dependents who will not be cared for in military facilities. The department has tentatively decided to employ a system of reimbursement of physician's and hospital's charges plus the cost of administration to the agency selected to handle the hospital and medical facets of the program.

"This [fee] schedule applies only to services performed under the supervision of a physician," the department points out. "It is realized that the list is not all inclusive. For procedures not listed, or those for which it does not seem feasible to establish a charge but are within the scope of the law, payment may be made subject to a physician's report. Payment for treatment of non-surgical conditions will be on a hospital visit basis."

"Those procedures which are authorized to be performed by a physician for dependents who at the time is not a patient in a hospital are included in this schedule, but have not been listed separately. Prior to the effective date of this program, these specific procedures will be identified by the Secretary of Defense." Only outpatient care will not be furnished under the program, although a few procedures that can be carried out in a physician's office equally effectively as in a hospital are permitted.

ADDITIVES IN FOOD

Bradshaw Mintner, retiring Assistant Secretary of Health, Education, and Welfare, believes the next Congress will pass legislation to control additives in food. Mr. Mintner outlined his views in an address before the food, drug, and cosmetic law division of the American Bar Association. "This matter of chemical ingredients in food in my opinion is one of the really serious and important public relations problems of the foods industry," he said. "It will never be solved satisfactorily as long as there is any question or doubt that all food ingredients are not as completely safe as it is humanly possible to make them. The only solution, in my opinion, is a law that requires adequate testing for safety before the food additive is put on the market—and there should be no loopholes in this requirement."

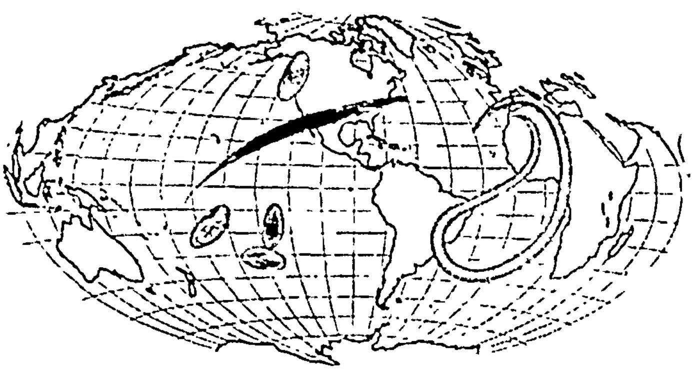
Mr. Mintner reviewed the long hearings on additives conducted by the House Interstate and Foreign Commerce Committee, noting that despite the clearly defined points of controversy the hearings showed there was a wide area of agreement as to the objectives of the proposed law. He said he believes there is every reason to expect a satisfactory law can be worked out by the next Congress. The Assistant Secretary disclosed that, although the last Congress increased appropriations for the Food and Drug Administration by a million dollars, most of this has been offset by increased costs of operations. The result is the addition of just five more budget positions in the FDA.

MEDICAL USES OF RADIOISOTOPES

Among some of the more outstanding contributions of the atomic age to medicine is the therapeutic use of artificially produced radioisotopes, reports Dr. Charles L. Dunham, director, division of biology and medicine, Atomic Energy Commission. Addressing the Rocky Mountain Cancer Conference, Dr. Dunham summarized ways in which radioisotopes are being used throughout the field of medicine. The internists are using radioactive phosphorus (P^{32}) and other radioisotopes to diagnose and treat a variety of diseases. Neurosurgeons are finding radioactive iodinated human serum albumin and radioarsenic important tools in the diagnosis and localization of brain tumors. Ophthalmologists, plastic surgeons, and genitourinary surgeons all find radioisotopes valuable in their practices.

(Continued on page 22)

From the Washington Office of the American Medical Association.



Washington News—Continued

The diseases of "maturity" become increasingly important as the methods for the control of the infectious diseases are more and more effective, Dr. Dunham said. Therefore, the possible future applications of tracer studies in intermediary metabolism hold promise for medical practice. "Precise knowledge of the various disturbances of carbohydrate, lipid and protein metabolism, so little understood today, will bulk large in our efforts to control atherosclerosis, hypertension and perhaps even neuropsychiatric disorders," he declared. Among the indirect contributions of the atomic age to medicine is the information on radiation effects on the biological system. Premature aging and cancer are two of the effects of overexposure to ionizing radiation, continued Dr. Dunham. The Oak Ridge Institute for Nuclear Studies and the Argonne Cancer Research Hospital at the University of Chicago School of Medicine are playing important parts in research into these problems. Dr. Dunham emphasized that, in the event of an atomic war, the physician must be prepared to evaluate and treat radiation casualties whether he is in military or civilian practice.

SELECTIVE SERVICE REVIEW OF RESIDENCIES

A bulletin from the headquarters of the National Selective Service urges state directors to review the files of all physicians in residency programs who have not requested deferment under the military or Public Health Service residency training programs. Directors are instructed to report their findings to the National Selective Service headquarters. "It has been noted that some physicians who have completed internships and are in residency training but who are not in a residency training program of the Armed Forces or the Public Health Service have been given occupation deferments," the bulletin says. "It has also come to the attention of this headquarters that many young physicians who have completed their internships are not applying for commissions or for acceptance in such residency training programs on the theory that their local boards will either defer them or not process them for induction."

EFFECT OF RADIATION ON GENETICS

A 20-man study group on the effect of radiation on human genetics has made a report to the World Health Organization, portions of which were made public in Washington by the Pan American Sanitary Bureau. WHO organized the study group as part of its program in the field of public health aspects of peaceful uses of atomic energy. Study group chairman was Dr. Alexander Hollander, biological director of Oak Ridge National Laboratory. Another group earlier this year studied radiological units and radiological protection.

The Hollander committee noted that in recent years great advances had been made in the study of heredity and that experience with living creatures ranging from micro-organisms to mammals confirmed the previous observations that mutations are induced by radiation. The bureau added that the group found "strong grounds for believing these genetic effects to be cumulative so that in the long run a small amount of radiation received by each of a large number of individuals could do an appreciable amount of damage to later generations."

A question to which the group devoted close attention was the need for accurate measurement and recording of exposures to radiation, in order to provide background information needed for analyzing the genetic effects. The group learned that in one hospital where such recordings were started there had been a 30% reduction in the total exposure of the staff, and also some reduction in exposure of patients.

PERSONNEL

Dr. Robert Leslie Smith, deputy director of the health office of the Federal Civil Defense Administration, has been assigned to the FCDA's Washington office. Dr. John M. Whitney, health office director, said Dr. Smith will seek to strengthen the civil defense health services through colser working relationships with professional health organizations, the Department of Defense, and other federal agencies. . . . HEW has named Miss Cecile Hillyer chief of the division of training in the Office of Vocational Rehabilitation. Miss Hillyer will supervise efforts to fill serious shortages of professionally skilled persons needed to expand and improve the state-federal program of vocational rehabilitation. . . . Brig. Gen. M. Samuel White, M. C., U. S. A. F., has been assigned to the Office of the Surgeon General as director of staffing and education. He replaces Brig. Gen. Otis O. Benson, who has become commandant of the School of Aviation Medicine, San Antonio, Texas. General White's last assignment was as the air surgeon of the Tactical Air Force.

MISCELLANY

One of the first x-ray tubes used by Wilhelm Konrad Roentgen has been placed on permanent exhibition at the U. S. National Museum, Smithsonian Institution. The tube was purchased from a private owner in Germany and presented to the Smithsonian Institution by the General Electric Company's x-ray department of Milwaukee. . . . The Atomic Energy Commission has reduced its prices for two radioisotopes that are used widely in the field of biology and medicine. New prices became effective July 1 for carbon-14 and iodine-131. . . . The latest volume in the Army Medical Service clinical series tells the story of abdominal surgery performed in forward Army medical units and of the resuscitation of men severely wounded in battle. The volume, "General Surgery," is based primarily upon clinical cases handled and follow-up studies made by members of the second auxiliary surgical group in the Mediterranean Theater in World War II and is the second of two volumes on this subject in the clinical series.

Results With

'ANTEPAR'®*

against **PINWORMS**

In clinical trials, over 80% of cases have been cleared of the infection by one course of treatment with 'Antepar.'

Bumbalo, T. S., Gustina, F. J.,
and Oleksiak, R. E.:
J. Pediat. 44:386, 1954.

White, R. H. R., and
Standen, O. D.:
Brit. M. J. 2:755, 1953.

against **ROUNDWORMS**

"Ninety per cent of the children passed all of their ascarides . . ."

Brown, H. W.:
J. Pediat. 45:419, 1954.

***SYRUP OF 'ANTEPAR'** Citrate brand Piperazine Citrate

Bottles of 4 fluid ounces, 1 pint and 1 gallon.

***TABLETS OF 'ANTEPAR'** Citrate brand Piperazine Citrate

250 mg. or 500 mg., Scored

Bottles of 100.

Pads of directions sheets for patients available on request.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, New York

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

1958 Annual Meeting, San Francisco, June 23-27.

1958 Clinical Meeting, Minneapolis, Dec. 2-5.

1959 Annual Meeting, Atlantic City, June 8-12.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 4-6. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 14-19. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Secretary.

American Academy of Pediatrics, Hotel Statler, New York, Oct. 6-11. Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Secretary.

American Association of Medical Clinics, Washington, D. C., Oct. 26-28. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association for the Surgery of Trauma, The Biltmore, Santa Barbara, Calif., Oct. 4-6. Dr. James K. Stack, 700 N. Michigan Ave., Chicago 11, Secretary.

American Branch, International Society of Surgery, Fairmont Hotel, San Francisco, Oct. 9. Dr. Walter G. Maddock, 250 East Superior St., Chicago 11, Secretary.

American Cancer Society, Scientific Session, Park Sheraton Hotel, New York, Oct. 29-30. Dr. Charles S. Cameron, 521 West 57th St., New York 19, Medical Director.

American Clinical and Climatological Association, Skytop Lodge, Skytop, Pa., Nov. 1-3. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Clinic Administrators, Eden Roc Hotel, Miami Beach, Fla., Sept. 16-19. Miss Eva M. Rule, 106 North Silver St., Olney, Ill., Secretary.

American College of Gastroenterology, Hotel Roosevelt, New York, Oct. 15-17. Mr. Daniel Weiss, 33 West 60th St., New York 23, Executive Secretary.

American College of Surgeons, Fairmont Hotel, San Francisco, Oct. 8-12. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

American Congress of Physical Medicine and Rehabilitation, Atlantic City, N. J., Sept. 10-14. Dr. Walter J. Zeiter, 30 N. Michigan Ave., Chicago 2, Executive Director.

American Dental Association, Atlantic City, Oct. 1-4. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary.

American Dietetic Association, Hotel Schroeder and Auditorium, Milwaukee, Wis., Oct. 9-12. Mrs. Helen H. Anderson, Stanford University Hospitals, San Francisco, Secretary.

American Heart Association, Netherlands Plaza Hotel, Cincinnati, Oct. 27-31. Dr. Rome A. Betts, 44 East 23d St., New York 10, Executive Director.

American Hospital Association, Palmer House, Chicago, Sept. 17-20. Dr. Edwin L. Crosby, 18 E. Division St., Chicago 10, Director.

American Medical Writers' Association, Hotel Morrison, Chicago, Sept. 28-29. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill., Secretary.

American Rhinologic Society, Illinois Masonic Hospital and Palmer House, Oct. 9-13. Mrs. Mabel Campbell, 834 Wellington Ave., Chicago 14, Corresponding Secretary.

American Roentgen Ray Society, Hotel Statler, Los Angeles, Sept. 25-28. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American Society of Anesthesiologists, Municipal Auditorium, Kansas City, Mo., Oct. 8-12. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American Society of Clinical Pathologists, Drake Hotel, Chicago, Oct. 7-12. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Kentucky Hotel, Louisville, Ky., Oct. 22-25. Dr. Harold Hodge, University of Rochester, Rochester 20, N. Y., Secretary.

American Society of Tropical Medicine and Hygiene, Jung Hotel, New Orleans, Oct. 31-Nov. 3. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, University of North Carolina, Chapel Hill, N. C., Secretary.

American Veterinary Medical Association, Plaza Hotel, San Antonio, Texas, Oct. 15-18. Dr. J. G. Hardenbergh, 600 South Michigan Blvd., Chicago 5, Executive Secretary.

Association of Life Insurance Medical Directors of America, Hotel Roosevelt, New Orleans, Oct. 23-25. Dr. Henry B. Kirkland, P.O. Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, State University of Iowa, Iowa City, Oct. 1-3. Miss Rose M. Reynolds, University of Nebraska College of Medicine, Omaha 5, Corresponding Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D.C., Nov. 2-10. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Association of Obstetricians and Gynecologists, Roosevelt Hotel, New Orleans, Oct. 4-6. Dr. Edwin J. DeCosta, Suite 615, 104 South Michigan Ave., Chicago 3, Secretary.

Clinical Orthopaedic Society, Cleveland, Oct. 5-6. Dr. Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn., Executive Secretary.

College of American Pathologists, Drake Hotel, Chicago, Oct. 6-13. Dr. A. H. Dearing, Suite 2115, Prudential Plaza, 130 East Randolph St., Chicago, Executive Secretary.

Congress of Neurological Surgeons, Palmer House, Chicago, Nov. 1-3. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Delaware, Medical Society of, Henlopen Hotel, Rehoboth Beach, Sept. 13-14. Dr. Norman L. Cannon, 621 Delaware Ave., Wilmington, Secretary.

Eastern Psychiatric Research Association, Waldorf-Astoria Hotel, New York, Oct. 27. Dr. Theodore R. Robie, 676 Park Ave., East Orange, N. J., Secretary.

Gulf Coast Clinical Society, Admiral Semmes Hotel, Mobile, Ala., Oct. 18-19. Dr. Theodore F. Middleton, 1302 Government St., Mobile, Ala., Secretary.

Indiana State Medical Association, Murat Temple, Indianapolis, Oct. 16-18. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Institute of Psychiatric Treatment, Boston State Hospital, Boston, Sept. 27-29. Dr. Leo Alexander and Dr. Robert Arnot, 433 Marlborough St., Boston 15, Co-Chairmen.

Interstate Postgraduate Medical Association of North America, Hotel Statler, Cleveland, Oct. 22-26. Mr. Roy T. Ragatz, Box 1109, Madison 1, Wis., Executive Director.

Kansas City Southwest Clinical Society, Fall Clinical Conference, Municipal Auditorium, Kansas City, Mo., Sept. 24-27. Dr. Lee H. Leger, 3036 Gillham Road, Kansas City 8, Mo., Director of Clinics.

Kentucky State Medical Association, Brown Hotel and Columbia Auditorium, Louisville, Sept. 18-20. Mr. J. P. Sanford, 620 S. Third St., Louisville 2, Executive Secretary.

Michigan State Medical Society, Sheraton-Cadillac Hotel, Detroit, Sept. 26-28. Dr. L. Fernald Foster, 606 Townsend St., Lansing 5, Secretary.

Mid-Continent Psychiatric Association, Velda Rose Motel, Hot Springs, Ark., Sept. 21-23. Dr. William F. Roth Jr., University of Kansas Medical Center, Kansas City 12, Kans., Secretary.

Mississippi Valley Medical Society, Hotel Morrison, Chicago, Sept. 26-28. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Montana Medical Association, Rainbow Hotel, Great Falls, Sept. 13-15. Mr. L. R. Hegland, P. O. Box 1692, Billings, Executive Secretary.

National Proctologic Association, Maryland Hotel, Chicago, Oct. 18-20. Dr. George E. Mueller, 59 East Madison St., Chicago 2, Executive Secretary.

National Society for Crippled Children and Adults, Statler Hotel, Washington, D. C., Oct. 28-Nov. 1. Dr. Dean Roberts, 11 South LaSalle St., Chicago 3, Executive Director.

New England Postgraduate Assembly, Hotel Statler, Boston, Oct. 30-Nov. 1. Dr. Robert P. McCombs, 22 Fenway, Boston 15, Chairman, Program Committee.

New Hampshire Medical Society, Wentworth-by-the-Sea, Newcastle, Sept. 28-30. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

Omaha Mid-West Clinical Society, Hotel Fontenelle, Omaha, Oct. 29-Nov. 1. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Portland, Oct. 16-20. Dr. Richard R. Carter, 1020 S. W. Taylor St., Portland 5, Secretary.

Pennsylvania, Medical Society of the State of, Chalfonte-Haddon Hall, Atlantic City, N. J., Oct. 21-26. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings:

American College of Physicians:

New Mexico, Albuquerque, Oct. 16. Dr. Robert Friedenberg, 143 Madison St. N.E., Albuquerque, Governor.

Midwest, Minneapolis, Oct. 27. Dr. Wesley W. Spink, 412 Delaware St., S.E., Minneapolis 14, Governor.

Western New York, Albany, Oct. 19. Dr. John H. Talbott, 100 High St., Buffalo 3, Governor.

West Virginia, Charleston, Sept. 29. Dr. Paul H. Revercomb, 1031 Quarrier St., Charleston 1, W. Va., Governor.

Southeastern Allergy Association, Charlotte, N. C., Oct. 5-6. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

Southwestern Cancer Conference, Hilton Hotel, Fort Worth, Texas, Oct. 26-27. Dr. John J. Andujar, 1404 Pennsylvania, Fort Worth 4, Texas, Chairman.

Tennessee Valley Medical Assembly, Read House, Chattanooga, Oct. 1-2. Dr. Harry E. Jones, 109 Medical Arts Bldg., Chattanooga 2, Secretary.

U. S. Section, International College of Surgeons, Palmer House, Chicago, Sept. 9-13. Dr. Ross T. McIntire, 1516 Lake Shore Drive, Chicago 10, Executive Director.

Vermont State Medical Society, Wentworth-by-the-Sea, Newcastle, N. H., Sept. 27-29. Dr. Robert L. Richards, 128 Merchants Row, Rutland, Secretary.

Virginia, Medical Society of, Hotel Roanoke, Roanoke, Oct. 14-17. Mr. Robert I. Howard, 105 West Franklin St., Richmond 20, Executive Secretary.

Washington State Medical Association, Olympic Hotel, Seattle, Sept. 16-19. Mr. Ralph W. Neill, 1309 Seventh Ave., Seattle 1, Executive Secretary.

Western Orthopedic Association, Arizona Biltmore Hotel, Phoenix, Ariz., Oct. 31-Nov. 3. Dr. John H. Ricker, 926 East McDowell Rd., Phoenix, Ariz., Secretary.

FOREIGN AND INTERNATIONAL

Association of Industrial Medical Officers, London School of Hygiene and Tropical Medicine, London, W.C.1, England, Sept. 24-28, 1956. Dr. J. A. A. Mekelburg, Peek, Frean and Company, Ltd., Keetons Rd., Bermondsey, London, S.E. 16, England, Honorable Secretary.

Austrian Congress of Industrial Medicine, Vienna, Austria, Oct. 1-4, 1956. Dr. Ch. Frieberger, Austrian Society for Industrial Medicine, Kinderspitalgasse 15, Vienna, Austria, Organizing Secretary.

Bahamas Medical Conference, Princess Margaret Hospital, Nassau, Bahamas, Dec. 1-15, 1956. For information address: Dr. B. L. Frank, 4th Floor, 550 Fifth Ave., New York 36, N. Y., U. S. A.

(Continued on page 28)

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 2

CHICAGO, ILLINOIS

Copyright, 1956, by American Medical Association

SEPTEMBER 8, 1956

USE OF POLIOMYELITIS VACCINE UNDER EPIDEMIC CONDITIONS

REPORT OF OUTBREAK OF POLIOMYELITIS AMONG NAVAL PERSONNEL AND DEPENDENTS IN HAWAII

Capt. Robert S. Poos (MC), U. S. Navy
and
Neal Nathanson, M.D., Atlanta, Ga.

• *A program of vaccination against poliomyelitis was undertaken among 7,760 Navy families in Hawaii because there was reason to fear that an outbreak, until then concentrated in a single Navy housing area, might spread. The vaccinations were limited to married Navy personnel and their dependents and began Oct. 5, 1955. Epidemiological observations made during the epidemic showed that military and civilian nurseries were important in spreading poliomyelitis among preschool children, from whom the infection spread to their parents, older children, and other adults. After the mass vaccination program, attack rates were lower in vaccinees than in the unvaccinated population, although this difference was not statistically significant. Epidemiological and clinical data did not reveal any evidence of a provoking effect due to injections of poliomyelitis vaccine.*

An emergency poliomyelitis vaccination program was started in October, 1955, during a poliomyelitis epidemic among U. S. Navy personnel and their dependents in Hawaii. (Throughout this report, "Navy" refers to both U. S. Navy and U. S. Marine Corps.) This paper presents some of the observations made during the epidemic and is the first reported study of the mass vaccination of a population in which poliomyelitis was occurring at an epidemic rate.

Previous reports have shown that a formalinized virus vaccine is effective in the prevention of paralytic poliomyelitis.[1] However, these reports were limited to evaluations of the use of poliomyelitis vaccine during periods of relatively low incidence of the disease. There has been considerable discussion and some difference of opinion about the possible danger of the use of the vaccine when the incidence of poliomyelitis is high. The ability of the immunizing injections of diphtheria, pertussis, and tetanus antigens to provoke paralytic poliomyelitis was first reported in 1950 and has been repeatedly confirmed.[2] These reports have shown, with one exception, that provocation is associated with injections given within one month of onset of paralysis and that paralysis frequently involves the inoculated extremity. The provoking phenomenon has also been produced experimentally in monkeys by Bodian.[3] Therefore, there has been concern that injections of poliomyelitis vaccine during the "polio season" or at a time of high incidence of the disease might show a similar ability to provoke paralysis.

This problem was considered by the vaccine advisory committee of the National Foundation for Infantile Paralysis, by special consultants, and by representatives of certain professional groups at a meeting on June 18, 1955. The organizations represented included the American Medical Association, the American Academy of Pediatrics, the American Academy of General Practice, the American Public Health Association, the Association of State and Territorial Health Officers, and the U. S. Public Health Service. The unanimous opinion of the group[4] was that "the total preventive effect of the vaccine in a period of rising poliomyelitis incidence should be much greater than the possible hazard from the provoking effect of the injection." Those present also concluded that "the benefit to be gained by poliomyelitis immunization, in contrast to the small potential risk of provocation, increases in proportion to the severity of the poliomyelitis incidence, since a larger number of paralytic cases should be prevented during the entire period of the epidemic." Those concerned were confident that the severity of the Pearl Harbor epidemic could be modified, and the decision to carry out the Navy vaccination program was made with the knowledge that there was a small potential risk of provocation. An examination of all aspects of the present experience that relate to the provoking effect is made in a later section of this report.

From the U. S. Navy Preventive Medicine Unit No. 6, U. S. Naval Base, Pearl Harbor, Territory of Hawaii (Captain Poos), and the Communicable Disease Center, Public Health Service, U. S. Department of Health, Education, and Welfare (Dr. Nathanson).

Read before the Section on Preventive and Industrial Medicine and Public Health at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956.

Epidemiological Background

An estimated 43,660 Navy personnel and their dependents reside within Honolulu County. This population is composed of 16,500 single personnel, 7,760 married personnel, 7,760 dependent wives, and 11,640 dependent children. Approximately 90% of the married adults are in the 20-40 year age group. There are numerous opportunities for the introduction of an infectious disease into this resident population. Throughout the year, many thousands of Navy personnel aboard ships are in the area for a few days or weeks. Also, many Navy families in transit between the United States and Pacific stations visit Hawaii for a few hours or days. Since the usual tour of duty in this naval district is two years, about half of the resident Navy population leaves each year and is replaced by new arrivals. The monthly rate of arrival and departure varies with the season, rising to about 6% in the summer and falling to about 3% during the remainder of the year. In addition, although the majority of families live in Navy housing areas, they actively participate in all phases of civilian community life. Finally, and most important, is the fact that frequent and intimate contacts between civilian and military children of preschool age occur in civilian day nurseries, several of which are in constant use by Navy families in the Pearl Harbor area.

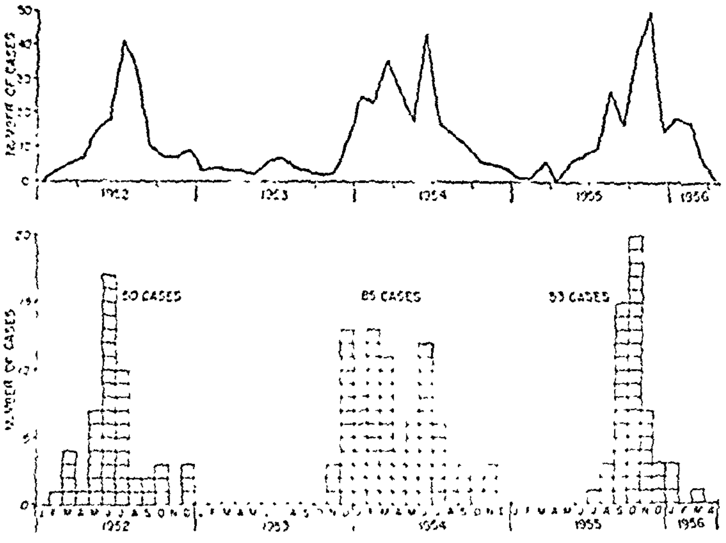


Fig. 1.—Total reported cases of poliomyelitis in Hawaii from 1952 to 1956 (top) and cases among Navy personnel and dependents (bottom).

Many opportunities are available for the spread of infectious disease after introduction into the resident Navy population. Approximately 80% of the families live in Navy housing areas, where the active social life ensures frequent household contact between members of different family units. In each family there are, on the average, between one and two children, and in about 50% of the families there are infants or children of preschool age. An important source of intimate contact for these infants and preschool children is provided by the unofficial Navy nurseries and care centers operated as a community service for Navy families six days and three evenings weekly. Some Navy dependent children spend time in both civilian and military nurseries. All of these nurseries continued normal operations during the epidemic except the largest (Pearl Harbor Nursery), which was closed on Oct. 6, 1955. When this nursery was reopened two months later, admission was restricted to children who had received two poliomyelitis vaccinations. The resident Navy population is an excellent one for the epidemiological study of disease. Military medical care is available for personnel and dependents, both in Navy dispensaries and in the Tripler Army Hospital. Thus, the great majority of illnesses in the population are observed, treated, and recorded in these medical facilities. Detailed clinical records are kept on all individuals receiving medical care, and special records were made on all participants in the vaccination program.

During the past six years, three distinct outbreaks of poliomyelitis have occurred in Hawaii. These outbreaks are shown in figure 1, which presents the monthly incidence reported for Hawaii (taken from the Morbidity and Mortality Weekly Reports of the National Office of Vital Statistics) and monthly totals of cases among Navy personnel and dependents (taken from records of Preventive Medicine Unit No. 6 and the Tripler Army Hospital). Data from these sources are not strictly comparable, since total cases are tabulated by date of report, while cases among Navy personnel and dependents are tabulated by date of onset. It is apparent that during each outbreak of poliomyelitis in Hawaii a simultaneous outbreak occurred among Navy personnel and dependents. This suggests that poliomyelitis infections are spread between the civilian community and the Navy population. Records of the Territorial Department of Public Health show that since 1948 the incidence of poliomyelitis among military dependents residing in Hawaii has been considerably higher than in the local civilian population. The occurrence of poliomyelitis in Hawaii prior to 1953 has been reviewed by Enright.[5]

In a review of case records from the 1953-1954 epidemic among Navy personnel and their dependents, some significant observations were made. Of the total group of 85 cases with onsets in 1953 and 1954, 40 occurred in dependent children, 41 in married personnel and wives, and only 4 in single personnel. Moreover, of the 41 cases occurring among married adults, 36 (88%) involved families with one or more children under 5 years of age, although only about half of all families had children in this age group. These observations formed the basis of the decision to include married adults as well as children in the 1955 poliomyelitis vaccination program.

The 1955-1956 Epidemic

An outbreak of 53 cases of poliomyelitis, with two deaths, occurred between July 29, 1955, and March 2, 1956, among Navy personnel and dependents residing in Honolulu County on the island of Oahu, Territory of Hawaii. These cases, occurring in a population of 43,660, represented an attack rate of 121 per 100,000. The chronological development of the epidemic is presented in table 1 and figure 2. The 23 cases designated in figure 2 by a solid circle will be discussed in a later section dealing with vaccine effectiveness. Of the total of 53 cases, 2 had onset in the 30-day period ending Aug. 5, and 4 in the period ending Sept. 4, with a rapid rise to 13 cases in the period ending Oct. 4, and 24 cases in the period ending Nov. 3. In the next 30-

day period, ending Dec. 3, there was an abrupt drop to four cases, with only six scattered cases during the subsequent three months. Vaccinations were started on Oct. 5, so that the drop from 24 to 4 cases occurred about one month after initiation of the vaccination program. Of the total of 53 cases, 30 (57%) were paralytic. Paralytic and nonparalytic cases ran a parallel time course, both reaching a maximum in October.

Table 1.—*Cases of Poliomyelitis by Date of Onset and Paralytic Status*

15-Day Period Ending	Paralytic	Non-paralytic	Total
8/ 5/55	..	2	2
8/20	..	..	..
9/ 4	4	..	4
9/19	4†	2	6
10/ 4	3	4	7
10/19	8†	4	12
11/ 3	5	7	12
11/18	..	1	1
12/ 3	2	1	3
12/18	1	..	1
1/ 2/56	1	..	1
1/17	..	..	..
2/ 1	1	2	3
2/16	..	..	..
3/ 2	1	..	1
Total	30	23	53
Rates per 100,000*	69	53	121
% paralytic			57
Case fatality rate			4%

* Calculated on population base of 43,000.
† With one death.

Figure 3 is a map of Honolulu County (island of Oahu) with the 53 cases shown according to residence of patient at time of onset. In the Pearl Harbor area there is a central concentration of housing (Navy housing areas 1, 2, and 3, Makalapa, Moanalua, and shipyard), with two additional housing areas (Pearl City and Radford Terrace) at some distance from the central group. About 40% of Navy families live outside the Pearl Harbor area, in the city of Honolulu, Kaneohe, Barber's Point, Nanakuli, and other sections not shown. Sixteen of the first 18 cases were among residents of the Pearl Harbor area. Eleven of the 16 cases in the Pearl Harbor area occurred in 530 officers' families residing in Navy housing area 1. The total attack rate from Aug. 26 to Sept. 30 for the resident population of Navy housing area 1 was 591 per 100,000.

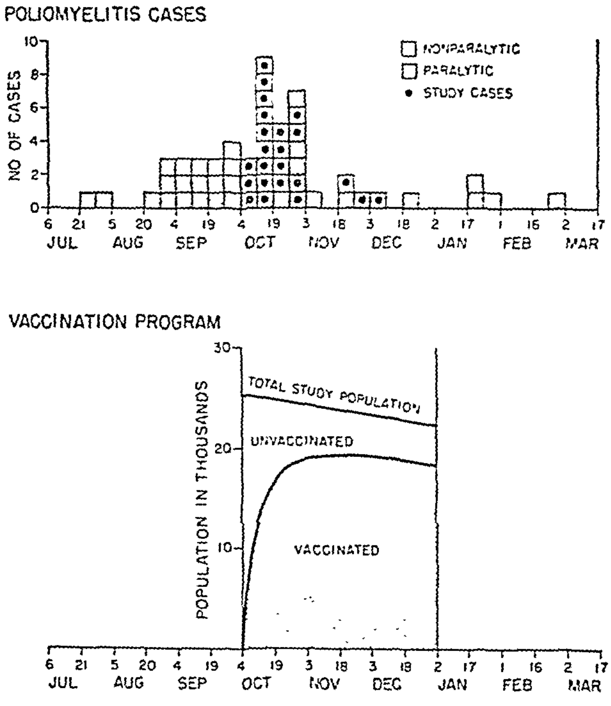


Fig. 2.—Outbreak of poliomyelitis and vaccination program.

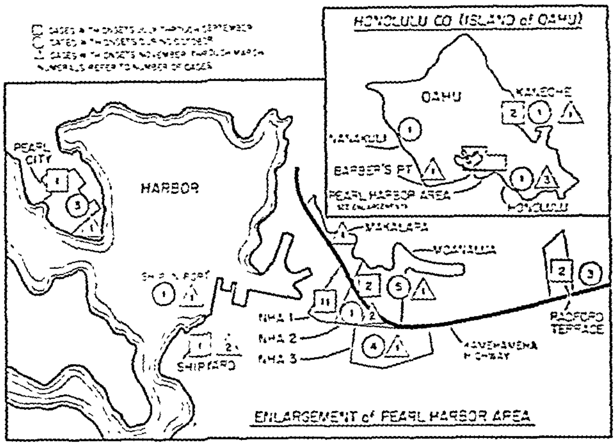

CASES WITH ONSETS JULY THROUGH SEPTEMBER
CASES WITH ONSETS DURING OCTOBER
CASES WITH ONSETS NOVEMBER THROUGH MARCH
NUMERALS REFER TO NUMBER OF CASES
HONOLULU CO (ISLAND of OAHU)
OAHU
KANEOHE
NANAKULI
BARBER'S PT
PEARL HARBOR AREA
HONOLULU
PEARL CITY
HARBOR
SHIPS IN PORT
SHIPYARD
NHA 1
NHA 2
NHA 3
MAKALAPA
MOANALUA
RADFORD TERRACE
KAMEHAMEHA HIGHWAY
ENLARGEMENT of PEARL HARBOR AREA

Fig. 3.—Distribution of cases of poliomyelitis.

Of the 11 patients from Navy housing area 1, 10 had a history of close contact with infants who had recently spent time in the Pearl Harbor Nursery. An intensive epidemiological study of the spread of poliomyelitis infection in a nursery school and to occupants of an apartment has been reported.[6] Although there were no recognized cases in Navy housing area 1 after Sept. 30, new cases developed later in adjacent housing areas, as shown in figure 3. This figure shows that 43 of the 53 cases during the epidemic were among residents of the Pearl Harbor area.

The character of the epidemic is further described in table 2, which presents paralytic and nonparalytic cases by age and marital status of the patients and shows the populations from which they were drawn. All patients classified as having nonparalytic poliomyelitis were hospitalized, and the diagnosis was established after careful observation and only if the patient had systemic symptoms, meningeal signs, and cerebrospinal fluid lymphocytosis. Among children, the highest attack rates were in the 0-4 age group, with progressively lower rates for ages 5-9 and 10-14. Among married adults, the rates were higher for ages 20-29 than for ages 30-39. It is striking that rates among

Table 2.—*Cases of Poliomyelitis by Age and Paralytic Status, with Age-Specific Attack Rates*

	Dependent Children				Married Personnel and Wives				Single Personnel	Total
	0-4	5-9	10-14	15-19	15-19	20-29	30-39	40 plus		
Population	5,086	4,399	1,815	340	256	6,813	7,387	1,664	16,500	43,000
Cases										
Paralytic	8	5	2			11	1		3	30
Nonparalytic	7	2			1	7	4		2	23
Total	15	7	2	...	1	18	5	...	5	53
Rates per 100,000										
Paralytic	157	114	110			161	14		18	69
Nonparalytic	138	45			391	103	54		12	53
Total	295	159	110	...	391	264	68	...	30	121

married adults were over four times greater than rates among single adults. This difference, significant at the 0.002 level, is discussed below. (See the monograph by Francis and co-workers[1a] for a review of the statistical methods used to compare rates.)

A further analysis of rates among married adults is presented in table 3. Cases in males and females and total populations are broken down according to ages of children in the family, with a further analysis of females according to pregnancy status. A factorial analysis is also presented. This analysis shows that (1) regardless of sex or pregnancy status, parents of children aged 6 months to 3 years had a significantly higher rate than married adults without children in this age group; (2) among dependent wives with children aged 6 months to 3 years, rates were significantly higher for pregnant than for nonpregnant women; and (3) among parents of children aged 6 months to 3 years there was no significant difference between rates for husbands and wives. Thus, it appears that the significant difference in rates among married compared to single adults is due to the very high rates in parents of children 6 months to 3 years and in pregnant women. As a corollary, the rate for married adults without children (37 per 100,000) is very close to that for single adults (30 per 100,000).

TABLE 3.—*Cases of Poliomyelitis and Attack Rates by Family and Paralytic Status**

Reported Data

Family Status	Population	Cases P†	Cases NP	Cases T	Rate per 100,000 P	Rate per 100,000 NP	Rate per 100,000 T
Military husbands	7,760	5	5	10	64	64	129
No children	1,273	...	1	1	...	79	79
All children under ½ yr.	171	...	...	...	...	...	...
Children ½-3 yr.	3,003	5	3	8	167	100	266
All children over 3 yr.	3,313	...	1	1	...	30	30
Nonpregnant dependent wives	6,901	1	4	5	14	58	72
No children	1,016	...	...	...	...	...	...
All children under ½ yr.	168	...	...	...	...	...	...
Children ½-3 yr.	2,594	1	4	5	39	154	193
All children over 3 yr.	3,123	...	...	...	...	...	...
Pregnant dependent wives	859	6	3	9	698	349	1,048
No children	257	...	...	...	...	...	...
All children under ½ yr.	3	...	...	...	...	...	...
Children ½-3 yr.	409	5	3	8	1,222	733	1,956
All children over 3 yr.	190	1	...	1	526	...	526
Totals	15,520	12	12	24	77	77	155

Factorial Analysis

Factor	Population	Cases	Rate per 100,000	SL‡
en ½-3 yr. in family				
itary husbands				
With children ½-3 yr.	3,003	8	266	
Without children ½-3 yr.	4,757	2	42	0.01
Nonpregnant dependent wives				
With children ½-3 yr.	2,594	5	193	
Without children ½-3 yr.	4,307	...	...	0.01
Pregnant dependent wives				
With children ½-3 yr.	409	8	1,956	
Without children ½-3 yr.	450	1	222	0.02
Pregnancy (in dependent wives with children ½-3 yr.)				
Pregnant wives	409	8	1,956	
Nonpregnant wives	2,594	5	193	0.001
Sex (in *parents* with children ½-3 yr.)				
Military husbands	3,003	8	266	
Nonpregnant wives	2,594	5	193	NS§

* Single personnel and dependent children excluded.
† P, paralytic; NP, nonparalytic; T, total.
‡ SL, significance level.
§ NS, not significantly different at 0.05 level.

In each of the five cases among single Navy personnel there was a history of close contact, 10 to 15 days prior to onset of illness, with preschool-age children while visiting in the homes of Navy families in the Pearl Harbor area. Since relatively few single personnel have occasion to visit Navy families, these observations suggest that those adult patients with poliomyelitis who were not themselves parents of young children may have developed poliomyelitis through contact with young children having inapparent infections.

Prophylaxis Programs

Gamma Globulin.—By Sept. 15, a total of nine cases among Navy personnel and dependents had been reported. Of these nine cases, four had occurred during September among residents of Navy housing area 1. At this time, an urgent request for gamma globulin was made because of fear of an impending epidemic in this housing area. By Sept. 25, when the gamma globulin prophylaxis program was started, five additional cases had occurred among residents of the area. Between Sept. 25 and 28, a total of 1,518 of the 1,830 adults and children in the area were given gamma globulin (0.2 cc. per pound of body weight, with a maximum dose of 30 cc.). Subsequently, two cases occurred among recipients of gamma globulin, one nonparalytic case in a patient who developed symptoms three days after receiving gamma globulin, and one paralytic case in a patient who on hospitalization gave a history of mild symptoms occurring three days prior to receiving gamma globulin.

Vaccination.—By the end of September, there was serious concern that the outbreak of poliomyelitis, concentrated mainly in Navy housing area 1, might spread with equal severity to the 4,120 families in adjacent Navy housing areas. On the recommendation of the preventive medicine officer, an emergency request for poliomyelitis vaccine was made to the surgeon general, U. S. Navy, on Sept. 27, 1955. In response to this request, a special allotment of the supply of vaccine allocated to the Navy under the federal interstate distribution plan was provided for use in Hawaii. This allotment was supplemented by a supply of vaccine originally designated for first and second-grade school clinics but found to be in excess of demand, which was made available through the cooperation of the Territory of Hawaii Board of Health and the National Foundation for Infantile Paralysis.

With special effort directed to stimulation of maximum voluntary participation, the emergency poliomyelitis vaccination program for all married personnel and dependents was started on Oct. 5, 1955. In notices, information bulletins, and at a press conference, the important features of the Navy vaccination program were outlined. Special emphasis was put on the fact that the program was being started at a critical time, when new cases were becoming more frequent. At the time of vaccination, a record was prepared for each vaccinee. The following data were recorded: name, age, family status, address, lot number of the vaccine used, the arm inoculated, and the date of vaccination. Those who reported symptoms of minor illness, especially fever, sore throat, or gastrointestinal upset, or who gave a history of contact with a patient with poliomyelitis were not vaccinated but advised to return later for vaccination. During the first 15 days of the program, approximately two-thirds of the estimated 27,160 married personnel and dependents received a first intramuscular inoculation of 1 cc. of poliomyelitis vaccine, and by Nov. 18, 1955, 45 days after start of vaccination, about 80% of the married personnel and their dependents had received first inoculations (fig. 4). Second inoculations were started on Oct. 26, 1955, and, by Dec. 3, over three-fourths of the vaccinated group had received a second inoculation.

TABLE 4.—*Estimated Person-Days of Risk by Fifteen-Day Periods**

15-Day Period Ending	Married Personnel and Dependent Wives		Dependent Children		Total Group	
	NV†	V	NV	V	NV	V
10/19/55	123,218	91,708	75,114	87,051	198,332	178,759
11/ 3	70,577	140,119	29,886	128,104	100,463	268,223
11/18	53,915	152,551	18,069	136,751	71,984	289,302
12/ 3	49,875	152,361	15,282	136,363	65,157	288,724
12/18	48,840	149,106	14,964	133,565	63,804	282,671
1/ 2/56	47,770	145,969	14,653	130,647	62,423	276,616
30-day period ending 11/ 3/55	193,795	231,827	105,000	215,155	298,795	446,982
90-day period ending 1/ 2/56	394,195	831,874	167,968	752,421	562,163	1,584,295

* Single personnel excluded

† NV, not vaccinated; V, vaccinated Data refer to first inoculations only In period Oct 26 through Dec 3, most vaccinees received a second inoculation, so that majority of vaccinated individuals in study from Dec 4 through Jan 2 had received two inoculations

Poliomyelitis surveillance forms were completed on vaccinated patients who developed poliomyelitis. Blood and stool specimens were collected from a number of these patients and their contacts and forwarded to the virus and rickettsia laboratory, California State Health Department. This laboratory reported that type 1 poliomyelitis virus was isolated in tissue culture of the stool specimens of five patients and four contacts.

The vaccination program was limited to married Navy personnel and their dependents. Single Navy personnel were not included, because, as mentioned above, an analysis of the epidemic of 1953-1954 had shown that 41 of 45 cases in adults occurred in married personnel and wives. This decision was justified by the 1955-1956 experience, when 29 cases occurred in adults of whom 24 were married personnel and wives. The five cases among single personnel (all unvaccinated) and the population from which they are drawn are not considered in the remainder of this report, which is devoted to a description and analysis of the vaccination program.

Careful tabulations were made to follow the vaccination program throughout the 90-day study period from Oct. 5, 1955, through Jan. 2, 1956. The study group included all married Navy personnel and dependents resident on Oct. 5, 1955, with the exception of the population of Navy housing area 1, most of whom had received gamma globulin. Also excluded were 201 children inoculated prior to Oct. 5, 1955. The study population was divided into adults and children, and the computations described below were carried out separately on these two subgroups. The total number of Navy personnel on active duty and their dependents resident in Hawaii during the period of the epidemic was available. Housing-office records indicated that an average Navy family had 1.5 children. Using this factor, it was possible to calculate the population of married adults and children resident at the beginning of the vaccination program. This factor was later verified by an accurate census of a representative housing area. The total population was then corrected by subtraction of the population of Navy housing area 1 and adjusted for attrition due to departures. In this way, the study population was estimated for each day from Oct. 5, 1955, through Jan. 2, 1956.

From the vaccination record cards, cumulative numbers of first inoculations were tabulated by individual days, and all nonvaccinees were transferred to the vaccinated group on the day of first inoculation. The following adjustments were then made: 1. Residents of Navy housing area 1 were subtracted, according to date of first inoculation. 2. New arrivals taking up residence after Oct. 5, 1955, were excluded. 3. A correction was made for attrition of the vaccinated population. These adjusted data gave the total number of vaccinees at risk for each day of the study. The unvaccinated population was then calculated on a daily basis by subtraction of vaccinees from the total population. For both vaccinated and nonvaccinated populations, daily totals were grouped to show the number of person-days of risk during successive 15-day periods, beginning Oct. 5, the first day of the vaccination program. These data appear in table 4. This table also shows person-days of risk for the first 30 days of the study period and for the whole study period. These totals are used to calculate some of the attack rates discussed below.

TABLE 5.—*Poliomyelitis Among Vaccinated and Nonvaccinated Persons by Fifteen-Day Periods**

15-Day Period Ending	Married Personnel and Wives				Dependent Children				Total
	P†		NP		P		NP		
	V	NV	V	NV	V	NV	V	NV	
8/5/55	..	...	.	1	...	...	...	...	1
8/20	.	..	.	...	...	...	...	...	..
9/ 4	..	2	...	...	...	2	...	...	4
9/19	...	2	...	2	...	2	...	...	6
10/ 4	..	1	...	3	...	2	...	1	7
Subtotal	.	5	...	6	...	6	...	1	18
(Vaccination program started 8/5/55)									
10/19	1‡	2	.	1	4	1	1	2	12
11/ 3	1	...	2§	...	...(1)	1	3	1	8(1)
11/18	..	...	...	...(1)‖	...	...	...	...	.. (1)
12/ 3	..	...	...	...	1§	...	1	...	2
12/18	..	1	...	...	...	...	...	...	1
1/ 2/56	..	.. (1)	...	...	..	...	...	...	..(1)
Subtotal	2	3(1)	2	1(1)	5(1)	2	5	3	23(3)
(Vaccination program ended 1/2/56)¶									
1/17	...	...	.	...	...	..	...	...	
2/ 1	..	1	1§	1		...	..	...	3
2/16	...	...	.	...		.	...		
3/ 2	...				1§	...	..	.	1
Subtotal	.	1	1	1	1		.	.	4
Total	2	10	3	9	7	8	5	4	48

* Cases among single personnel excluded

† P, paralytic; NP, nonparalytic; V, vaccinated; NV, not vaccinated

‡ Vaccinated one day after onset of symptoms

§ Includes one patient receiving two inoculations; all other vaccinated patients received a single inoculation

‖ Patients with onset of illness Oct 5 through Jan 2 who were excluded from the study because they arrived in Hawaii after Oct 5 are noted in parentheses

¶ After Nov 18 essentially all first vaccinations were given to new residents who had arrived after Oct 5

Evaluation of Effectiveness

Table 5 presents cases of poliomyelitis among vaccinated and unvaccinated adults and children by paralytic status and date of onset. As mentioned above, the five cases among single personnel are excluded.

This leaves a group of 48 cases, of which 18 had onset prior to Oct. 5, 4 had onset after Jan. 2, and 26 had onset during the study period (Oct. 5 through Jan. 2). Of the 26 patients, 3 are excluded because they arrived in Hawaii after Oct. 5. The remaining group of 23 patients (indicated by solid circles in figure 2) corresponds to the study population described in the previous section. Evaluation of the vaccine is based on study of these 23 patients, of whom 9 were unvaccinated and 14 vaccinated. Of the 14 vaccinated patients, 2 had received two inoculations prior to onset, 11 had received one inoculation prior to onset, and one had received a single inoculation one day after onset of mild prodromal symptoms.

Table 6 presents an evaluation of vaccine effectiveness. This table considers the 23 cases defined above, and rates are calculated on the total number of vaccinated and unvaccinated person-days of risk for the 90-day study period. With the exception of nonparalytic cases among adults, rates among vaccinees are consistently lower than rates among nonvaccinees. However, none of these differences are statistically significant. As noted above, estimates of vaccine effectiveness have appeared in previous reports.[1]

Table 6.—*Evaluation of Vaccine Effectiveness by Age Group and Paralytic Status**

	Married Personnel and Wives			Dependent Children			Total Group		
	Person-Days†	Cases‡	Rates§	Person-Days	Cases	Rates	Person-Days	Cases	Rates
Paralytic									
Vaccinated	831,874	2	0.24	752,121	5	0.66	1,584,295	7	0.44
Not vaccinated	394,195	3	0.76	167,968	2	1.19	562,163	5	0.89
Nonparalytic									
Vaccinated	831,874	2	0.21	752,121	5	0.66	1,584,295	7	0.44
Not vaccinated	394,195	1	0.25	167,968	3	1.79	562,163	4	0.71
Totals									
Vaccinated	831,874	4	0.48	752,121	10	1.33	1,584,295	14	0.88
Not vaccinated	394,195	4	1.01	167,968	5	2.98	562,163	9	1.60

* Single personnel excluded.
† Total person-days of risk for 90-day period from Oct. 5, 1955, through Jan. 2, 1956.
‡ Limited to patients among the resident population on Oct. 5 and whose disease started in the period Oct. 5, 1955, through Jan. 2, 1956.
§ Rates per 100,000 person-days of risk.

Of the 14 patients in the study group who had been vaccinated, 13 had onset of their disease within 30 days of first vaccination, 7 had onset within 14 days of first vaccination, and one later reported the occurrence of mild symptoms one day before first vaccination. In addition, of these 14 vaccinated patients, 12 had received only one inoculation prior to onset. From the clinical data available, a comparison of the severity of cases in vaccinated and nonvaccinated persons can be made. Of the total group of 17 vaccinated persons, 9 had paralytic diseases, and, of these 9, only 2 (22%) required a tracheotomy and respiratory aid. One of these two patients had been vaccinated only one day before onset. By contrast, of the total group of 36 unvaccinated patients, 21 had paralytic disease, and, of these 21, 8 (38%) required respiratory aid and a tracheotomy.

Evaluation of the Provoking Effect

It has already been noted that the severe outbreak of poliomyelitis in Navy housing area 1 ended just prior to the initiation of the vaccination program. If the 11 cases from this area and the 5 cases among single personnel (not eligible for vaccination) are excluded, a group of 37 cases remains. In figure 4, these cases are presented by date of onset. This figure shows that the incidence of poliomyelitis was rising rapidly in this segment of the population during the 15-day period from Oct. 5 through Oct. 19, when almost 75% of this group received a first inoculation. Thus, the circumstances in which the vaccine was used were particularly favorable for the demonstration of a provoking effect. Since a provoking effect should be most marked shortly after vaccination, a comparison is made of cases occurring in vaccinated and unvaccinated persons during the first 30 days of the program. During this period there were 13 cases (7 paralytic and 6 nonparalytic) among vaccinees and 8 cases (4 paralytic and 4 nonparalytic) among nonvaccinated individuals. This similarity in the percentage of paralytic cases among vaccinated and unvaccinated groups does not suggest a provoking effect.

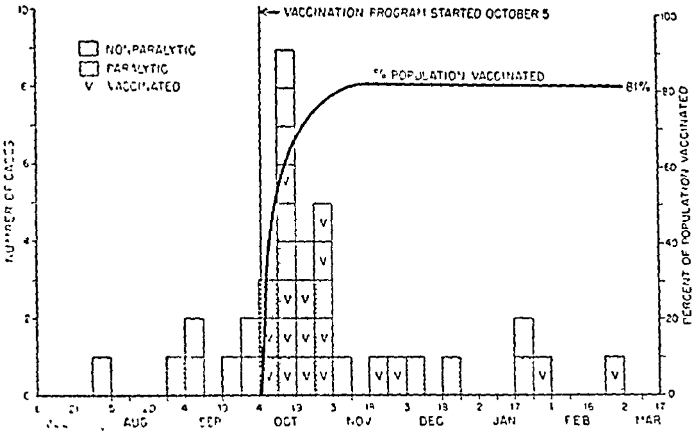


Fig. 4—Poliomyelitis among married Navy personnel and dependents in relation to vaccination program. Navy housing area 1 is excluded.

A comparison of case rates in vaccinated and nonvaccinated persons can also be made for this 30-day period (table 7), with the number of person-days of of risk taken from table 4 and the cases from table 5. In the calculation of these rates, only 12 of the 13 cases in vaccinees are considered, since one vaccinated patient was not in residence on Oct. 5 and was therefore excluded from the study population. No difference between attack rates for vaccinated and unvaccinated individuals was observed. These data suggest that vaccinees did not show any increased susceptibility to clinical poliomyelitis in the first 30 days after initiation of the vaccination program. Another approach to the search for a provoking effect can be made through an analysis of the family rosters that were completed on all patients with poliomyelitis as part of the epidemiological investigation of the outbreak. The 48 cases occurring among married Navy personnel and dependents involved 46 families (2 double-case families and 44 single-case families). There were among these 46 families a total of 135 adults and children who were contacts of an index patient. Of these 135 contacts, 51

Table 7.—*Case Rates During First Thirty Days of Program*

Vaccination Status	Person-Days	Cases	Rate
Vaccinated	446,982	12	2.68
Not vaccinated	298,795	8	2.68

were vaccinated and 84 unvaccinated. Since the majority of vaccinated contacts had received a first inoculation within 30 days of exposure to the index patient, a provoking effect, if present, would have resulted in a higher paralytic attack rate among vaccinated than among unvaccinated contacts. Observed attack rates were similar in the two groups, since one paralytic case occurred among the 84 unvaccinated contacts and one nonparalytic case among the 51 vaccinated contacts.

Although the above epidemiological analysis does not suggest a provoking effect, it is important to look at the clinical character of the total group of cases in vaccinated persons. This is done in tables 8 and 9. In table 8, the vaccinated patients are presented according to paralytic status and interval from inoculation to first symptoms. Of the 17 vaccinated patients, 9 (53%) had paralytic disease. By comparison, of the 36 nonvaccinated patients, 21 (58%) had paralytic disease. Again, there is no evidence that injections of poliomyelitis vaccine provoked paralysis. Of the nine paralytic cases in vaccinees, one was bulbar, one was bulbospinal, and seven were spinal. Of the eight patients with spinal lesions, five showed involvement of legs only, two developed quadriplegia, and one (bulbospinal) was first noted during convalescence to have minimal involvement of the uninoculated arm. This distribution is similar to the distribution of paralysis among patients with naturally occurring poliomyelitis. In particular, there is no preponderance of patients with arm involvement. This is of importance, since all vaccinees were inoculated in the arm, and a provoking effect, if present, would have increased the frequency of arm involvement. Table 8 also shows the intervals from inoculation to first symptoms for the 17 vaccinated patients. When one case where there was history of onset before inoculation and 2 cases where there was an interval of over 30 days are eliminated, 14 cases with intervals of 0 to 28 days remain. When these cases are grouped by seven-day periods, it is seen that in successive periods there were four, four, three, and three cases, respectively, giving no suggestion of a provoking effect.

Table 8.—*Cases Among Vaccinees by Paralytic Status and Interval from Inoculation to First Symptoms*

Poliomyelitis	Interval in Days from Inoculation to First Symptoms: 1	0-7	8-14	15-21	22-28	29+	Total: No.	%
Paralytic							9	53
Spinal								
Arm(s) only								
Leg(s) only	1†	2	1			1§	5	
Quadriplegia		1‡			1		2	
Bulbospinal*			1§				1	
Bulbar			1				1	
Nonparalytic		1	1	3§	2	1§	8	47
Totals No.	1	4	4	3	3	2	17	
Totals %	6	23	23	18	18	12		100

* Includes one patient who was inoculated twice in the right arm, with first and major involvement bulbar and slight weakness found in left arm on examination six weeks after onset.

† After hospitalization this patient admitted having symptoms one day prior to vaccination.

‡ Fatal case.

§ Includes one patient who received two inoculations. For patients inoculated twice, the interval is taken as the number of days between onset and the last inoculation prior to onset.

In table 9, the nine paralytic cases in vaccinees are reviewed in detail by interval from inoculation to onset of paralysis and relationship between site of inoculation and site of first paralysis. In this table, information from two other sources is presented for comparison.

Table 9.—*Paralytic Poliomyelitis in Vaccinated Navy Personnel and Dependents Compared with Inoculation Poliomyelitis in Man and with Provoked Poliomyelitis in the Monkey*

Interval Between Inoculation and Onset of Paralysis

Interval from Inoculation to First Paralysis, Days	Present Investigation (9 Cases), %	Inoculation* Poliomyelitis (61 Cases), %	Provoked† Poliomyelitis (233 Cases), %
0-3	22	...	..
4-7	12	20	24
8-14	22	67	72
15-21	22‡	8	3
22 or more	22‡	5	1

Relationship Between Site of Inoculation and Site of First Paralysis

Site of First Paralysis	Present Investigation (9 Cases), %	Inoculation Poliomyelitis (59 Cases), %	Provoked Poliomyelitis (248 Cases), %
In inoculated extremity	...	68	74
Distant from Site of Inoculation	100	32	26

* Data from Langmuir and co-workers.[16] Two cases in which site of inoculation was not known are excluded from lower section of table.

† Data from Bodian.[3] Fifteen cases in which exact date of first paralysis was not known are excluded from upper section of table.

‡ Includes one patient inoculated twice and classified by interval from second inoculation to onset of paralysis.

Data on inoculation poliomyelitis in man are taken from a report by Langmuir and co-workers[16] on 61 cases of paralytic poliomyelitis occurring among individuals inoculated with residual viable virus in poliomyelitis vaccine prepared by Cutter Laboratories. Data on provoked poliomyelitis are taken from a report by Bodian[3] on 248 Cynomolgus monkeys given 100 to 1,000 TCID$_{50}$ of virulent Mahoney virus by the intracardiac route, with provocation induced by introduction of a needle into the right calf, with or without inoculation of various irritating materials. In both inoculation polyiomyelitis and provoked poliomyelitis, the majority of resulting paralytic cases developed with first paralysis in the inoculated extremity at an interval of 4 to 14 days after inoculation. Of the nine vaccinated Navy personnel and their dependents with paralytic cases, only three had onset of paralysis 4 to 14 days after inoculation, and none developed initial paralysis in the inoculated extremity. In neither respect is there any suggestion of a resemblance to inoculation poliomyelitis or provoked poliomyelitis.

Evaluation of the provoking effect is completed by an analysis of the relationship between the site of inoculation and extent of final paralysis. Of the nine vaccinated patients who developed paralytic disease, eight were inoculated within 30 days of onset. During the illness of these eight patients, paralytic poliomyelitis developed in two of the eight inoculated arms and in three of the eight uninoculated arms. Thus, prior inoculation of an extremity did not increase the frequency of paralytic involvement of that extremity. This finding is in sharp contrast to studies of the provoking effect of certain other immunizing injections.[2]

Summary and Conclusions

As the result of epidemiological observations on outbreaks of poliomyelitis occurring between 1953 and

1956 among Navy personnel and dependents in Hawaii and of experience with a voluntary mass vaccination program started during the 1955 epidemic, certain tentative conclusions can be drawn: 1. Military and civilian nurseries are important in the spread of poliomyelitis infections among Navy infants and children of preschool age, who subsequently may infect their parents, older children, and other adults. 2. Among the total group of adults, attack rates were significantly higher in parents of children aged 6 months to 3 years than in single personnel or in married adults without children in this age group. On review of a previous epidemic among Navy personnel and dependents in Hawaii, similar observations were made. Among dependent wives with children aged 6 months to 3 years, rates were significantly higher in pregnant than in nonpregnant women, while no significant difference was observed between rates in husbands and nonpregnant wives. 3. After the mass vaccination program, attack rates were lower in vaccinees than in the unvaccinated population, although this difference was not statistically significant. 4. Epidemiological and clinical data did not reveal any evidence of a provoking effect due to injections of poliomyelitis vaccine. 5. Further studies on the use of poliomyelitis vaccine under epidemic conditions will be necessary if the tentative conclusions of this study are to be firmly established.

U. S. Navy Preventive Medicine Unit No. 6, Navy No. 128, c/o Fleet Post Office, San Francisco (Captain Poos).

The opinions and assertions expressed herein are those of the authors and are not to be construed as representing the views of the Navy Department or the naval service at large.

References

1. (*a*) Francis, T., Jr., and others: Evaluation of 1954 Field Trials of Poliomyelitis Vaccine: Summary Report, Am. J. Pub. Health (special issue) **45:** May (pt. 2) 1955. (*b*) Langmuir, A. D.; Nathanson, N., and Hall, W. J.: Surveillance of Poliomyelitis in United States in 1955, Am. J. Pub. Health **46:** 75-88 (Jan.) 1956. (*c*) Pope, A. S., and others: Evaluation of Poliomyelitis Vaccination in Massachusetts, New England J. Med. **254:** 110-117 (Jan. 19) 1956.

2. Hill, A. B., and Knowelden, J.: Inoculation and Poliomyelitis: Statistical Investigation in England and Wales in 1949, Brit. M. J. **2:** 1-6 (July 1) 1950. Anderson, G. W., and Skaar, A. E.: Poliomyelitis Occurring After Antigen Injections, Pediatrics **7:** 741-751 (June) 1951. Greenberg, M.; Abramson, H.; Cooper, H. M., and Solomon, H. E.: Relationship Between Recent Injections and Paralytic Poliomyelitis in Children, Am. J. Pub. Health **42:** 142-152 (Feb.) 1952. Korns, R. F.; Albrecht, R. M., and Locke, F. B.: Association of Parenteral Injections with Poliomyelitis, ibid. **42:** 153-169 (Feb.) 1952.

3. Bodian, D.: Viremia in Experimental Poliomyelitis: II. Viremia and Mechanism of "Provoking" Effect of Injections or Trauma, Am. J. Hyg. **60:** 358-370 (Nov.) 1954.

4. Recommendation on the Use of Poliomyelitis Vaccine During Summer of 1955, National Foundation for Infantile Paralysis, New York, quoted by Scheele, L. A.: Control of Poliomyelitis Through Vaccination, J. A. M. A. **158:** 1271-1273 (Aug. 6) 1955.

5. Enright, J. R.: Epidemiology of Paralytic Poliomyelitis in Hawaii, Hawaii M. J. **13:** 350-354 (May-June) 1954.

6. McCarroll, J. R.; Melnick, J. L., and Horstmann, D. M.: Spread of Poliomyelitis Infection in Nursery Schools, Am. J. Pub. Health **45:** 1541-1550 (Dec.) 1955.

NEWER DRUGS IN THE TREATMENT OF HYPERTENSION

EXPERIENCE WITH RAUWOLFIA DRUGS AND PROTOVERATRINE

James E. Gibbons, M.D., John C. Muller, M.D., William W. Pryor, M.D.
and
Edward S. Orgain, M.D., Durham, N.C.

• *The effects of certain preparations of Rauwolfia were studied in 58 patients who had hypertension in various degrees of severity. The doses, initially small, were gradually increased until a fall of blood pressure or unpleasant symptoms occurred and were reduced when troublesome side-effects appeared. In the 58 patients so treated, the group fall in mean blood pressure amounted to 12 and 15 mm. Hg for the recumbent and the standing positions respectively. Minor side-effects were observed in 48 and severe mental illness in 4 of the patients. In 19 patients the addition of a Veratrum preparation to the therapy caused further reductions of only 2 and 3 mm. Hg for recumbent and standing blood pressures, although the dosage was large enough to cause alarming symptoms in two. In seven patients who received Veratrum preparations alone, no consistent hypotensive response was obtained. The need of watchfulness and of individual adjustment of dosages was clearly demonstrated.*

New drugs, utilized alone or in various combinations, are currently employed with increasing enthusiasm in the treatment of hypertensive vascular disease. The most useful drug or the most effective combination for all hypertensive patients remains unsettled, due principally to lack of satisfactory hypotensive effect or to disagreeable and even hazardous reactions from the drugs. It therefore seemed worthwhile, in one of a series of studies on hypotensive agents, to investigate the efficacy of several Rauwolfia drugs and protoveratrine when administered alone and in combination.

The mild hypotensive effect of Rauwolfia serpentina, first described by Indian workers in 1931, is attributed to peripheral vasodilatation from central inhibition of the sympathetic nervous system and possibly a direct action on the vessel wall.[1] Introduced into this country by Wilkins[2] in 1952, preparations now available include the crude root of Rauwolfia serpentina, a semipurified alseroxylon fraction, and the pure alkaloid, reserpine. Several reports attest to their hypotensive action and their principal usefulness in mild hypertensive vascular disease.[3] The simplicity of oral administration and the desirable tranquilizing effects have led to their widespread acceptance by the medical profession. The production of serious mental illness has only recently been stressed.[4]

From the Department of Medicine, Duke University School of Medicine, and the Cardiovascular Service, Duke Hospital.

Several biologically standardized preparations of Veratrum viride and Veratrum album are available, including the pure alkaloids, protoveratrines A and B. These compounds, presumed to act by reflex parasympathetic stimulation,[5] have been recommended particularly to enhance the hypotensive effects of Rauwolfia drugs and hydralazine.[6] It is the purpose of this paper to report our experience in the treatment of 58 patients with hypertensive vascular disease treated with Rauwolfia compounds and protoveratrine, alone and in combination.

Material and Methods

Previous publications from this hospital[7] have outlined methods of study and follow-up of hypertensive patients. The present series of 58 patients comprises 33 males and 25 females, ranging in age from 22 to 78 years (average 47.7 years), treated with Rauwolfia compounds for periods of from 3 to 14 months (average 6 months). The group average pretreatment blood pressure was 188/112 mm. Hg (mean 137) recumbent, and 175/111 mm. Hg (mean 132) standing. (Mean blood pressure is here defined as the number obtained by adding one-third of the difference between diastolic and systolic pressure to the diastolic pressure.) As outlined by Page[8] and Goodyer,[9] the patients' conditions were graded according to a "severity index" based on the following data: level and duration of blood pressure, changes in the fundi, renal function, and evidences of cerebral vascular disease, cardiac enlargement, heart failure, or coronary disease. Graded in this manner, conditions of 19 patients were classified as grade 1 (mild), of 37 patients grade 2 (moderate), of one patient grade 3 (severe). and of one patient grade 4 (malignant).

Rauwolfia compounds were administered orally two to four times daily in divided doses. Doses used were initially small, then gradually increased until a fall in blood pressure or unpleasant symptoms occurred, and reduced when troublesome side-effects appeared. The final ranges and average daily doses were reserpine (Serpasil), 0.5 to 4.0 mg. (average 1.5 mg.); reserpine (Serpine), 0.6 to 2.4 mg. (average 1.4 mg.); and Rauwolfia (Raudixin), 200 to 750 mg. (average 400 mg.). Both hypotensive reactions and side-effects of the three drugs were approximately comparable.

Protoveratrines A and B (Veralba) or protoveratrine A and B maleates (Provell maleate) were administered in divided doses, beginning with 0.25 mg. three times daily after meals and increasing to 0.75 mg. three times daily; rarely could patients tolerate more than 1 mg. as a single dose, and few could tolerate more than 0.5 mg. given three to four times daily. Maximum tolerated doses were given for periods of from 2 to 10 months (average 4.8 months). In 19 of these 58 patients, protoveratrine was also used after a variable period of Rauwolfia therapy alone. The average recumbent blood pressure for the 19 patients before the addition to therapy of protoveratrine was 197/104 mm. Hg (mean 134).

Results

For the group of 58 patients treated with Rauwolfia compounds alone, the average blood pressure after treatment was 173/101 mm. Hg recumbent (mean 125) and 155/98 mm. Hg standing (mean 117). This group fall in mean blood pressure of 12 mm. Hg recumbent and 15 mm. Hg standing does not reflect accurately the effectiveness of these drugs. In table 1 the patients are grouped on the basis of the pretreatment mean recumbent blood pressure, and here the magnitude of fall in mean recumbent blood pressure for each group is indicated as well as the number of patients whose blood pressures fell to "normal." (Normal is here defined as a mean recumbent blood pressure of 115 mm. Hg or less.) The tabulated data reveal reduction of blood pressure to normal levels in 19 of the 58 patients (33%). Considering only the patients with moderate and severe conditions (groups 2 and 3), 13 of 34 patients (38%) had "definite" blood pressure responses. (A definite response is here arbitrarily defined as a fall in mean recumbent blood pressure of more than 20 mm. Hg.) This result is in agreement with the recent review by Goodyer,[9] who noted that hypotensive effects were observed in 39% of 218 patients treated by five different groups. The "severity index" gradings were altered by the blood pressure responses in that, in 17 of 37 patients, grade 2 (moderate) conditions became grade 1 (mild) conditions, and, in the single patient with a grade 4 (hypertensive) condition, the illness became grade 3. During the period of observation reported, no changes were observed in the major clinical manifestations of hypertensive vascular disease, i. e.. coronary disease, cardiac enlargement, and renal disease. Minor fluctuations in the electrocardiographic tracings and observations of the ocular fundi seemed insignificant and did not further alter the severity index gradings. Our results indicate Rauwolfia compounds to be useful in the more severe forms of hypertension as well as in the mild, labile group.

TABLE 1.—*Effect of Rauwolfia Therapy on Blood Pressure*

Fall in Mean Blood Pressure,* Mm Hg	Group 1—24 Patients with Blood Pressures of 120-135 Mm Hg †	Group 2—27 Patients with Blood Pressures of 136-150 Mm Hg	Group 3—7 Patients with Blood Pressures Above 150 Mm Hg.
0-9	16‡	11‡	1‡
10-19	5	7	2
20-29	2	4	
30-39	1	3	3
40—		2	1
Fall to normal blood pressures§	9(40%)	8(30%)	2(30%)

* Mean blood pressure is here defined as the number obtained by adding one third of the difference betwen diastolic and systolic pressure to the diastolic pressure
† Pretreatment mean recumbent blood pressure range
‡ These figures refer to actual number of patients
§ Normal is here defined as a mean recumbent blood pressure of 115 mm Hg or less

As reported by others. side-effects from Rauwolfia drugs are common and include nasal stuffiness, weight gain, drowsiness, fatigue, loss of initiative. dreams, nightmares, jitteriness, and occasionally mild diarrhea. Such minor symptoms were observed in 82% of patients but were usually controlled by reduction of dosage. However. four patients (6.9%) from the present group, reported in detail elsewhere,[4] developed severe mental illnesses characterized by anxiety. agitation. and depression. These cases emphasize the importance of large daily doses administered for prolonged periods as well as a history of previous psychiatric illness as probable etiological factors.

In our own cases, the intensity of the eosinophilia paralleled the degree of allergic sensitivity, and there is hardly any doubt it was provoked by an allergic reaction taking place in the tissues. While it is true that the skin is the principal shock organ in allergic contact dermatitis, we have encountered individuals with constitutional reactions that were suggestive of a more generalized state of sensitization than is usually presumed in this form of allergy. There was evidence, for instance, that the muscle could react allergically, giving rise to painful symptoms that disappeared as the patient became hyposensitized by further injections. The possible existence of noncutaneous shock tissues when a contact allergen is given by an abnormal route (intramuscularly) raises a very interesting question, which is at the core of the problem of how the pulmonary infiltrates are formed in eosinophilic pneumonitis. Is the lung a primary shock organ and the infiltrate a consequence of an allergic reaction taking place there, or is there an alternative mechanism? If one reasons according to the custom of finding the simplest formulation to explain all the known data, then we shall set aside the likelihood of a primary hypersensitivity reaction in the lung, for such an explanation does not include the cases of eosinophilic pneumonitis that are of nonallergic origin. There is another explanation that has the further advantage of revealing why allergy is so often associated with the syndrome, though not, in our opinion, directly causative of it.

The eosinophilia, whether allergic or not, is, according to the hypothesis we are proposing, an indispensable and central element in the pathogenesis of the lung lesions. Vaughn's[4] studies are particularly instructive in providing an understanding of how eosinophilia can directly lead to pathological changes in the lung. He experimentally produced eosinophilia in nonsensitive guinea pigs by several different methods and found, by periodic histological study, that the eosinophils concentrated earliest in the lungs, later in the small intestines, and still later in the spleen. Histologically, the lungs showed consolidation, atelectasis, and congestion, with numerous eosinophils in and about the blood vessels and bronchi. These changes might easily have given rise to radiopacities had roentgenographic studies been done. Actually, since eosinophilic pneumonitis is a benign self-resolving disease, practically nothing is known about the histopathological alterations in the lung, save that they are massive enough to be revealed by chest x-rays. Until someone is enterprising enough to perform lung biopsies during the active stages, we will continue to remain ignorant on this score. In our opinion, the findings recorded in a few autopsy studies[5] probably reflect more the chronic changes of the underlying disease, usually asthma, or are open to criticism on the question of diagnosis.

Surveying the available clinical and pathological evidences, we might reconstruct the pathogenesis of eosinophilic pneumonitis as follows: The initial event is an eosinophilia, often allergic (such as asthma, intestinal parasitism, or drug allergy), but sometimes of other cause. Incidentally, it is altogether inadmissible to regard every drug reaction as allergic; the popular habit of blaming allergy for every exotic or otherwise inexplicable response is scientifically contemptible and productive of the greatest confusions. The eosinophilia provoked by drugs may have nothing to do with allergy; accordingly, when eosinophilic pneumonitis follows the administration of a drug, it is obligatory that the observer prove the allegation of allergy. In our own cases, we administered an agent to which the subjects were known to be hypersensitive and, indeed, the eosinophilia was in direct proportion to the degree of clinical hypersensitivity. It is only fair to remark, however, that, when huge amounts of 10% solution of 3-pentadecylcatechol in sesame oil (8 cc.) were given in one week to nonsensitive persons, a moderate eosinophilia up to 15% developed. Either the oil, the 3-pentadecylcatechol, or both, might have been responsible, but normally such an amount would be administered to sensitive persons over a period of months; furthermore, when the routine hyposensitization procedure was followed, the mildly sensitive individuals did not respond with an eosinophilia, which we take to mean that the eosinophilia regularly observed in the highly sensitive persons was truly allergic. Perhaps the oil potentiated the eosinophilogenic property of the allergen (3-pentadecylcatechol).

Regardless of how the eosinophilia comes about, it would seem according to Vaughn's findings[4] that the lungs and, less importantly, other viscera have a tendency to trap or filter out the eosinophils in some unknown way, possibly because eosinophils have an affinity for structures with high histamine reserves, of which the lung is supposed to be one.[6] Corollary evidence is afforded by Bierman and co-workers,[7] who showed a mechanism exists in the lungs for trapping leukocytes, though, unfortunately for our purposes, they did not study eosinophils. In the person destined to develop eosinophilic pneumonitis, this mechanism is overwhelmed—perhaps the eosinophils crowd in in enormous numbers and cannot be disposed of, leading to inflammatory responses. Perhaps similar events are taking place in other tissues, but, in such a transient syndrome, detection would be difficult. In fact, Ampuran[8] in India, who has observed in excess of a thousand cases of eosinophilic pneumonitis in association with intestinal parasitism, affirms that the manifestations are more widespread than commonly appreciated, especially in regard to gastrointestinal symptoms.

We particularly wish, as a result of our own experience, to raise the question of incomplete or abortive forms of eosinophilic pneumonitis. We encountered a number of patients who developed hacking cough and marked eosinophilia whose chest films showed definitely increased hilar markings, interpreted by the radiologist as consistent with the findings in "drug allergy." These symptoms and signs subsequently disappeared, more slowly than in classical eosinophilic pneumonitis, possibly because we continued the routine administration of 3-pentadecylcatechol, thereby maintaining the stimulus to eosinophil production. Following our thesis, we suggest that these cases also represented pulmonary eosinophil-trapping of a lesser degree and should be incorporated into a less rigid concept of eosinophilic pneumonitis. We do not subscribe to the belief that there is any natural relationship between this syndrome and polyarteritis nodosa.

One of our bona fide cases deserves special mention, because, after recovery, we undertook the injections of 3-pentadecylcatechol again until the patient was hyposensitized. The pneumonitis did not recur, even though the eosinophilia persisted.

Summary

Experience with seven cases of eosinophilic pneumonitis (Löffler's syndrome) developing during poison ivy hyposensitization stimulated an appraisal of the mechanism of production of pulmonary infiltrates. Our view is that the infiltrates are due to trapping of eosinophils in the lung and not, as commonly believed, to an allergic pulmonary reaction. Moreover, we hold that abortive forms of this syndrome may exist as drug reactions. These concepts require further experimental verification.

36th and Spruce streets (4) (Dr. Epstein)

This work was supported by the Medical Research and Development Board, Office of the Surgeon General, Department of the Army

References

1. Loffler, W.: Die flüchtigen Lungeninfiltrate mit Eosinophilie, Schweiz. med. Wchnschr. 66: 1069-1078 (Nov. 7) 1936.

2. Samter, M; Kofoed, M. A, and Pieper, W: A Factor in Lungs of Anaphylactically Shocked Guinea Pigs Which Can Induce Eosinophilia in Normal Animals, Blood 8: 1078-1090 (Dec.) 1953

3. Löffler, W., Essellier, A. F, de Meyer, G, and Morandi, L: Flüchtige Lungeninfiltrate mit Bluteosinophilie nach therapeutischen Ölinjektionen, Schweiz med. Wchnschr 82: 777-785 (Aug 2) 1952.

4. Vaughn, J: Function of Eosinophile Leukocyte, Blood 8: 1-15 (Jan) 1953

5. von Meyenburg, H Das Eosinophile Lungeninfiltrat: Pathologische Anatomie und Pathogenese, Schweiz med. Wchnschr. 72: 809-811 (July) 1942. Harkavy, J., Vascular Allergy, J Allergy 14: 507-537 (Nov.) 1943. Broch, O J.: Case of Transient Pulmonary Infiltration with Eosinophilia, with Fatal Issue After Treatment by Adrenalin Spray for Asthma, Acta med scandinav. 113: 311, 1943 Bayley, E C., Lindberg, D O N., and Baggenstoss, A. H Loffler's Syndrome. Report of Case with Pathologic Examination of Lungs, Arch. Path 40: 376-381 (Nov.-Dec.) 1945.

6 Best, C H, and McHenry, E W Histamine, Physiol. Rev. 11: 371-477 (Oct) 1931. Paton, W. D Histamine Metabolism, Internat. Arch Allergy 6: 203-229, 1955

7. Lanman, J T., Bierman, H R, and Byron, R L., Jr.. Transfusion of Leukemic Leukocytes in Man Hematologic and Physiologic Changes, Blood 5: 1099-1113 (Dec.) 1950 Bierman, H. R., and others Influence of Respiratory Movements upon Circulating Leukocytes, ibid 7: 533-544 (May) 1952

8 Ampuran, J. C. Loeffler's Syndrome, Correspondence, J.A.M.A 151: 65 (Jan 3) 1953

NEW DRUGS AND AN ERA OF ANALGESIA AND AMNESIA

John S. Lundy, M.D., Rochester, Minn.

• *The array of agents now available for anesthesia and analgesia should be exploited to the utmost. Anesthesia starts the evening before an operation, with an interview that helps to decide the entire plan for premedication and subsequent procedures; this plan must be one that leads to the objective more certainly and safely than any other conceivable means. In the evening, the patient generally receives a tranquilizer such as promethazine and a somnifacient such as ethchlorvynol. In the morning, the premedication commonly consists of promethazine, morphine, and atropine. General anesthesia proceeds with thiopental sodium or with a muscle relaxant, oxygen, and nitrous oxide. Dosages must be such as to avoid respiratory difficulties; it is better to allow the patient to breathe for himself. In the postoperative period promethazine is used for its antinauseant effect and for its synergism with analgesic drugs. New drugs useful for producing amnesia, for blocking sensory nerves, and for combating shock are available, and improvements are being made in equipment for monitoring the patient's condition, communicating with other departments, and transporting the patient within the hospital.*

Today, as it has ever been since the time of Adam's rib, we are concerned about the control of pain. For many years we have had the means to control pain, but sometimes this could be done only at the risk of producing untoward results, such as addiction of the patient or even death from overdosage Hence, even though the conquest of pain had been largely achieved, problems of great magnitude remained We need have no hesitation in acknowledging the fact that impressive contributions to the solutions of these problems were made in the laboratories of pharmaceutical companies.

Caution an Indispensable Ingredient

In fact, progress has been such that we now rarely hear it said that physicians generally are kept up-to-date mainly through the detail man of the pharmaceutical house. Once this was so to some degree, now it is not. What has happened, rather, is that the pharmaceutical houses have established themselves as important contributors to medical practice Almost uniformly they give exhaustive consideration to the factor of safety before they allow a preparation to reach the market.

One of the outstanding examples of such caution was provided by Dr. J. F Biehn, of the Abbott Laboratories, in the work that was done with thiopental (*Pentothal*) sodium before it was marketed. The product was not permitted to be sold until Dr. Biehn was satisfied as to its clinical application. More than two years elapsed before the agent reached the market, but the soundness of his decision is reflected in the success this drug has enjoyed over all the world.

Actually, I am glad to make this tribute to the pharmaceutical industry, because I have been impressed on many occasions with the contributions of that important field of endeavor to medical practice, particularly in my own field. I have also observed, on the other hand, that, when this paramount principle of caution has not been followed by a pharmaceutical maker, the confusion that results sometimes is associated with needless morbidity and even death. I therefore urge that even greater caution be exercised in the investigation of anesthetic drugs. The handling of anesthetics is similar to the handling of firearms—even a little carelessness may result in injury or death

---

Chairman's address, read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

Premedication and Anesthesia an Inseparable Duality

Relief of pain during surgical operation or obstetric delivery of course has long been the province of the anesthesiologist and the anesthetist. But this is too simple a reduction of terms. There is infinitely more to relief of pain than the definition of it. I have a very definite idea about the administration of an anesthetic agent, and so I think the entire array of agents available for anesthesia should be exploited to the utmost. For example, I believe that the anesthesiologist who gives the anesthetic should order the preliminary medication and see the patient beforehand. If the operation is to be done in the morning, the anesthesiologist or his representative, who has been trained in his ways and thinks as he does, should see the patient the evening before the operation. At that time anesthesia is started, so far as I am concerned. This means that preliminary medication and the administration of the anesthetic are an inseparable duality. Premedication is prescribed in such a way and in such a dose that the patient reaches the precise stage of tranquility that I wish to exist when he is placed on the operating table. Thenceforward, with minor exceptions, the course of events ought to be almost inevitable: anesthesia should proceed so smoothly that the state of anesthesia at a given moment can be predicted by the clock. This means that the person in charge, like a conscientious airman, previously has filed a flight plan that, when carefully followed, leads to the objective more certainly and more safely than any other conceivable means.

At bedtime the average adult patient will receive from me a dose of 25 mg. of promethazine (Phenergan) by mouth. Of course, chlorpromazine (Thorazine) can be used, and, in addition, 500 mg. of ethchlorvynol (Placidyl), 400 mg. of methyprylon (Noludar, 3,3-diethyl-5-methyl-2, 4-piperidinedione), 1.5 to 3 grains (0.1 to 0.2 gm.) of pentobarbital (Nembutal), or 400 mg. of glutethimide (Doriden, α-ethyl-α-phenyl-glutarimide). The combination of promethazine with one of these other agents usually results in an exceptionally good night of sleep for the patient. Meprobamate (Equanil or Miltown) is a new drug that induces tranquility but has no synergistic effect on any other agent. It can be used in place of promethazine or chlorpromazine, and, if this is done, no change in the technique of anesthesia is required.

On the morning of the operation I like to call on the patient and ask him how he slept, so that I may know how effective the drug was that he received the night before. Usually, for an adult patient, I repeat the dose of 25 mg. of promethazine, giving it intramuscularly, and I administer ⅛ or ⅙ grain (8 or 10 mg.) of morphine and 1/150 grain (0.4 mg.) of atropine. The dose of morphine at this time ought not to be as large as that customarily used, because, even in a good-sized, robust adult patient, the use of ¼ grain (15 mg.) of morphine often will mean that after anesthesia has been induced ventilation may be inadequate or may stop.

Caution in Dosage

When the plan just described has been used, particular care must be exercised in the dose of anesthetic agent employed. For example, when the patient is brought to the operating room, he already has had two doses of promethazine. This increment often makes it possible to reduce the needed amount of an anesthetic agent, such as thiopental sodium, to half the amount usually employed. Hence, if a muscle relaxant such as succinylcholine (Anectine or Quelicin chloride) has been used, nitrous oxide, at the rate of 7 liters per minute, and oxygen, at the rate of 3 liters per minute, will be administered by intubation, so that an arterial oxygen saturation of 100% is obtained. Here trouble may arise: it is a bit difficult, when this arrangement is first put into effect, to avoid administering the anesthetic agents too rapidly and in such a dose that respiratory depression or cessation of respiration develops. Such respiratory difficulties probably are not dangerous, since all anesthesiologists are now familiar with the technique of controlled respiration, which is produced by pressing on the breathing bag. This means that adequate ventilation can be maintained with ease, especially if an intratracheal tube is in place. Yet it is certainly better to allow the patient to breathe for himself. This is particularly important from the standpoint of the pH of the blood. I do not know to what degree marked changes in the pH of the blood could contribute to mortality, but that factor might be a reason why autopsy often does not offer an explanation of the cause of death of an anesthetized patient. When a patient breathes by himself, I feel very much safer about variations in the pH of the blood.

In the postoperative period, promethazine seems to control nausea and vomiting very well, particularly if it is administered along with pain-relieving drugs. Pain-relieving drugs also can be used in less than large doses, and the reduction is desirable. A drug such as promethazine or chlorpromazine, which has a synergistic action on pain-relieving drugs, may cause some of the mild, nonaddicting pain-relieving drugs to suffice in cases in which they have been inadequate previously. For the most part, it has been possible to neutralize the nausea associated with the use of morphine, but the constipating effect persists. Levorphanol (Levo-Dromoran) tartrate in a dose of 2 mg., with promethazine, has been of value in this respect. It is, moreover, particularly effective against posthemorrhoidal pain.

Bright New Spectrum of Anesthetic Agents

Interestingly enough, since promethazine has been used at the Mayo Clinic in preliminary medication for hemorrhoidectomy before sacral block done with either procaine hydrochloride or piperocaine (Metycaine) hydrochloride, only 2 of 300 patients were observed to have nausea and vomiting. One patient vomited once only; the other patient remained nauseated for half an hour but did not vomit. To me such a result is very dramatic, because over the years that I have employed sacral block anesthesia, nausea and vomiting followed it with such inveterate frequency that I always had a tank of oxygen available at the head of the table. The nurse anesthetist could thus administer oxygen from a bag, with a mask attached to it by a length of tubing. A needle valve permitted the oxygen to flow rapidly enough to keep the bag inflated. This device gave much relief to patients who were nauseated and who were inclined to vomit. We almost never use it now.

Ethoheptazine (heptacyclazine, WY-401) is more effective with promethazine than without it. It is a variation of meperidine (Demerol) hydrochloride brought about by the insertion of an extra carbon in the nucleus. Another drug, anileridine (Leritine), which is a variation of meperidine, is more potent in the control of pain than meperidine itself. I feel that, while I cannot condemn the use of meperidine for preliminary medication, I am opposed to its use in the postoperative period for more than a day or two, and I think it should not be used for chronic pain. My reason is that, once the patient shows any tendency toward addiction, withdrawal symptoms follow the short period of relief from pain obtained with meperidine. The insidious sequence is that greater and greater doses are required, until some addicts take as much as 3,000 mg. of the drug per day and reach a point at which convulsions occur.

A very useful drug that is less provocative of addiction is methadone hydrochloride. This generic term is used by some firms. One firm markets it under the name of Dolophine. Methadone often is prescribed for persons addicted to the use of meperidine while meperidine is being withheld from them, because they more easily tolerate the withdrawal of methadone than the withdrawal of meperidine.

A variety of drugs that show real promise have been introduced rather recently. Among these drugs is alphaprodine (Nisentil) hydrochloride. This drug contributes much to the safety of anesthesia. Another new drug, Viadril (21-hydroxy-pregnanedione sodium succinate), is very singular. I have been able to administer it with ordinary preliminary medication without use of promethazine. A dose of 1 cc. of a 1% solution of Viadril per pound of body weight is injected through a large needle (15 gauge) into the vein in the antecubital fossa without a blood-pressure cuff on the arm, but with the forearm elevated, so that the drug runs downhill rapidly. Even so, while the drug is being infused, the patient will complain that he has pain in the arm in which the vein is located. When this occurs I irrigate the vein with a parenterally given fluid such as isotonic solution of sodium chloride or a 5% solution of dextrose in water. The necessity for such action is a deterrent to the use of this agent. However, since it is a steroid made from Mexican yams, with a formula almost identical to that of testosterone, except that Viadril has a succinate group in it, the dosage can be somewhat reduced if promethazine has been given beforehand. Moreover, curare can be used to keep the dose of the drug small, since there is little or no laryngeal spasm when Viadril is employed—an important feature in intubation.

Analgesia and Amnesia

Another new drug that I have used is Dolitrone (5-ethyl-6-phenyl-metathiazane-2,4-dione). This is an agent of considerable promise both in anesthesiology and in any field in which hypnosis and analgesia are important. With a full dose of this drug, usually used intravenously in a 2.5% concentration, satisfactory anesthesia can be produced. Curare can be used with it, because Dolitrone does not produce laryngeal spasm. If half an anesthetic dose is used, analgesia and amnesia are produced, and if half the analgesic dose is administered, amnesia is produced. The amnesic state may not be recognized by either the anesthesiologist or the patient at the moment, but subsequently the patient says he does not remember anything. This would be particularly useful during procedures in the course of which patients should be interrogated.

The amnesic state is extremely useful for patients who dread the induction of local anesthesia or a nerve block. The potentialities seem almost boundless; I have used Dolitrone to advantage particularly in patients who are to have teeth extracted under local anesthesia but who will not tolerate the injection of a local anesthetic and do not wish to remember anything of the extraction. I also have used Dolitrone to advantage in patients who are to undergo sacral block anesthesia and who are completely intolerant to that method. I have used Dolitrone for patients who could not, because of some injury or deformity, assume the position necessary for the operation.

Here, again, however, the native caution of the anesthesiologist must come to the fore. For example, I administered Dolitrone to a patient whose injuries in an automobile accident subsequently prevented her from lying in the so-called Buie position for sacral block anesthesia and hemorrhoidectomy. A small dose of Dolitrone was injected into a vein in the back of the hand. When the patient assumes this position, which resembles the Kraske position, the drug must ascend from the small veins to the large ones. Under such circumstances thrombophlebitis is likely to develop in the vein that is the site of injection. Hence. when either Viadril or Dolitrone is used, this difficulty of irritation of a vein must be overcome. This is a challenge directed peculiarly at the anesthesiologist, for laboratory research may not be conducive to a ready solution. Sometimes it is difficult to produce a lesion in a research laboratory and then deal with it. The thrombophlebitis associated with the use of Dolitrone and Viadril will continue to appear unless we can find some means to counter it prophylactically.

I once administered Dolitrone to a patient sitting in an operating chair who gagged so severely that the surgeon could hardly infiltrate the tonsillar pillars with an anesthetic agent preliminary to tonsillectomy. The surgeon finally gave up and called me, saying, "Do something." The situation was new to me, but I injected 12 cc. of a 2.5% solution of Dolitrone in 12 minutes into a vein in the back of the patient's hand. He remembered the insertion of the needle but nothing more, although he sat up and opened his mouth when asked to do so. He said he could recall no part of the procedure until he was shown the removed tonsils. In this patient the same vein was used that had been employed in the other patient but, interestingly enough, no difficulty ensued. The position of the patient during operation of course was entirely different.

On another occasion the same surgeon asked me to "do something" for a woman who became hysterical during his attempt to operate on her nose. Local anesthesia had been used. I administered 6 cc. of a 2.5% solution of Dolitrone and brought her under control.

Hazards, New and Old

By reducing the dose of the anesthetic agent by means of preliminary medication, we enhance the safety of the patient. However, there are other measures concerning the safety of patients. Surgical patients who have been *given cortisone* previously but are no longer taking it must be prepared for the stress of operation by receiving cortisone two or three days before they are operated on, on the day of operation, and for two or three days after operation. Not all operations are elective, however, and not all patients are prepared properly, and so it is fortunate that we have lyophilized hydrocortisone (Solu-Cortef). An intravenous injection of 100 mg. of this drug dissolved in 2 cc. of water may be given to a patient who is in a *state of neurogenic or surgical* shock. If the response is poor, adrenocortical extract should be used.

I cannot emphasize too strongly the responsibility of the physician to advise his patient that he is receiving cortisone, if this agent is being administered. In the face of an *impending operation*, the patient *is expected to notify a surgeon* that he has received cortisone, but that is not possible unless the patient himself knows what he has received.

It is very helpful indeed to administer lyophilized hydrocortisone to any patient, whether or not he has received cortisone, who does not respond properly to the administration of blood, dextran, parenterally given fluids, or stimulants or a combination of these. What we need badly is some means of marking the soles of the feet, or some other usually covered area, as in a tattoo, to set forth indelibly a patient's blood group and Rh factor so that, in an emergency, the correct blood can be given quickly.

A very important contribution to those of us who employ massive doses of drugs, and particularly narcotic agents, was the development of nalorphine (Nalline, N-allylnormorphine) hydrochloride, a drug that will neutralize the effect of morphine very quickly when given intravenously. However, it does have the disadvantage that, if the patient has taken a large *overdose of, say, a barbiturate* and the nature of the drug is unknown, the use of nalorphine would markedly increase the depression rather than relieve it. This might be regarded as an aid in inverse character, since it might help to establish that the drug the patient had taken was not morphine. Yet, until very recently, we had nothing that would neutralize the nalorphine except morphine, but few of us would have enough courage to administer that drug for such a purpose.

Recently an agent called Lorfan tartrate (3-hydroxy-N-allylmorphinan) has been developed, which is antagonistic to a number of drugs and is without other effect. It has increased the safety with which we can manage patients who, either accidentally or purposely, receive an overdose of these depressant drugs.

Refinements of Older Techniques

Diagnostic and therapeutic block anesthesia is receiving some of the attention it deserves. Papers and books on the subject are appearing more frequently. This situation is gratifying to me, for over the years I have been convinced that more attention needs to be paid to patients who complain chiefly of pain. The first impulse of some is to refer these patients to a psychiatrist, but it is not mine. Rather, I try to find the pathway *of pain with the aid* of nerve-blocking agents, if necessary. I have advocated the use of roentgenograms to identify the place at which the point of a needle lies. I still think that the principle unquestionably is right, but unfortunately it is not generally employed. Surely, if an injection is worth attention at all, it is worth doing well. The roentgenogram is convincing to the neurosurgeon when it suggests that certain nerves be cut, and it makes a fine record, so that if the block needs to be repeated, the needles can again be placed as they were in the first roentgenogram. Subsequent injections probably could be done with accuracy any place in the world, if the original roentgenogram were forwarded to the physician concerned. When sympathetic nerves are to be blocked semipermanently, as they are in an alcohol sympathectomy, then a sweating pattern should be made two or three days after the block has been done. Then, if the effect of the alcohol wears off, another sweating pattern can be made and, if it is seen that the sweating has returned, the block can be repeated. Conversely, if the sweating pattern is unchanged, no advantage will accrue from another block.

Pain associated with a postoperative incision and scar or *even with a tear, such as might occur in the* vault of the vagina when forceps have been used in obstetric delivery, *may be attributable to the nerves* as well as to other parts of the tissues that have been injured. In the healing process the severed nerves occasionally do not rejoin, and, if they do not, multitudes of small neuromas probably have developed. I have had *at least two patients* who suffered pain lateral to a scar in the lower region of the abdomen; by blocking the 11th and 12th thoracic nerves and the first lumbar nerve, I have been able to relieve the pain. Subsequently, the sensory roots of these nerves were severed surgically, and the patients have been free of pain ever since. One patient who had had a tear in the right vault of the vagina during a forceps delivery 10 years previously obtained relief when the second sacral nerve on the right side was blocked; subsequently, this sensory root was severed surgically and since the severance, more than a year ago, she has obtained relief estimated at 85%.

I find that relief should last for some hours to be convincing, and so I have prepared a mixture of a local anesthetic agent. I now use procaine hydrochloride in either a 1, 2, or 3% concentration, plus a 2.5% solution of ammonium sulfate and a 2% solution of benzyl alcohol. With this mixture I obviate those difficulties that can be caused by alcohol, and the relief obtained often lasts much longer than that produced by a plain local anesthetic. A procedure such as this will indicate perhaps either that operation should be done or that alcohol should be used later.

Actually, the use of injections of alcohol demands extreme precision. For instance, the needles must be placed exactly and located by roentgenograms; then

ACC-No-1364

the alcohol is injected, 0.5 cc. at a time, with a momentary pause between the deposit of each 0.5 cc. I have called this the "spot-wetting" technique, and it is most satisfactory when small quantities of alcohol are injected. However, if the quantity is more than sufficient to wet the spot where the tissue is situated, the alcohol may spread to other nerves and result in alcohol neuritis, which is the dread of anyone who does this work.

It is amazing, however, that in some cases the effects of alcohol sympathectomy have lasted for a year or more. Blood supply has been increased in many instances, and the procedure has been helpful in skin grafting and in many instances of the shoulder-arm-hand syndrome in which physical therapy would have been impossible unless the block had been done.

Recently, I injected alcohol into a patient for neuralgia of the left superior laryngeal nerve; nerve section was done, and for three months the patient has been free of stabbing pains in the throat that had occurred whenever he swallowed and sometimes when he did not. I was able to establish a diagnosis through differential nerve blocks to show that stellate block would not relieve him but that a block of the superior laryngeal nerve would give relief.

A Look Forward

It would be interesting to know what the immediate future holds for us in this field. It is quite possible, and perhaps probable, that greatly simplified devices will replace our present gas machines. There is not much doubt in my mind that in the immediate future we will no longer say "nitrous oxide and oxygen" but we will reverse the order and say "oxygen and nitrous oxide." The trend, I think, is definitely in the direction of placing the burden of anesthesia on the preliminary medication and intravenously given medicaments, plus muscle relaxants. This trend has validity for many reasons: for one, the fire and explosion hazards of anesthetics can be reduced or abolished thereby. The use of an intratracheal tube, however, becomes important, since respiration frequently is depressed to some extent and therefore the need for oxygen is paramount. Consequently, all the oxygen necessary to approach an arterial oxygen saturation of 100% will be used, and the rest of the breathing space will be occupied with nitrous oxide.

In view of the scarcity of personnel to administer anesthetics, I am sure that more and more visual aids will be employed in teaching. As an example, I am making a gauge with which to teach the newcomer how far to insert an intratracheal tube. As a result of this experience I believe I can say that in the future intratracheal tubes will be marked in such a way that, so long as the mark is visible above the larnyx, the point of the tube will reach about the midpoint of the trachea.

The population of the United States is increasing so rapidly that we must find some quicker way of teaching anesthesia techniques. In 1926 I published a paper entitled "Balanced Anesthesia," and now, 30 years later, I can see that, while I had part of the idea in 1926, I was handicapped because of a lack of agents with which to balance anesthesia adequately. I think that we now can more truly speak of "balanced anesthesia" as a reality than we could 30 years ago. At that time J. T. Gwathmey was speaking of the synergistic action of morphine and magnesium sulfate. He also had the idea that one drug could be made to help another, and, now that such drugs are available, a new flexibility has been established. Anesthetic agents will not have to carry the entire burden of relief of pain during operation, and so smaller and safer doses will be employed. I do not mean to imply that the person employing these agents can do so mechanically. He will have to be well informed and skillful; he will have to know more and more about more drugs and not less and less about them. However, if instruction in some lines can be accelerated, it will leave more time for a better understanding of pharmacology in anesthesiology.

In the past we treated shock when it occurred. I submit that in the future prophylactic treatment of shock will be possible. I think this will be the outgrowth of a better understanding of the hormones. It is my hope that in some way in the future we will be able to desensitize patients, especially to antibiotic agents, for, as progress is made in the development of new remedies for illness, we are constantly faced with the concomitant creation of new hazards. We shall need protective assistance in order to survive and to treat more and more conditions that either have been unrecognized or have been resistant to our treatment.

I have no doubt that devices for monitoring a patient's condition will come into use. These doubtless will include a communication system that will make it possible for expert supervision and advice to be quickly available, not only in every operating room but also in every postanesthesia observation room and no doubt, in time, in each room in the hospital. The hospitals of the future, I think, will be very different from those to which we are accustomed. The transportation of patients within the building could be improved. When the burden of patients who will have to be cared for is considered, it is seen that means will have to be devised so that one physician or one nurse or even one orderly will be able to increase his work load. Certainly, those of us in medicine and its ancillary fields will always be outnumbered by an ailing population, which means that our only hope is to increase our personal efficiency. There will be many improvements that I am not able to foresee. Time does not permit indefinite speculation and prudence precludes it, but I am grateful when I reflect that I lived in an era in which so many marvelous developments were made. I am confident that patients of the future will be cared for better than I could envisage. I am sure that those who are entering the specialty of anesthesiology will derive untold satisfaction from their activities, particularly because they will have at their command what their forebears did not: an impressive array of agents and methods that, by virtue of their infinite variety, can swiftly be exploited to meet the exigencies presented by any type of patient or condition. Those will be happy days indeed, and I am glad it will be so.

ELEMENTS OF A RURAL RHEUMATIC FEVER PROGRAM

Harry A. Grubschmidt, M.D., Santa Rosa, Calif.

• The community rheumatic fever program here described has been administered by a county department of health under the auspices of a state crippled children service, with funds coming from both county and state. Local medical, laboratory, clinic, and hospital facilities are utilized. The plan has been to encompass all aspects of the patient's illness, to enlist the cooperation and continue the education of the patient's family as to his illness, to keep adequate records, and to formulate policies that would insure the cooperation of the physicians and of the interested official and voluntary organizations. Volunteer helpers made it possible to maintain a large anteroom as a combined reception, dressing, and recreation area, which made it much easier for families with several children. Volunteers also served in clerical capacities, provided necessary transportation, and in some instances donated professional services. The program resulted in more accurate diagnoses, more systematic treatment, and a striking reduction in the incidence of active rheumatic fever in the program's patient population.

It is the purpose of this discussion to outline the structure of a successful rheumatic fever program achieved through a fusion of community effort and resources and the California State Crippled Children Services. The enthusiastic support of numerous volunteer workers and the assistance of voluntary and official agencies made it possible to establish an all-embracing program in a rural community with a scattered population, despite limited financial support. The success of the project after five years is indicated by the reduction in the number of cases of active rheumatic fever, the prevention of complications, and the high percentage of follow-up visits. Our results have paralleled those achieved in other sections of the country where good medical care and adequate educational campaigns are operative.

The acute problem has now been met. The decrease in the number of patients with active rheumatic fever during 1954 and 1955 has allowed us to release most of our volunteer helpers and to suspend many of the activities described in the following pages. It is hoped that an account of the operation of the program and of the techniques and procedures worked out during the first five years of its existence will aid in solving the same or similar problems in other rural areas. In this discussion the medical aspects will be mentioned only to bring out the scope of the project; the emphasis will be on its organization.

Summary of Operation

The rheumatic fever program, which was officially begun in February, 1951, under the auspices of the California State Crippled Children Services, is administered by the Sonoma County Department of Health. Funds come from both county and state, and local medical, laboratory, clinic, and hospital facilities are utilized. The program serves a widespread rural area with an approximate population in 1951 of 105,000 people. All persons under 21 years of age who reside in the county are eligible for care. The physical facilities are situated in Santa Rosa, the county seat, the largest and most centrally located city in Sonoma County. The clinic building utilized for the project is located on the grounds of the Sonoma County Hospital; the hospital also provides x-ray and laboratory facilities. A special section of the pediatric ward of the hospital is reserved for patients assigned through the program. This is advantageous since it provides nursing personnel experienced in handling children. Also, because this section is adjacent to the hospital schoolroom, the children can be wheeled to class in their beds early during their hospital stay and can continue their schooling in familiar group fashion.

Patients are referred chiefly by physicians, either from their office practices or in their capacity as medical examiners in the public schools, and also by school health nurses, teachers, and parents. After a patient has been referred, the family is sent a notice to bring the child to the laboratory and x-ray departments on a specified day. On that day one blood sample is drawn for the required examinations, and throat swabs, urine specimens, x-ray films, and electrocardiograms are taken. The patient is then instructed to appear at the clinic five days later for examination.

The clinic is held at the same time on the same day each week throughout the year, except on legal holidays. Patients are seen by a local cardiologist and a pediatrician, assisted by public health nurses assigned by the Sonoma County Department of Health. The two physicians make the initial and follow-up examinations and consult freely with each other. The current laboratory and x-ray data and the patient's chart, including data from a questionnaire filled out by the parents and a Wetzel grid, are reviewed by the physician at the time of each examination. When necessary, consultation with medical specialists in the same or other fields is made available to the program physicians through the Crippled Children Services of the State of California, which also provides prophylactic medicaments as needed. Ancillary services, such as vocational rehabilitation, dietetic aid, and social service consultation, are also at the disposal of the medical personnel. The local health department is responsible for making appointments, keeping records, and acting as an interdepartmental liaison agent.

From the Department of Medicine, University of California School of Medicine, San Francisco, and Director, Sonoma County Rheumatic Fever Program. The Sonoma County Rheumatic Fever Program is sponsored by the Crippled Children Services of the State of California.

The program is set up to provide local facilities for the diagnosis and care of active and inactive cases of rheumatic fever and the referral of cases of congenital heart disease as they are discovered. The disposition of cases includes direct admission of acutely ill patients to the hospital for diagnostic study and care, hospitalization or bed care at home for patients with active rheumatic fever, and appointments for follow-up examinations at the clinic for patients who are to be watched. Convalescent patients are sent home or to a facility in a nearby metropolitan area (about 60 miles distant). Patients who have diseases other than rheumatic fever are referred to the family physician or an appropriate clinic.

Objectives

At the time the program was organized in 1951, the group established certain broad aims that would insure maximum satisfaction, not only to the patients and their families, but to the personnel of the program as well. These objectives were as follows: 1. Care was to be as all-encompassing as possible; all aspects of the patient's illness, including familial and environmental factors, were to be the concern of the group operating the program. 2. Every effort was to be exerted to secure the good will and cooperation of the patient and his family in carrying out instructions, keeping appointments, and insuring continued observation. 3. Full and accurate records on individual patients and on the progress of the entire program were to be maintained. These records would be evaluated periodically as a guide in modifying the direction of the program's activities. 4. A plan of continuing education of patient and family was to be put into effect to stimulate their interest and to aid them in cooperating intelligently in the management of the patient. A wider aspect of this educational project would be extended to the county population in general and also to physicians. 5. At all times the policies of the program would be shaped to win the cooperation of physicians in the county and of the official and voluntary agencies that were interested in the patient.

Recruitment of Outside Assistance

It quickly became apparent that these objectives could not be fully attained with the limited funds and facilities available, unless we could interest other groups in working with us. To acquaint other groups with the program, a luncheon meeting was held on the second and fourth weeks of each month after the morning clinic. Representatives of various public agencies and associations were invited to sit in with the group and discuss the program. Special emphasis was laid upon the role they could play in helping us reach our first objective—maximum well-rounded care for the patient. A partial list of the agencies and groups invited included state-sponsored consultants in public health, dietetics, recreational therapy, physical therapy, medical social service and policy-making; personnel from the division of vocational rehabilitation and school health nursing; a school psychologist; departmental heads of the city and county school systems; county librarians; members of the Council of Churches, the county social welfare department, and various nursing organizations; personnel from the laboratory and x-ray departments of the county hospital; representatives from various lay organizations that had active health and welfare committees; interested physicians from the county medical society; and home and hospital teachers. In addition, a call was put out for volunteer helpers; this was done by active solicitation of various clubs and public agencies and by personal approach to friends and acquaintances. The response was gratifying and included persons with special skills of value to the program.

Use of Volunteer Workers

The assistance of volunteer workers made it possible to achieve our second and third objectives. A volunteer acted as recreational supervisor in the large anteroom used as a combination reception-dressing area where the patients, their parents or guardians, and their siblings assembled prior to and during the time the patient was seen in the examining room. This worker supplied much of her own equipment, including record player and records, paints, crayons, puzzles, picture books, paste and papier mâché materials, transparencies, and viewers, and set up a highly effective play area. A local businessman donated tables and chairs suitable for children, and other community members contributed play materials.

All the children, both patients and their brothers and sisters, were welcome to enjoy the recreational facilities. This encouraged early arrivals at the clinic, where patients were seen on a first-come basis, since the parents knew the children would be kept occupied during any waiting period. It also made attendance easier for parents who could not leave their other children alone at home. The play project also allowed the public health nurses to weigh and measure patients and record pulse and temperature with a minimum of noisy interference, to counsel parents on diet, hygiene, and interpretation of physicians' orders, and to orient parents of new patients in the work of the program. It gave parents undisturbed time to construct a "life chart" in the case of new patients and to fill out the simple questionnaire on interval history that was required at each visit.

Two additional volunteer workers assisted in the reception-dressing room in recreational supervision or in helping the nurses. As they developed experience they were able to substitute adequately for any of the members of the group who could not attend a clinic session. A clinical psychologist with considerable experience in dealing with school children volunteered her services. It was her function to alert the group to any important emotional problems; she also carried out systematic mental testing and interpreted the "life charts" that were used to evaluate the emotional needs and mental capabilities of our patients. In instances of acute emotional disturbance, therapy was started by this volunteer worker until a more permanent arrangement could be made.

Another volunteer served in a clerical capacity, classifying and filing the records of the patients according to diagnosis. A special flagging system permitted prompt identification of charts of persons with currently active or inactive rheumatic fever, as well as those with a primary diagnosis of congenital heart disease. This worker also kept a record of these cases on a county map by means of pins with colored heads, each color designating a different diagnostic category. The map, files, and a numerical tabulation were revised each week in accordance with the changes that had taken place, and the results were made available to the group in staff conferences. Another volunteer was trained to plot the Wetzel grid kept currently on each patient.

It was hoped that volunteer workers could be found to relieve the mothers of patients cared for at home, giving them one free afternoon a week. This proved difficult, since untrained persons are usually unwilling to accept the responsibility of supervising a sick child in a strange home. The volunteer recreational therapist, however, did make one or more home visits to instruct the mothers of newly confined patients on ways of entertaining a bedridden child. Where transportation to the clinic was a problem, voluntary agencies, such as the Red Cross, were able at times to provide cars and drivers, or occasionally an individual would offer her services. At other times, the public health nurses used their own automobiles to call for and return patients.

Staff Conferences

After each clinic session, the two physicians, the public health nurses, and the volunteers met to discuss the medical and sociologic aspects of cases in patients seen that morning. Each person was encouraged to speak freely. Recommendations were noted, and the responsibility for seeing that they were carried out was placed with the public health nurse in whose district the patient resided. The progress of patients seen previously who had required special handling was briefly reviewed. Luncheon meetings followed these weekly staff conferences; the first and third of these in each month were devoted to discussing the operation of the program as a whole, including inadequacies and plans for improvement. These meetings generated a spirit of unity among the members of the group, which was responsible for much of the enthusiasm that made it possible to carry out the routine of the program week after week.

Education

As stated in our fourth objective, the group agreed that much of the ultimate success of the program lay in a continuing and effective educational plan. The first steps were directed toward acquainting parents and patients with the natural history of the disease through weekly contact with the public health nurses at the clinic and by means of brochures, pamphlets, and instruction sheets. Elements of good dietary practices and details of home care were taught largely through home visits by the nurses. In cooperation with the local Heart Association, the group sent pamphlets on rheumatic fever, its recognition, and the need for action to every student at the elementary school level and to every teacher in the county.

A one-meeting course in rheumatic fever, supplemented by multigraphed descriptive literature, was arranged for public health and school nurses of Sonoma and adjacent counties. With financial assistance from the director of the Sonoma County Health Department and technical aid from the county photographic department, the operational steps of the program were filmed on 35-mm. color slides. The film, followed by talks on rheumatic fever by the physicians and public health nurses associated with the program, was shown to women's clubs, parent-teacher associations, and similar groups all over the county.

Function in the Community

Our fifth objective was that of establishing reciprocal cooperative relations with the community. To be successful the program should be well received by all, and in turn should be the recipient of benefits from the community. To aid in accomplishing this objective, duplicate reports of the findings and recommendations in each case were sent to the appropriate school authorities, the county school psychologist, and, when known, to the family physician. Other official agencies were notified whenever they were concerned with the patient's welfare. In turn, the agencies would offer their aid. For example, at our request the welfare department would grant temporary dollar increases to needy families for the purchase of food or medicaments. The county librarian, together with the county health department educator, assembled books and magazine articles on rheumatic fever, home nursing care, games and hobbies, and similar subjects, which were kept on a separate shelf in the library; the list of this material was published in the local newspaper. The county library bookmobile was kept informed of the location of homebound patients throughout the county, and efforts were made to get pertinent reading matter to them. The school health nursing division reported to the program children who were absent from school for suspected or known rheumatic fever. Reports of new cases, however, were made in somewhat sketchy fashion. It was not possible to solve this problem completely, despite the fact that rheumatic fever is a reportable disease in this county. Other county and state agencies also gave their services. The partial list of the organizations that sent representatives to our luncheon meetings, as described earlier, indicates the scope of the assistance given to the patients and families concerned in this program.

Results

Over 550 patients have passed through the clinic during the five years the program has been in operation. Of this number, the conditions in approximately 140 were diagnosed as inactive rheumatic fever with or without residual heart disease and in approximately 50 as congenital heart disease with or without associated rheumatic fever. In 90 cases a definitive diagnosis has not yet been made, and the patients are still under observation. Some of these patients have equivocal histories but there are no objective findings; others have vague symptoms and heart murmurs that cannot be interpreted definitively. The remaining patients are regarded as not having had rheumatic fever.

During the total five-year period, no more than 10 patients refused or failed to return for further observation. In most cases in which patients with inactive rheumatic fever have returned to private care, their physicians have usually permitted us to examine them at least once a year. In addition, we have been able to maintain good rapport with our patients to the extent that they will return to the clinic for check-up examinations whenever requested to do so. Thus, we have been able to achieve a high percentage of follow-up studies in our cases.

During the five years of the program's activity, the number of cases of active rheumatic fever has diminished steadily. Thirteen cases were treated in 1951, 14 cases, 5 of which were recurrences, in 1952, and 25 cases, 5 of which were recurrences, in 1953. In 1954, six cases were seen, only one of which was due to recurrence. In 1955, we saw only one case of active rheumatic fever and no recurrences.

The progressive decrease in recurrences resulted in some measure from improvements in our methods of prophylaxis. During the first two years of the program, the type of antibiotic, the dosage and duration of treatment, as well as the choice of patient, were left to the discretion of the physician. As more information was obtained, penicillin, 200,000 to 400,000 units daily, was prescribed automatically for all patients with a diagnosis of active or inactive rheumatic fever unless they were sensitive to the drug, in which case use of a sulfonamide was substituted. During the last year, benzathine pencillin G, in a dose of 200,000 units once daily, has been employed as a prophylactic agent. The regularity with which patients take medicaments is also important in prophylaxis. Although we have no accurate way of determining this factor, the fact that the antibiotics are supplied through the program provides a rough check. Initially, about half the patients neglected to have their prescriptions filled regularly. As our mutual understanding improved, most of the patients began to renew their prescriptions at the anticipated intervals, indicating that they were taking their medicament faithfully.

The cost of the program per patient's clinic visit was estimated from the figures available for 1955, which were fairly typical of the five years of our operation. During this year the patients' visits totaled 473, of which 78 were initial visits. The estimate was based on the cost of all laboratory tests (complete blood count, sedimentation rate, urinalysis, antistreptolysin titer, C-reactive protein, Venereal Disease Research Laboratory test, Brucella agglutination, and throat culture), electrocardiograms, x-ray films, and prophylactic medicaments but did not cover hidden expenses, such as physicians' services, clinic space, public health nursing, stationery, and similar items. On this basis, the average total cost per patient per clinic visit amounted to $4.64.

MEDICAL SOCIETY GRIEVANCE COMMITTEES IN RELATION TO HEALTH AND ACCIDENT INSURANCE

Percy E. Hopkins, M.D., Chicago

• *Grievance committees within county and state medical societies have been active for at least four decades. Originally involving only the patient and the physician, they now deal also with insurance companies and other organizations concerned with the financing of medical care. A survey of 254 cases filed with a county medical society in 1955 shows that such a committee can be very effective in preventing or resolving misunderstandings, clarifying and adjusting differences between physicians and patients, and assisting in the maintenance of high levels of professional deportment. It is necessary that the public be informed of the existence of grievance committees and be encouraged to use them.*

Inasmuch as the purposes of grievance committees are to prevent or resolve misunderstandings, to clarify and adjust differences between physicians and patients, and to assist in maintaining the high levels of professional deportment already established by the Principles of Medical Ethics, and because of the fact that a great number of people are protected by health and accident insurance today, it is only natural to anticipate increasing contact between insurance companies and medical society grievance committees. I believe it is reasonable to predict also that as a greater number of people purchase health and accident insurance, and especially types of coverage in which the benefits are not specifically delineated, such as major medical expense contracts, it might become necessary for these two groups to maintain rather close liaison in order that misunderstandings might be prevented. I have complete faith in the integrity of the medical profession as well as that of the insurance industry, but I realize that a dollar will purchase only so much in the way of a benefit and that the average physician is now confronted with the fact that a large percentage of his patients have some type of insurance. Occasionally, perhaps the patient and the physician anticipate a greater benefit than is actually provided. This, with a third party appearing on the scene, could result in some misunderstanding on the part of the patient or the physician.

For instance, the patient could assume that the specific benefit to which he might be entitled would be sufficient to compensate the physician adequately

---

Read in the Educational Seminar, conducted by the Bureau of Accident and Health Underwriters and Health and Accident Underwriters Conference, New York, Feb. 7, 1956.

for the service rendered, but, in the absence of an agreement to that effect, the physician could have some other idea about the matter. Both patient and physician might be entirely sincere in this regard, and such a situation should offer little difficulty of solution if the patient is informed as to the benefits provided for. Such a situation would probably not be one in which the insurance company would be involved, but, if the patient feels that the charge is unusual, the matter should be brought to the attention of the grievance committee of the county medical society of which the physician is a member. It is my humble opinion, with regard to the financing of the costs of medical care, that insurance companies in every instance in which they are the responsible party are entitled to the same moral, ethical, and civil rights as the individual in utilizing the service of grievance committees of the medical societies.

Organization of Grievance Committees

Recently, the House of Delegates of the American Medical Association authorized the appointment of a committee to act as a guide in the organization and functioning of grievance committees in the constituent associations and component societies (state and county). The House of Delegates was quite specific in stating that these committees were to be known as grievance committees and encouragement was to be given to the constituent and component societies not only to cause these committees to be organized but to get them functioning. This committee at the top level in the American Medical Association has set up guides that may be adapted to fit local conditions with regard to the organization and functioning of the local committees and should be of great help in improving their effectiveness.

It is interesting to note that the idea of grievance committees within state and county medical societies was conceived years ago. The Chicago Medical Society has had such a committee that has been active since as early as 1917, if not earlier. In the past 10 years the number of grievance committees has grown rapidly, until today all 48 state medical societies, those of the District of Columbia and Hawaii, and over 700 county medical societies have committees functioning as grievance committees where the public (and insurance companies) may take their complaints.

Committee Membership

The make-up of committees may vary in different states, and this is only natural inasmuch as there are variations in the geography and population among the states and territories served. These factors might influence the number of members on a committee. In some areas where membership in a medical society is limited, it might be impracticable to have more than a small number of physicians serve or get together at one time to conduct a meeting, and in other areas a more nearly ideal committee might be composed of 7 to 10 members having regard to type of practice, age, experience in medical organization, geographical location, and temperament.

While committees have been organized at the state, as well as at the county, level there is no intent to violate a component society's autonomy, nor does this constitute a duplication of organization or effort. There are some county societies that have such a small number of members that they do not have grievance committees, and in some small societies it would probably be impossible for any one member to be the subject of investigation by his few colleagues in the county. Again, for certain reasons known best by the individual, a physician, the subject of a charge, might feel that he would like to have a change of venue or have his hearing conducted at the state level. Other reasons may exist that also make a state committee desirable. The state committee may also be used as a court of appeals and is set up primarily to help the component society in any manner possible. Members on these committees may be elected or appointed, with members serving overlapping terms so that experienced men will always be serving. Members of a grievance committee should not simultaneously serve or act on committees having to do with discipline.

Filing of Complaints

A complaint may be filed at either the state or county level and in most instances will be adjudicated at the local level. When such a grievance is presented in writing to the secretary of the state or county medical society, it will automatically be referred to the grievance committee at the level that is to hear it. Naturally it is desirable that these grievances be adjudicated at the local level, but, as has been previously stated, this may be impracticable. In either event, the grievance will be referred to the grievance committee at the proper level under the circumstances. Complaints against physicians should be submitted in writing with all pertinent facts and details pertaining to them. The presentation of specific data frequently will result in the prevention or correction of a misunderstanding between complainant and complainee, bringing about a saving of time and expense that an appearance would require and perhaps even the settlement of a difference to the satisfaction of all concerned.

There should be no limitation upon the sources of complaints other than that the source be sincere, whether it be public or private, professional or lay. Complainant and physician should be privileged to appear before the committee and present whatever witnesses or evidence seems desirable. The right to appeal the decision of the grievance committee to the appropriate superior body should be provided for under any grievance committee organization arrangement.

Conduct of Investigations

A prerequisite to any investigation by a grievance committee requires that the member must respond to any reasonable demand on the part of the committee, although it should be distinctly understood that the physician summoned before a grievance committee is not on trial. Failure to respond to the committee's invitation usually results in the filing of charges that could imperil a member's standing in his society. While a grievance committee should be empowered and willing to initiate investigations when matters justifying action come to its attention, it should be remembered that its function is to investigate, mediate, arbitrate, and possibly recommend disciplinary action. It should never act as a trial body. All medical societies should have other bodies or committees specifically designed for that purpose.

While there may be a few exceptions, it has been my experience with grievance committees over a considerable number of years that there is evident an avowed purpose among the members to be consistent, sympathetic, and impartial because there is a realization that the honest and capable physician is afforded protection as well as the patient or complainant. To the average physician sitting on a grievance committee, the thought of participating in a so-called whitewashing procedure is just as abhorrent as the other extreme of washing our professional dirty linen in public.

Informing the Public

Inasmuch as grievance committees are designed for the use of the public, it is necessary that the public be informed of their existence and encouraged to use them. Such publicity in the past few years has undoubtedly caused an increase in the number of complaints filed against doctors, but it is my belief that this is only the peak of a wave that will level off and probably recede. It is undoubtedly just as important to keep the medical profession informed through professional mediums, such as medical journals and news letters, of the volume and progress of the work done by the committee. Release of such information through the lay press could perhaps defeat the purpose for which the committee was designed by causing a flood of complaints by persons with grievances that are largely unreasonable or unrealistic.

Report of a Committee

This brings to mind the problem of abuse of these committees, and I do not hesitate to voice an opinion that there is not much likelihood of an insurance company's abusing the privilege of utilizing these grievance committees. In a survey of 254 cases filed with a county medical society during the year of 1955, it was found that at least 10 complaints had been filed by people who were so patently mental cases that further consideration by the committee was abandoned. In three cases a misunderstanding existed that the committee was able to explain, which resulted in withdrawal of the complaints. In 55 cases, after full investigation, the committee was of the opinion that the complaint was not justified. These complaints had to do with treatment and fees or both. In 119 instances in which complaints were made because of excessive fees, the charge of the physician was sustained. In 58 complaints (out of a total of 254) the physician adjusted his fee, or canceled his bill entirely to conform to the recommendation of the grievance committee. In one instance a complaint was made because of the persistence of a physician in attempting to collect a fee from his patient for services that were rendered under the Workmen's Compensation Act. In some instances the physicians were reprimanded for lack of cooperation with the committee, and in a few cases referral of the case was made to committees having to do with the investigation of unethical conduct. Among the 254 cases above referred to are included eight inquiries or complaints by insurance companies, five of which had to do with fees. Some of these requested information as to the fairness of a fee.

No mention is made anywhere in this report of abuse in utilizing the services of the committee, despite the fact that 10 of the complainants were frankly psychotics, and in 119 instances the committee found the complaints unjustified or not sustained. It is interesting to note that a psychiatrist has recently been added to the personnel of this committee, seven members now constituting the committee. It is to be noted in connection with this committee's report that approximately 70% of the complaints had to do with fees. It is equally interesting to find that of this number, in about one-third of the instances, either an adjustment was made or the bill was canceled. In neither instance was the size of the adjustment stated, nor the number of cases in which the bill was canceled.

In connection with fees, you will recall that I previously stated that among the grievance committee's functions are those of arbitration and mediation. In its capacity as arbitrator, it should be in a position to determine what is a usual fee or an unusual fee under specific circumstances. I believe the chairman of a local grievance committee in most instances, if the circumstances are made plain to him, should be able and willing to determine the unusualness of a fee or vice versa. If he is unable or unwilling to decide this question himself, the matter would then have to be considered by the whole committee. While grievance committees rightfully will shy at setting a physician's fee for services rendered, there are and will continue to be fees that may seem to be unusual for a specific service. In such instances the committee should be vitally interested in determining whether the fee is unusual or if, under the circumstances, the services were unusual or extraordinary.

My purpose in mentioning this committee's report above is to point out that here is a county medical society committee composed of sincere, serious-minded, busy physicians devoting a large amount of time and effort without compensation to accomplish a worthwhile job for the public and the medical profession. I believe it is representative of the average grievance committee already in existence and functioning throughout the country. I am confident you will find these grievance committees attentive and sympathetic to your inquiries and hope they will be of aid in helping to iron out some of the difficulties encountered in the process of providing better health care throughout the nation.

800 W. 78th St. (20).

CLINICAL NOTES

INDUCTION OF CARDIAC PAIN BY ORALLY GIVEN TOLAZOLINE (PRISCOLINE) HYDROCHLORIDE

John D. Davidson, M.D., Bethesda, Md.

It is not generally appreciated that cardiac pain can be induced by adrenergic blocking agents in patients who have a history of arteriosclerotic heart disease. The precipitation of such pain by orally administered tolazoline (Priscoline) hydrochloride has apparently not heretofore been reported. It is the purpose of this study to present a case in which such a reaction was induced on three separate occasions by orally given tolazoline and once by Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chloroethylamine hydrochloride) given under relatively controlled conditions. A mechanism whereby this reaction may take place in the absence of changes in pulse or blood pressure is suggested.

Report of a Case

A 65-year-old widow was admitted to the National Heart Institute for evaluation of hypertension of 25 years' duration. She felt well until five years prior to admission, when she experienced an acute depressive episode that necessitated electroconvulsive therapy, after which she made a rapid and uneventful recovery. One year prior to admission she developed intermittent pain of the lower part of the left leg on walking two blocks. This symptom continued essentially unchanged until six months prior to admission, at which time she noted, in addition, the onset of epigastric and substernal aching pain that was usually associated with severe aching of the forearms bilaterally. This pain was precipitated by heavy meals and walking and was promptly relieved by rest and administration of glyceryl trinitrate (nitroglycerin). Four months prior to admission, therapy was begun with whole root extract of Rauwolfia serpentina, moderate sodium restriction, and a reducing diet, which resulted in a 29 lb. (13.2 kg.) weight loss, without change in her symptoms or blood pressure. Her mother, four siblings, and son have high blood pressure.

On admission her blood pressure was 270/140 mm. Hg. Funduscopic examination revealed narrowed and tortuous arterioles, increased arteriolar light reflexes, and arteriovenous nicking. No hemorrhages or exudates were seen. Cardiomegaly was manifested by an apical impulse 14 cm. from the midsternal line. There was a grade 3 high-pitched, blowing systolic murmur at the apex, which was also audible along the left sternal border and transmitted to the base. Diminished dorsalis pedis and posterior tibial pulses were noted bilaterally. Chest roentgenogram and cardiac fluoroscopy revealed moderate left ventricular enlargement, calcification of the aortic knob, and marked elongation and tortuosity of the aorta. The electrocardiogram revealed slight S-T segment depression in leads V_5 and V_6 with upright T waves across the precordium and was interpreted as showing left ventricular strain. Phenolsulfonphthalein excretion was 54% in two hours with 20% excretion in the 15-minute specimen. After administration of amobarbital (Amytal) sodium, the blood pressure fell from 260/160 to 134/92 mm. Hg. Routine urinalysis, serology, hemogram, and blood chemistries, as well as basal metabolic rate and intravenous pyelogram, were within normal limits.

The patient was exercised on a treadmill at zero grade at 4 mph for six minutes, at which time she developed a cramping pain in the lower part of her left leg. Treatment was begun with administration of 12.5 mg. of tolazoline orally four times a day (fig. 1), and the dose was increased to 50 mg. four times a day by the seventh hospital day. At this time the patient noted severe chest pain even while supine, which was accompanied by marked diaphoresis, apprehension, and increase in pulse rate from 70 to 90 beats per minute. Her blood pressure remained unchanged, and administration of glyceryl trinitrate afforded prompt relief. On the following day, the pain again recurred with greater intensity, but administration of glyceryl trinitrate and carotid sinus pressure with cardiac slowing failed to give satisfactory relief. A repeat electrocardiogram at this time revealed inverted T waves in leads V_4, V_5, and V_6 and was interpreted as representing left ventricular ischemia. On the ninth hospital day, dosage of tolazoline was increased to 100 mg. four times daily and the patient's chest pain became still more severe and required meperidine (Demerol) hydrochloride therapy for relief. Tolazoline therapy was discontinued the morning of the 11th hospital day, and by midafternoon the pain was gone. After five and a half days had elapsed without intervening chest pain, she was given 100 mg. and then 50 mg. of tolazoline under the guise of another medicament. On both occasions typical cardiac pain recurred, with radiation in both forearms, sweating, and increase in pulse rate to 90 beats per minute, and required administration of meperidine for relief. These episodes were separated by two weeks of freedom from chest pain. Exercise on a treadmill in this interim again evoked only leg pain after six minutes at 4 mph, zero grade.

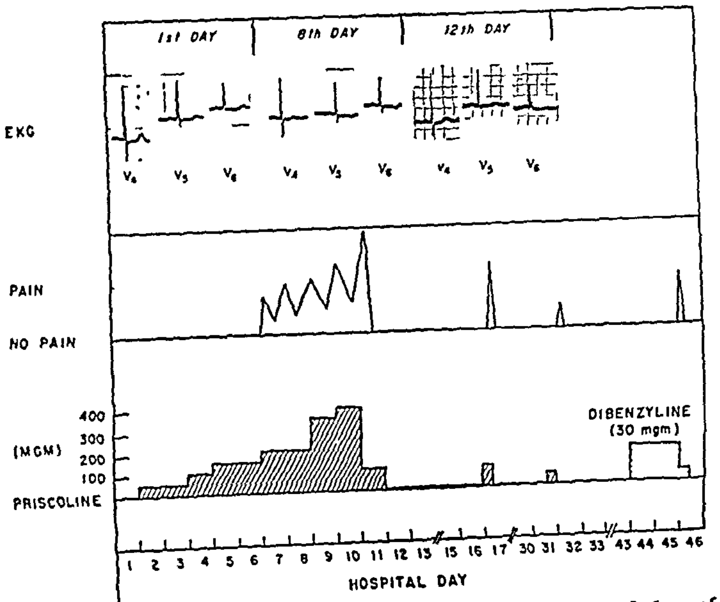


Fig. 1.—Relationship of patient's myocardial pain to time and dose of adrenergic blocking agent and electrocardiographic changes.

Her subsequent hospital course was uncomplicated until the afternoon of the 44th hospital day, when Dibenzyline was administered in order to see if other adrenergic blocking agents could induce a similar reaction. She received 60 mg. over the next 48 hours, when anginal pain, promptly relieved by glyceryl trinitrate therapy, recurred while she was lying in bed. After several days of being pain-free, she was given azapetine (Ilidar), 300 mg. daily, for several days and then later a 10-mg intravenous injection of phentolamine (Regitine) methanesulfonate without adverse effect.

Comment

Although the fact that cardiac pain may result from administration of tolazoline is not generally appreciated, there are several references to this relationship in the literature. Grimson[1] regarded as coincidental the development of myocardial infarction in two pa-

---

From the Clinic of General Medicine and Experimental Therapeutics, National Heart Institute, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare.

tients during therapy with orally and intravenously given tolazoline. Flasher and co-workers[2] studied the electrocardiograms of eight patients with essential hypertension or cardiac disease receiving tolazoline intravenously and reported ST-T wave changes in leads V_5 and V_6. It was presumed that these electrocardiographic changes represented a direct myocardial effect of the drug. A direct effect of this drug on the heart in the absence of changes in circulatory dynamics is supported by the report of Lippmann,[3] who noted anginal pain with abnormal electrocardiographic findings among the side-effects of intra-arterial doses in excess of 20 mg. Prolonged cardiac pain associated with flushing, apprehension, and tachycardia was reported by Sagall and Lewenstein[4] after 35 mg. of tolazoline was injected into the femoral artery of a patient who previously had been given 25 mg. of tolazoline four times daily by mouth without adverse effects. Four days after the injection, an electrocardiogram demonstrated elevation of S-T segments and inverted T waves in leads 1, AVL, V_4, V_5, and V_6, clinically considered to be consistent with an acute myocardial infarction. Prandoni[5] has observed anginal pain lasting from 30 minutes to three hours after injection of tolazoline intra-arterially in two patients who had previous infarctions.

Adrenolytic agents other than tolazoline have also been implicated in the induction of cardiac pain. In a case described by Fremont,[6] severe chest pain occurred during a hypertensive crisis after the intravenous infusions of another imidazoline, piperoxan [2-(1-piperidylmethyl)-1,4-benzodioxan hydrochloride]. Moser and co-workers[7] have reported the occurrence of an ischemic pattern in the electrocardiogram of a patient treated with a haloalkylamine, Dibenzyline. In a study by Miller, Ford, and Moyer,[8] in which experience with Dibenzyline in 32 hypertensive patients is reported, there were 3 patients in whom angina occurred in association with rapid heart action. Gill, Duncan, and Reinhardt[9] treated 21 hypertensive patients with Dibenzyline in doses ranging from 30 to 300 mg. per day and noted definite angina pectoris in 2 patients, while 2 others died with symptoms suggesting myocardial infarction. These investigators also noted tachycardia as a prominent undesirable side-effect of this drug but did not speculate in their report as to the mechanism of the angina in these cases. Cardiac pain after administration of azapetine has been recorded only in association with hypotension, which occurred during intravenous infusion of the drug at the rate of 1 mg. per kilogram of body weight over a 30-minute period.[10]

It is generally accepted that the effective stimulus for what we describe as cardiac pain is a diminished oxygen supply to the myocardium relative to its needs. The most likely mechanisms whereby drugs may induce this situation are (1) hypotension with decreased coronary perfusion pressure, (2) tachycardia sufficient to interfere with coronary filling, (3) direct constriction of coronary vessels, or (4) increase in cardiac work.

It is not apparent from the reports of Lippmann[3] and Sagall[4] whether cardiac pain can be evoked by tolazoline independent of blood pressure or pulse alterations. Neither hypotension nor tachycardia sufficient to evoke pain was found in the case reported here or in those of Flasher and co-workers.[2] The tachycardia that follows administration of adrenolytic substances in mammals is considered to be a reflex response to the fall in blood pressure. This has been demonstrated experimentally with Dibenamine (N,N-dibenzyl-β-chloroethylamine hydrochloride), tolazoline, piperoxan, ergot alkaloids, yohimbine, and Dibenzyline.[11] In the three cases observed by Miller and co-workers,[8] it was assumed that the tachycardia per se rather than hypotension was responsible for the precipitation of coronary insufficiency, because hypotension after administration of hexamethonium is not accompanied by cardiac acceleration and angina is rarely observed under these circumstances. Green[11a] feels that the side-effects of piperoxan hydrochloride, which may include substernal oppression, are attributable to a direct stimulation of many types of smooth muscle, including the coronary musculature. Against this as being the underlying mechanism in the case of tolazoline is the fact that this agent potentiates the augmented coronary flow induced by epinephrine.[12]

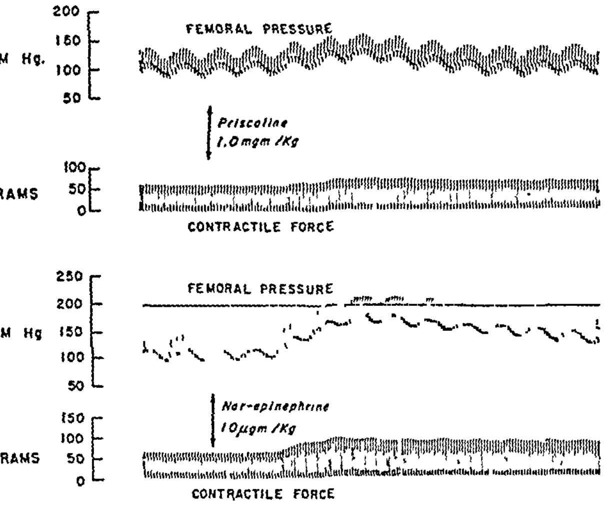


Fig 2.—Comparison of effect of tolazoline (Priscoline) and arterenol (norepinephrine) on blood pressure and myocardial contractile force of dog.

Experimental Study

The most likely explanation for the development of cardiac pain in the absence of cardiodynamic changes is a sudden increase in the work of a heart already embarrassed by arteriosclerosis or hypertension. By utilizing a strain gauge arch sutured directly into the myocardium,[13] a significant increase in cardiac contractile force was demonstrated after the administration of tolazoline. From figure 2 it can be seen that 1 mg. per kilogram of body weight of tolazoline will increase the contractile force of a dog heart approximately 25%, without significant change in blood pressure. In a heart already near the threshold of supply because of sclerotic vessels, the obligate increase in oxygen need may result in myocardial ischemia.

Summary and Conclusions

Cardiac pain could be induced repeatedly in a patient by oral administration of tolazoline (Priscoline) hydrochloride. This reaction is probably due to a direct myocardial action of the drug and is limited to patients with existing heart disease. Adrenolytic drugs should be used cautiously in patients who have coronary arteriosclerosis, and chest pain developing during the course of therapy for peripheral vascular disease with these agents may be more than fortuitous.

Figure 2 was supplied by Dr. Marion DeV. Cotten.

References

1. Grimson, K. S.; Reardon, M. J.; Marzoni, F. A., and Hendrix, J. P.: Effects of Priscol (2-Benzyl, 4,5-Imidazoline HCl) on Peripheral Vascular Diseases, Hypertension and Circulation in Patients, Ann. Surg. **127**: 968-991 (May) 1948.

2. Flasher, J.; van Scoyac, R. H.; Mahoney, D. V., and Griffith, G. C.: Priscoline: Skin Temperature and Electrocardiographic Studies, Angiology **2**: 199-209 (June) 1951.

3. Lippmann, H. I.: Intraarterial Priscoline Therapy for Peripheral Vascular Disturbances, Angiology **3**: 69-97 (April) 1952.

4. Sagall, E. L., and Lewenstein, H. I.: Prolonged Cardiac Pain Following Intra-Arterial Injection of Priscoline: Report of Case, New England J. Med. **248**: 278-281 (Feb. 12) 1953.

5. Prandoni, A. G. Personal communications to the author.

6. Freemont, R. E.: Hypertensive Crisis and Severe Myocardial Ischemia Induced by Piperoxan, with Comments on Differential Diagnosis and Treatment of Hypertensive Crisis, Angiology **5**: 381 (Oct.) 1954.

7. Moser, M., and others: Chemical Blockade of Sympathetic Nervous System in Essential Hypertension. Experience with Oral Therapy with 688-A (N-Phenoxy-Isopropyl-N-Benzyl-β-Chloroethylamine Hydrochloride), A. M. A. Arch. Int. Med. **89**: 708-723 (May) 1952.

8. Miller, S. I.; Ford, R. V., and Moyer, J. H.: Dibenzylene: Results of Therapy in Patients with Hypertension and Comparison with Hexamethonium, 1-Hydrazinophthalazine and Semipurified Extracts of Veratrum, New England J. Med. **248**: 576-582 (April 2) 1953.

9. Gill, R. J., Duncan, G. G., and Reinhardt, D. J.: Arterial Hypertension: Therapeutic Effect of Sodium Restriction Combined with 1-Hydrazinophthalazine or Dibenzyline, Am. J. M. Sc. **226**: 249-260 (Sept.) 1953.

10. Fleming, T. C.: Personal communication to the author.

11. (*a*) Green, H. D., in Pharmacology in Medicine, Drill, V. A., editor, New York, McGraw-Hill Book Company, 1954, p. 28. (*b*) Footnote 8.

12. Nickerson, M.: Pharmacology of Adrenergic Blockade, Pharmacol. Rev. **[1]**: 27-101, 1949; in J. Pharmacol. & Exper. Therap. **95**, April (pt. 2) 1949.

13. Cotten, M. de V.: Circulatory Changes Affecting Measurement of Heart Force in Situ with Strain Gauge Arches, Am. J. Physiol. **174**: 365-370 (Sept.) 1953. Boniface, K. J., Brodie, O. J., and Walton, R. P.: Resistance of Strain Gauge Arches for Direct Measurement of Heart Contractile Force in Animals, *Proc. Soc. Exper. Biol. & Med.* **84**: 263-266 (Nov.) 1953.

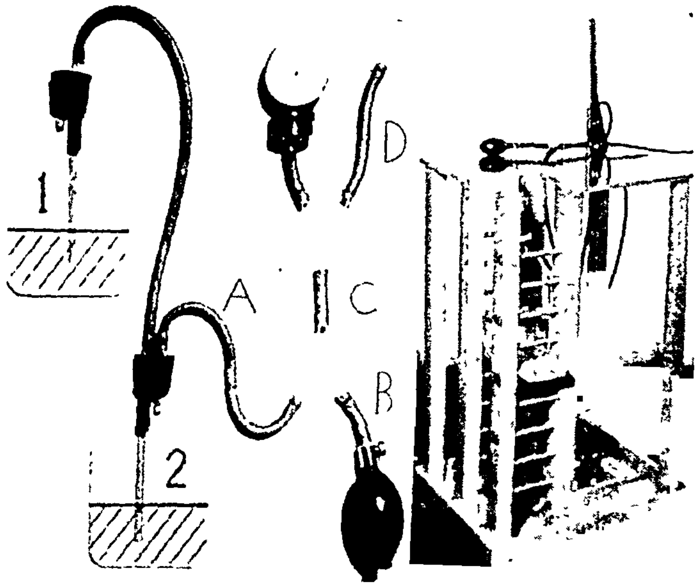
SIMPLE DEVICE FOR MAINTAINING CONSTANT PRESSURE IN SENGSTAKEN ESOPHAGEAL BALLOON

Shannon Brunjes, M.D., Los Angeles

The Sengstaken triple-lumen double-balloon nasogastric tube[1] has been of great value in the emergency therapy of hemorrhage from esophageal varices.[2] However, there has been little mention in the literature of the difficulty in maintaining a constant pressure in the esophageal balloon. A gradual fall in the pressure due to minute air leaks can be decreased by using new rubber tubing, clamping the tube leading to the inflating bulb, and tying all joints. In addition to the problem of leakage of air, there is a constant fluctuation of the esophageal balloon pressure due to changes in the volume of the balloon. These changes are related to changes in position of the patient, variations in intrathoracic pressure, and alterations in the muscle tonus of the esophagus and diaphragm. Even with a special nurse on duty to regulate the pressure constantly by adding or removing air, wide fluctuation in the pressure may take place.

In order to maintain a constant esophageal balloon pressure at any desired level without the necessity for constant adjustment, the following device was adopted, consisting of: two one-gallon jugs, two pieces of glass tubing (i.e., glass drinking straws), two two-hole stoppers to fit the jugs and with glass adaptors, two glass "Y" adaptors, one mercury sphygmomanometer (bulb and manometer—cuff not used), and 10 ft. of rubber tubing.

One jug is filled with water, and then half is poured into the other; it is important that the total amount of water used will fill only one jug. The apparatus is then assembled as shown in the figure, *left*. With tube C temporarily clamped, the bulb is pumped several times to force water through the siphon tube and prime the siphon. The pressure can then be set at the desired level by raising jug 1 to the required height. Jug 1 must be 5.35 in. above jug 2 for each 10 mm. Hg pressure desired. The device is made ready for use by raising jug 1 to the desired level with tube D temporarily clamped. The manometer is checked to see that the pressure is correct, and tube A is then clamped and the clamp on tube D is removed. After the tube is passed, the stomach washed, the gastric balloon inflated with 150 cc. of air, and the tube pulled up snug in the cardia and fixed, the esophageal balloon is ready to be inflated. Tube D is then attached to the Sengstaken tube esophageal balloon connection with an adaptor. The bulb (on tube B) is removed and replaced with a syringe. This is done so that the volume of air required to raise the pressure in the esophageal balloon to the desired level can be measured. This volume is usually about 100 cc. If it is much greater than this the esophageal balloon is probably bulging into the stomach and should be deflated and repositioned. When tube B is clamped and tube A unclamped the pressure will be automatically regulated. A program of gradual pressure reduction can then be carried out by lowering the upper jug in steps.



Left, assembled apparatus, showing correct placement of jugs 1 and 2 and positions of tubes (*A*, *B*, *C*, and *D*). *Right*, special cart that allows for adjustment of level of jug 1.

Resident in Internal Medicine, Los Angeles County Hospital.

If periodic deflation of the esophageal balloon is desired, this can be done by lowering jug 1 to the same level as the other jug.

Although the pressure is determined by the difference in the level of the water in the two jugs, for simplicity in explaining the apparatus, the level is considered to be constant in the jugs and the pressure is adjusted by raising or lowering jug 1. It should be noted that small jugs are not satisfactory because a small change in the volume of air in the system will produce a large change in the water level and, therefore, in the pressure. In case air accidentally escapes from the system, allowing the level of water in jug 1 to fall, this can be corrected in the following manner. The clamp is moved from tube B to tube D and the bulb is pumped slowly (to avoid excess pressure in jug 2) until the water is returned to the previously marked level. The clamp is then returned to tube B. Although it is possible to use this device by placing one of the jugs on the floor and one on a chair or table, it is more practical to assemble it on a special cart (see figure, *right*) that allows adjustment of the level of the top jug and that makes it available for immediate use as needed. This device has been used on more than a dozen different occasions during a five-month period and has proved quite satisfactory in maintaining a uniform pressure in the Sengstaken esophageal balloon.

Summary

The need for a method of maintaining a constant, but adjustable, pressure in the Sengstaken esophageal balloon instigated the development of a simple device. Although it can be quickly assembled from material available in any hospital, it is desirable to have it assembled on a special cart and available for immediate use. In use, this device has proved quite satisfactory.

1200 N. State St. (33).

References

1. Sengstaken, R. W., and Blakemore, A. H.: Balloon Tamponage for Control of Hemorrhage from Esophageal Varices, Ann. Surg. **131**: 781-789 (May) 1950.

2. Blakemore, A. H.: Treatment of Bleeding Esophageal Varices with Balloon Tamponage, New York J. Med. **54**: 2057-2065 (July 15) 1954. Reynolds, T. B.; Freedman, T., and Winsor, W.: Results of Treatment of Bleeding Esophageal Varices with Balloon Tamponage, Am. J. M. Sc. **224**: 500-506 (Nov.) 1952.

SUCCESSFUL DEFIBRILLATION OF HEART

RESUSCITATIVE PROCEDURE STARTED ON MEDICAL WARD AND COMPLETED IN OPERATING ROOM

Herschel E. Mozen, M.D.
Richard Katzman, M.D.
and
John W. Martin, M.D., Cleveland

In almost all instances of successful defibrillation of the heart the procedure has been carried out in a surgical operating room, where the essential apparatus, supplies, and instruments were readily available. A few exceptions have occurred. These exceptions are sufficiently important to be reported, because they point the way toward the extension of the resuscitative procedure to areas in the hospital that are outside the operating room and possibly to areas that are outside the hospital itself. Two of these exceptional cases have occurred in the University Hospitals of Cleveland. The first[1] was in an ambulatory patient who had angina pectoris. As this patient was leaving the hospital after an electrocardiogram had been taken, he collapsed in what was considered to be a fatal heart attack. He was transported to a nearby operating room, and within minutes the chest was opened. The heart was emptied by hand massage while oxygen was delivered to the lungs. Defibrillation was successfully carried out. At the time of writing, eight months later, the patient, who is a physician, is actively engaged in the practice of medicine. The second of these cases is the subject of this report. Another similar successful defibrillation was carried out by Dr. C. David Brown[2] of Chicago. His patient was an x-ray technician who was developing plates when he collapsed. The chest was immediately opened. The heart was in asystole but fibrillation occurred when manual compression was started. The coordinated heartbeat was restored. The patient recovered completely. Later, an electrocardiogram showed a Wolff-Parkinson-White syndrome. Additional reports of successful resuscitation of patients who developed ventricular fibrillation outside the operating room have been published by Celio.[2A] Southworth and co-workers,[2B] and Reagan and co-workers.[2C]

In each of these instances the patient was in the hospital when fibrillation occurred. Fortuitous circumstances made successful resuscitation possible. The procedure in each case consisted of opening the chest, oxygenating the lungs, circulating the blood by hand massage of the heart, restoring the coordinated rhythm, and closing the chest. The facilities of the operating room were necessary in these cases. In order to extend the scope of resuscitation in cases of sudden ventricular fibrillation, it is desirable to bring together as many experiences as possible so that a course for future action can be charted.

Report of a Case

A 51-year-old female had been treated for two years by one of us (J. W. M.). She had rheumatic heart disease with mitral insufficiency and left ventricular enlargement. Her complaints were excessive fatigue, dyspnea on exertion, and palpitations. Pulmonary rales and peripheral edema were never noted. The eyegrounds were normal. The blood pressure usually was 120/70 mm. Hg. The pulse rate varied between 50 and 90 beats per minute. Frequent premature beats with occasional coupling were noted. Blood and urine studies had been normal. Her vital capacity was 84% of normal. Her basal metabolic rate was +7%. The electrocardiogram showed frequent ventricular premature beats and early left ventricular hypertrophy. The patient had taken 0.1 gm. of digitalis per day for two years. This had been reduced to 0.1 gm. every other day two months prior to admission. She had also taken 0.2 gm. of quinidine four times per day. This did not change the number of premature beats. On the evening of admission, the patient fainted while washing the dishes. There were no convulsions. She was seen by her doctor within 30 minutes. The pulse rate was 30 beats per

---

From the departments of surgery and medicine, University Hospitals of Cleveland and the Western Reserve University School of Medicine.

minute. The patient was pale. She answered questions but was lethargic. The blood pressure was 120/70 mm. Hg. Respirations were 26 per minute. The neurological examination was normal. She was admitted to the hospital, and an electrocardiogram was taken (fig. 1).

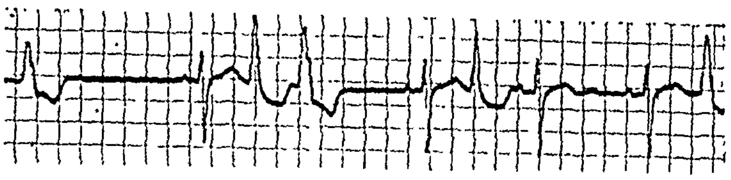


Fig. 1.—Lead V_1 of electrocardiogram taken on Sept. 22, 1955, at 11:20 p. m., showing frequent premature or interpolated ventricular beats.

On the following morning, the patient complained of fatigue. The pulse rate was 44 per minute. There were frequent premature beats. There was no evidence of heart failure. At 3:35 p. m. of the same day, the patient lost consciousness suddenly. She became deeply cyanotic. The blood pressure, pulse, and heartbeat disappeared. Several blows over the precordium failed to stimulate heart action. Two cubic centimeters of 1:1,000 epinephrine solution was injected into the heart. This was followed by the appearance of a sinus rhythm with multiple premature beats. The patient remained unconscious. The attending physician, who was contacted by telephone, ordered the intravenous administration of procainamide. However, while an electrocardiogram was being taken at 3:45 p. m., the rhythm changed abruptly to a persistent ventricular fibrillation (fig. 2). As a measure of last resort, the chest was opened rapidly through the left fifth intercostal space and manual compression of the heart was started. This was approximately two and a half minutes after the onset of the fibrillation.

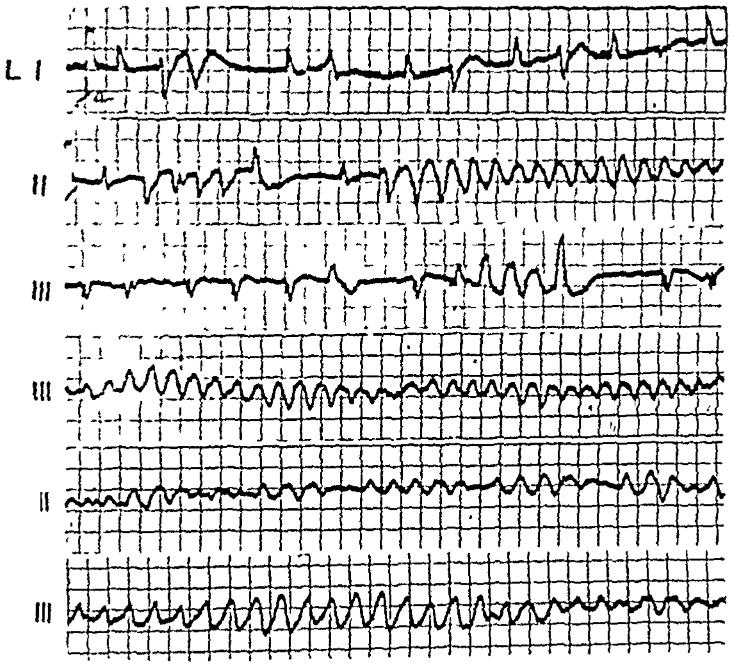


Fig. 2.—Electrocardiogram taken on Sept. 23, 1955, at 3:45 p. m., showing development of ventricular fibrillation. In lead 1 there are multifocal ventricular premature beats, some occurring in succession. In lead 2 a short burst of ventricular tachycardia (4 beats) is present. It is followed by the development of ventricular flutter (rate 300). Lead 3, taken approximately 20 seconds later, shows spontaneous subsidence of ventricular fibrillation and return of multifocal ventricular premature beats and paroxysmal ventricular tachycardia. However, ventricular fibrillation recurred within 12 seconds. Rows 4, 5, and 6 are portions of a continuous record taken during the subsequent 10 minutes. Ventricular fibrillation is persistent.

Aeration was accomplished by mouth-to-mouth breathing for about 15 minutes. The lungs were then inflated with 100% oxygen through a tight-fitting face mask. With the oxygen system reestablished, i. e., oxygenation of the lungs and hand massage of the heart to circulate the blood, the first step for successful resuscitation was accomplished. The emergency situation was under control, and further plans were made. It was decided to take the patient to the operating room to perform the second step in the resuscitation, i. e., restoring the coordinated beat.

The hand massage of the heart and the oxygenation of the lungs were continued throughout the 10 minutes spent in moving the patient through the corridors and up four floors in the elevator to the operating room. The patient was placed on an operating table, and the chest incision was draped. Defibrillation was then easily carried out with the application of a single electric shock. This was done through the intact pericardium. The time interval between the onset of fibrillation and the restoration of a coordinated heartbeat was 30 minutes. The heart was observed for one hour after the establishment of a regular beat. Since the heart continued to beat normally during this period and a good blood pressure level was maintained, a drainage tube was inserted into the pleural cavity and the chest was closed. A tracheotomy also was performed.

After the resuscitation, the patient was kept in a humidified oxygen tent for several days. She received vasopressor drugs for a few hours. She responded intelligently to questions that same evening. During the following few days, she had some lapses of memory but there were no gross neurological changes. The patient received procainamide for 22 days after the resuscitation. This was given intravenously for the first three days, in doses of 300 mg. every three hours. From the 3rd to 15th days, it was given orally in doses of 250 mg. every four hours. For the last seven days, it was given in doses of 500 mg. four times per day. She also received isoproterenol (Isuprel) hydrochloride sublingually for seven days. Large doses of antibiotics were administered for two weeks after the resuscitation.

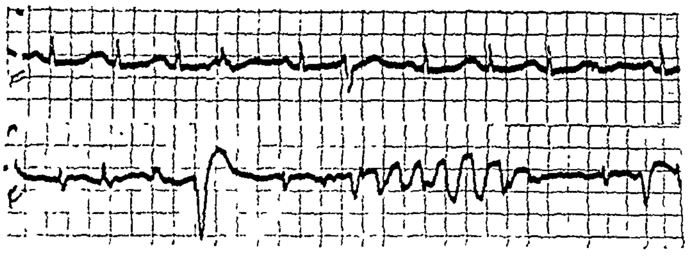


Fig. 3.—*Top*, electrocardiogram (lead aVF) taken on Sept. 24, 1955, 24 hours after defibrillation of the heart; sinus tachycardia (rate 100), frequent multifocal ventricular premature beats, and quinidine effect are present. *Bottom*, electrocardiogram (lead aVF) taken on Sept. 28, 1955, 5 days after defibrillation, showing ventricular premature beats and paroxysmal ventricular tachycardia.

The patient's recovery was uneventful except for minor complications. The chest incision healed per primum. There was evidence of a mild pericarditis during the second postoperative week. There was also thrombophlebitis of the legs. This was treated satisfactorily with anticoagulants. The patient's general condition gradually improved. There were progressive changes in the electrocardiograms, with the eventual appearance of a regular sinus rhythm (fig. 3 and 4). Five weeks after the reversal of a fatal arrhythmia, the patient walked out of the hospital. She had no evidence of brain damage, and her heart was beating regularly.

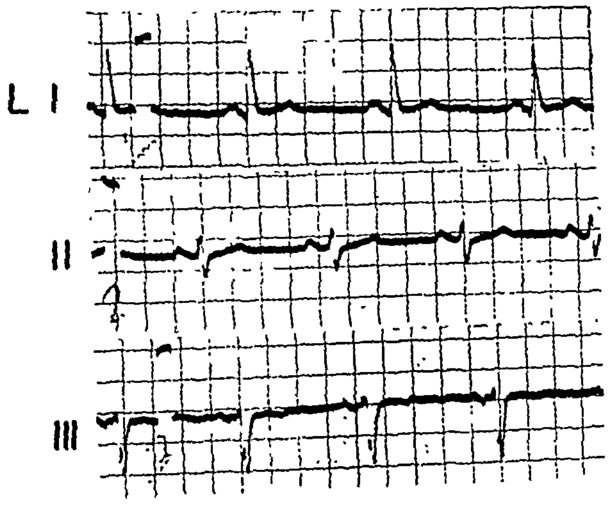


Fig. 4.—Electrocardiogram taken on Oct. 17, 1955, 24 days after defibrillation, showing sinus bradycardia and left ventricular hypertrophy.

Requirements for Successful Resuscitation

In order to carry out a successful resuscitation, several things are necessary. The first is a proper understanding of the resuscitative technique.[3] This understanding can be achieved only when the procedure is divided into its two separate and distinct steps. The first step is to reestablish the oxygen system. This means that oxygen must be delivered to the lungs (this is done best through an endotracheal tube attached to a rubber bag full of oxygen) and that the oxygenated blood must be circulated by hand massage of the heart. This first step is the emergency act and must be accomplished quickly in order to preserve the viability of the sensitive brain cells. The equipment needed to perform this first step is simple and easily obtainable. An instrument to open the chest and some method to deliver oxygen to the lungs are all that is necessary. When the oxygen system has been reestablished, the emergency is over. The second step in the resuscitation may be performed in a leisurely fashion.

The second step in resuscitation is the restoration of the coordinated heartbeat. If the heart is in asystole, this may be readily accomplished by compression alone or by intracardiac administration of epinephrine combined with hand massage of the heart. If fibrillation is occurring, the second step may be more difficult. A defibrillator is necessary to deliver the proper electric shock to the heart.[4] In addition, various drugs may also be needed.

Besides a thorough understanding of the resuscitative technique, several other things are needed. A rib spreader should be used to keep the ribs away from the wrist of the surgeon in order to prevent excessive fatigue during the cardiac massage. The necessity of a defibrillator has been previously mentioned. Sterile linen is needed to drape the chest incision. Absorbable sutures and surgical instruments are needed to close the chest. At the present time, the operating room is the only place where all of this equipment is readily available.

Future of Resuscitation

It is obvious that new possibilities for successful resuscitation are being created. In both of the successful cases in this hospital, the previous general attitude would probably have been to discourage the attempt at resuscitation. There is scarcely a cardiologist who would attempt it in the presence of coronary artery disease. The same can be said of the case reported here. But they were successful, and experience must point the way for future action. It is hardly possible to discuss the applicability of resuscitation. There are no rigid definitions of conditions that must prevail in order to attempt resuscitation. There are instances in which success in resuscitation is impossible, and in some cases success is even undesirable. Such cases would be those in which irreversible brain damage may have occurred or those in which incurable disease may be present.

Whether resuscitation by direct handling of the heart can be extended beyond the hospital is a problem that will receive future consideration. It may even become a debatable subject. There can be but little doubt that the "death factor" may be reversible in many people who fall over dead with a fatal heart attack. In many of these cases, the heart is an anatomically good organ that ought to be able to continue beating. In these cases, the coordinated beat is destroyed by electric currents that accumulate in the heart and, when strong enough, cause fibrillation. Under favorable circumstances, the heart could be given a "second chance to beat" and some of these people might be saved. Several questions should be asked. How often is successful resuscitation possible in patients with fatal heart attacks? In what other conditions is success possible? In what conditions should resuscitation not be attempted? What are the requirements for success? Can these requirements be met outside the hospital? Can the procedure be simplified so that it becomes unnecessary to open the chest? What safeguards must be taken to prevent unjustified resuscitative attempts? What will be the situation of resuscitation in 25 years? These questions deserve consideration. Correct answers to these questions are not possible at the present time. In order to determine these answers, further experiences are necessary.

2065 Adelbert Rd. (16) (Dr. Mozen).

Dr. Claude S. Beck helped during the resuscitation and in the preparation of this report.
Dr. Herman K. Hellerstein analyzed the electrocardiograms.

References

1. Beck, C. S.; Weckesser, E. C., and Barry, F. M.: Fatal Heart Attack and Successful Defibrillation: New Concepts in Coronary Artery Disease, J. A. M. A. **161**: 434-435 (June 2) 1956.

2. Brown, C. D.: Personal communication to Dr. C. S. Beck.

3. Hosler, R. M.: Manual on Cardiac Resuscitation, Springfield, Ill., Charles C Thomas, Publisher, 1954.

4. Beck, C. S.; Pritchard, W. H., and Feil, H.: Ventricular Fibrillation of Long Duration Abolished by Electric Shock, J. A. M. A. **135**: 985-986 (Dec. 13) 1947.

2A. Celio, A.: Cardiac Arrest Associated with Coronary Occlusion: Successful Resuscitation, J. Internat. Coll. Surgeons **25**: 299-304 (March) 1956.

2B. Southworth, J. L.; McKusick, V. A.; Pierce, E. C., II, and Rawson, F. L., Jr.: Ventricular Fibrillation Precipitated by Cardiac Catheterization: Complete Recovery of Patient After 45 Minutes, J. A. M. A. **143**: 717-720 (June 24) 1950.

2C. Reagan, L. B.; Young, K. R., and Nicholson, J. W.: Ventricular Defibrillation in Patient with Probable Acute Coronary Occlusion, Surgery **39**: 482-486 (March) 1956.

SELENIUM SULFIDE IN TREATMENT OF PITYRIASIS VERSICOLOR

Harry M. Robinson Jr., M.D.
and
Stanley N. Yaffe, M.D., Baltimore

Pityriasis versicolor is a benign, noncontagious, superficial fungus infection of the skin caused by Malassezia furfur. The characteristic macular eruption usually appears on the upper trunk and shoulders, although it may involve other parts of the body. The color of the lesions may be pink, fawn colored, light

---

From the Division of Dermatology, Department of Medicine, School of Medicine, University of Maryland and the University Hospital.

brown, or whitish. Both discrete and confluent areas are commonly seen in the same patients. Gentle scraping of the surface produces a fine furfuraceous scale from which the diagnosis of pityriasis versicolor is established by demonstration of the presence of filaments and spores of Malassezia furfur in the scrapings. Microscopic identification of the causative organism is accomplished by examination of a wet potassium hydroxide perparation or by the use of the ink-potassium hydroxide stain.[1] The condition is most commonly observed during the summer months, but many cases are also seen during the cooler months of the year. Subjective symptoms are usually absent, but some patients complain of mild itching, particularly when profuse sweating occurs.

In spite of the fact that this condition was first described over 100 years ago, no regimen of therapy has been devised to provide uniformly satisfactory results. Among those remedies that have been employed with some success in the treatment of pityriasis versicolor are sulfur, salicylic acid, a combination of sulfur and salicylic acid, resorcinol (resorcin) alone and in combination with other drugs, naphthol, saturated solution of sodium thiosulfate (sodium hyposulfite) benzoic and salicylic acid (Whitfield's) ointment, tincture of iodine, chrysarobin ointment, mercury bichloride, sulfuric acid, mild mercurous chloride (calomel) ointment, pyrogallol, tar, and turpentine. These drugs or combinations of drugs have been partially effective, ineffective, or sensitizing in the vast majority of patients treated.

Method of Study

Preparation Used.—A water-miscible ointment base containing a 1% solution of selenium sulfide was dispensed in 1-oz. tubes to the patients under treatment. The preparation has a pale orange-yellow color. No discoloration of the treated area was evident when a thin film of the ointment was applied to the skin. The application of a 1% solution of selenium sulfide cream to the skin is not productive of any unpleasant subjective symptoms.

Case Selection.—The patients included in this study were all ambulatory and were obtained from the dermatology outpatient department of the University Hospital and from our private practices. There were 9 Negro males, 4 Negro females, 7 white females, and 12 white males included in this study, a total of 32 patients who ranged in age from 13 to 57 years. In all instances the diagnosis of pityriasis versicolor was established by a microscopic study of ink-potassium hydroxide preparations.

Treatment Routine.—All patients were advised to initiate treatment by taking a shower with warm soapy water, thoroughly rinsing the skin to remove all traces of the soap, and then patting the skin dry with a towel. Towels and all clothing worn next to the skin were to be thoroughly laundered and dried before reusing them. Following the bath, the patient was instructed to lightly massage a thin film of the ointment into all of the involved areas twice daily. The bath is to be repeated every three days. At the end of one week of this treatment, the patient reported to the physician for further observation. Instructions were given each patient to have some assistance at home in applying the medicament so that all of the areas would be treated. The routine was repeated for a second week and then discontinued.

Results of Treatment

The results reported in this study represent a minimum post-treatment observation period of one year in all of these patients. Two of the Negro males and two of the Negro females who obtained an initial satisfactory result did not report for the more recent post-treatment examinations; however, at the end of a three-month period all of these patients had retained satisfactory results. Involution of lesions with no recurrence was observed in all of the other patients treated. No adverse reactions were encountered.

Summary and Conclusions

Thirty-two patients with pityriasis versicolor were treated with a 1% solution of selenium sulfide in a water-miscible ointment base. Involution of lesions occurred in 28 patients, and no recurrence of the eruption was noted after one year. These results indicate that a 1% solution of selenium sulfide ointment is an efficacious method of treatment for pityriasis versicolor. It is clean, nonirritating, and effective. No adverse reactions were encountered in this study.

Lombard and Green streets (1) (Dr. Robinson).

This study was supported by a grant-in-aid from the Abbott Laboratories, North Chicago, Ill. The selenium sulfide ointment was furnished by Dr. George Berryman of Abbott Laboratories.

References

1. Robinson, H. M., Jr.: Cohen, M. M.; Robinson, R. C. V., and Bereston, E. S.: Simplified Office Procedures for Mycological Diagnosis, J. A. M. A. **160**:537-540 (Feb. 18) 1956. Cohen, M. M.: Simple Procedure for Staining Tinea Versicolor (M. Furfur) with Fountain Pen Ink, J. Invest. Dermat. 22:9-10 (Jan.) 1954.

Diabetic Coma—Simple Test for Acetone.—The trend of diagnostic procedures and those to aid in guiding therapy is toward greater complexity. There is a tendency also to disregard simple measures in favor of the more complex even though the simple measure may be more widely applicable and foolproof. A simple test for acetone in the plasma as a diagnostic procedure in detecting diabetic coma and as a measure in guiding the therapy is a case in point. The test is easy to perform, requires a minimum amount of apparatus, gives easily reproducible results and is of assistance in assessing both the severity of the ketosis and the response to therapy. Hence, it is a valuable guide to insulin therapy. Determinations of the blood sugar and carbon dioxide combining power are not always reliable; they may needlessly sacrifice precious time, and under some circumstances they do not reflect either the degree of ketosis or the response to therapy. Also, the degree of ketonuria is likely to mislead. It is not a sufficient guide since strongly positive reactions for ketonuria may continue to occur during the course of treatment until the blood is almost completely cleared of excess ketone bodies. If ketonuria were used as a guide, overtreatment with insulin would be probable. However, an easy adaptation of the routine test for acetone in the urine permits this test to be used on the blood plasma to detect the presence of and degree of ketonemia. This information is of utmost value.—Charles T. Lee and Garfield G. Duncan, Diabetic Coma: The Value of a Simple Test for Acetone in the Plasma—An Aid to Diagnosis and Treatment, *Metabolism—Clinical and Experimental,* March, 1956.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary.*

Poliomyelitis Vaccine.—A formaldehyde-inactivated vaccine containing approximately equal parts of aqueous suspensions of individually tissue-cultured type 1, type 2, and type 3 strains of poliomyelitis virus approved by the National Institutes of Health. The vaccine is tested for antigenic potency and for nonviability of component viruses in accordance with requirements promulgated by the National Institutes of Health.

Actions and Uses.—Poliomyelitis vaccine is used to induce artificial active immunity against paralytic poliomyelitis on the basis of its ability to stimulate the production of protective levels of antibodies in susceptible animals and in man. Observations on the protective effect of the vaccine as currently prepared are thus far inadequate to make it possible to reach final conclusions regarding the extent or duration of immunity that can be expected from its use. Its protective effect against nonparalytic forms of poliomyelitis infection and its influence upon the subsequent acquisition of natural immunity to the disease also have not been elucidated. Prior clinical trial with a similar preparation in school children of the most susceptible age group and epidemiological observations on the effect of the 1955 preparations suggest that the vaccine is capable of reducing the incidence of paralytic poliomyelitis by approximately 60 to 80%.

Poliomyelitis vaccine is as safe and as effective as can reasonably be expected. If possible, it is advisable to complete inoculations prior to the expected seasonal increase in the incidence of the disease. The presence of acute poliomyelitis in a community is not considered a contraindication to use of the vaccine in presumably unexposed but susceptible individuals; however, on the basis of present knowledge, it seems inadvisable to inoculate family contacts. Experience so far has not indicated that there is a provocative effect from inoculation with the vaccine.

Poliomyelitis vaccine should be employed with the usual precautions for vaccines in general. Local and systemic reactions after inoculation of the vaccine generally are mild and infrequent. General malaise and low-grade fever of short duration may be observed occasionally. The presence of small amounts of penicillin and streptomycin in the vaccine has not been associated with severe allergic reactions, except possibly in rare instances. So far, allergic reactions have been of a minor nature, and even inoculated subjects with known sensitivity to these antibiotics usually have not reacted adversely. In highly allergic persons, a test dose of the vaccine may be injected intradermally so that the effect can be observed before administration of the usual dose is attempted. The elimination of penicillin and streptomycin or its derivatives from the current preparation is advised by some authorities to eliminate the possibility that its use may sensitize some individuals; others feel that the amounts present in the vaccine are too small to be of significance and are no greater than the amounts found in milk from cows fed with antibiotics. The theoretical possibilities that the vaccine might be capable of inducing the formation of harmful Rh, kidney tissue, and animal serum antibodies so far have not been realized. The vaccine also has not been associated with other toxic reactions or neurological sequelae such as polyneuritis, radiculitis, and encephalopathy. While these are theoretically possible, poliomyelitis vaccine contains less protein than other vaccines in use and is not considered to involve any greater potential risk from this standpoint.

It should be apparent from the relatively short period of time over which the vaccine has been developed and used, as compared to established immunologic agents effective in the prevention of other infections, that its ultimate usefulness can be determined only after longer experience has been gained. Physicians and health officers should be alert to the need for confirmatory laboratory findings in the diagnosis of doubtful cases of poliomyelitis to insure accurate reporting of cases and correct interpretation of the effect of the vaccine. Careful observations of all previously inoculated subjects will speed the accumulation of knowledge essential for the further evaluation of the vaccine. These might well include records of lot numbers of the vaccine used, sites of injection employed, the exact course of weakness or paralysis, and other details of confirmatory findings should poliomyelitis occur in inoculated subjects.

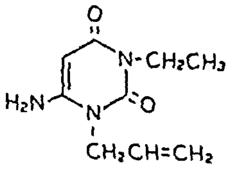
Dosage.—Poliomyelitis vaccine is injected subcutaneously or intramuscularly. Intradermal injection has not been sufficiently studied to justify that method of inoculation. Primary vaccination as currently suggested consists of two 1-cc. doses spaced at an interval of two or preferably four to six weeks and a third dose of 1 cc. not less than seven months after the second. Until more is known about the duration of the effect of the vaccine, the need for follow-up inoculations cannot be definitely determined.

The vaccine should be stored at a temperature between 2 and 10 C, preferably at 2 C, but should not be allowed to freeze. Changes in color of the vaccine under these conditions do not appear to alter its initial potency and safety. It should not be used if there is any evidence of turbidity.

Preparations for use as stated for the foregoing drug are marketed under the following name: Poliomyelitis Vaccine.

Eli Lilly and Company; Pitman-Moore Company, Division of Allied Laboratories, Inc.; Merck Sharp & Dohme, Division of Merck & Co., Inc.; Wyeth Laboratories, Division of American Home Products Corporation; Public Health Service, U. S. Department of Health, Education and Welfare; Dr. Jonas E. Salk; and Dr. Herbert Ratner cooperated by furnishing scientific data to aid in the evaluation of poliomyelitis vaccine.

Aminometradine.—1-Allyl-3-ethyl-6-aminotetrahydropyrimidinedione.—The structural formula of aminometradine may be represented as follows:



Actions and Uses.—Aminometradine, a synthetic uracil derivative, produces an increased flow of urine after oral administration. Its precise mode of action is not clear but is believed to be that of inhibiting the reabsorption of sodium ions by the renal tubule; potassium excretion is slight and variable. The drug does not affect carbonic anhydrase or succinic dehydrogenase and appears to have no significant effects on renal blood flow or glomerular filtration rate. In contrast to acetazolamide or the mercurial diuretics, aminometradine does not alter urinary pH nor does it cause significant changes in the systemic acid-base balance. Like acetazolamide and the xanthines, however, the drug has only minimal diuretic effects in normal, nonedematous individuals.

Aminometradine is an effective agent for the treatment of edema in patients with congestive heart failure. In mild to moderate cases, the drug may be used to initiate diuresis and subsequently to maintain an edema-free state. It is sometimes effective in producing diuresis in these patients when the organic mercurials fail. Conversely, other patients may respond well to the mercurials but not to aminometradine. There is suggestive evidence that the drug is most effective in patients with elevated serum sodium levels; its judicious use has sometimes reduced or eliminated entirely the need for mercurial diuretics.

Patients with severe cardiac decompensation and tending ascites, pulmonary edema, orthopnea, or dyspnea usually do not respond well to initial therapy with aminometradine. In such cases, rapid mobilization of edema fluid can best be achieved by paracentesis and/or administration of the mercurials. Once the acute congestive failure has been compensated, however, it is frequently possible to keep such patients in an edema-free state by the administration of maintenance doses of aminometradine. Regardless of the severity of congestive heart failure, the diuretic should be administered as an adjunct to and not as a substitute for other forms of therapy such as cardiac glycosides and a low-sodium diet.

Although the most satisfactory results with aminometradine have occurred in patients with congestive heart failure, the drug has also been of value in certain other conditions characterized by edema. Thus, in some patients with cirrhosis of the liver or the nephrotic syndrome, its administration may produce a moderate diuresis. In some patients with cirrhosis, this may be sufficient to eliminate or at least curtail the need for mercurials. There is also some preliminary evidence that aminometradine may be useful for the treatment of edema associated with the administration of adrenal cortical steroids and phenylbutazone. Sufficient valid evidence is lacking, however, of the drug's usefulness in toxemia of pregnancy or premenstrual tension.

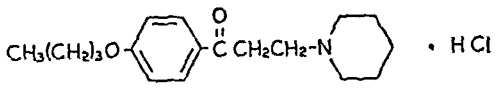
Aminometradine has not so far been reported as causing serious toxic effects, and there are no known contraindications to its use. Although its metabolic fate is imperfectly understood, it appears to be a relatively safe agent for use in the presence of severe cardiac, hepatic, or renal damage. Minor side-effects are common; nausea and vomiting occur in about 20 to 30% of the patients to whom it is administered. Rarely, these may be of sufficient severity to necessitate discontinuation of therapy or reduction of dosage below effective levels. Other side-effects such as anorexia, headache, and diarrhea are infrequent and mild.

Dosage.—Aminometradine is administered orally. Dosage must be determined individually according to the severity of the edema. For the initiation of diuresis or for maintenance therapy in adults and children, the daily requirement ranges from 0.2 to 0.8 gm. In an effort to minimize gastric disturbances, this amount is administered on an interrupted dosage schedule. This may be accomplished either by administration of 0.2 to 0.8 gm. every other day in divided doses during meals or by administration of this amount in divided dosage during meals for three consecutive days and then complete omission on the following four days.

Preparations for use as stated for the foregoing drug are marketed under the following name: Mictine.

G. D. Searle & Co. cooperated by furnishing scientific data to aid in the evaluation of aminometradine.

Dyclonine Hydrochloride.—4′-Butoxy-3-piperidinopropiophenone hydrochloride.—The structural formula of dyclonine hydrochloride may be represented as follows:



Actions and Uses.—Dyclonine hydrochloride, a topical anesthetic agent, differs from most drugs of this pharmacological class in that it does not contain the ester or amide linkage typical of compounds such as procaine. Its systemic toxicity is low; in man and experimental animals, relatively large oral or intravenous doses produce little alteration in respiration, blood pressure, or pulse. No changes referable to inhibition of the parasympathetic nervous system are discernible. The drug also has antimicrobial properties; however, since this action has been established only by in vitro tests, its possible clinical significance is undetermined at present.

Dyclonine hydrochloride is usually an effective anesthetic agent when applied topically to the skin or mucous membranes. The onset of action is rapid, and the intensity and duration of anesthesia compares favorably to that of compounds of the procaine type. The drug is useful in dermatological practice for the treatment of skin conditions in which relief of pain and pruritus is desired. It also may be used for the symptomatic treatment of minor burns and minor trauma, for relief of postoperative discomfort such as occurs after episiotomy, and for symptomatic management of pruritus ani or vulvae. The drug also has been used to anesthetize mucous membranes prior to instrumentation, as for example, before laryngoscopy, bronchoscopy, esophagoscopy, proctoscopy, and systoscopy. When instilled into the conjunctiva, it affords anesthesia without producing miosis or mydriasis.

Although longer clinical experience is necessary to determine its ultimate potentiality as an allergen, at present there are no reports of true sensitization or hypersensitivity to dyclonine hydrochloride. Likewise, the drug has not produced cross sensitization with other local anesthetic agents, a characteristic that may be the result of the differences in chemical structure. To date, irritation at the site of local application has been the only significant side-effect to its administration. Despite its low systemic toxicity, sufficient evidence is at hand to justify its use only by topical application.

Dosage.—Dyclonine hydrochloride is administered topically in a 1% concentration in a vanishing cream base or as a 0.5% aqueous solution. It is applied as necessary to the skin or mucous membranes in amounts necessary to cover the painful or pruritic surfaces.

Preparations for use as stated for the foregoing drug are marketed under the following name. Dyclone.

Pitman-Moore Company, Division of Allied Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of dyclonine hydrochloride.

Intravenous Use of Gitalin (Amorphous)

The Council has evaluated the usefulness of gitalin (amorphous) by the intravenous route. On the basis of currently available evidence, the Council concluded that the intravenous injection of this glycoside preparation is useful for the rapid digitalization of adult patients in whom the oral route is not feasible, especially those with acute, congestive cardiac decompensation. The average initial dose by this route is 2.5 mg. twice in 24 hours. The usual total digitalizing dose is about 5 to 6 mg. After full digitalization, when maintenance by the parenteral route is indicated, intravenous administration of doses as high as 2.5 mg. twice weekly have been used, although intravenous injection of 0.5 mg. daily may be adequate. However, oral maintenance therapy of 0.5 mg. daily should be substituted as soon as possible. Intravenous administration should be done with caution and in reduced dosage if the patient has received other digitalis drugs within the previous 2 weeks.

The Council voted to amend New and Nonofficial Remedies accordingly to describe this additional route of administration.

White Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of the intravenous use of gitalin (amorphous).

Use of Immune Globulins for the Treatment of Agammaglobulinemia or Hypogammaglobulinemia

The Council was requested to evaluate the usefulness of poliomyelitis immune globulin (human) for the treatment of agammaglobulinemia or hypogammaglobulinemia. This syndrome, which may occur in both adults and children, is characterized by an acquired or congenital absence or deficiency of gamma globulin, the serum fraction that contains most of the antibodies. A diagnosis of agammaglobulinemia or hypogammaglobulinemia may be entertained on the basis of repeated bacterial infections, the absence of isohemagglutinins, and a comparative inability of antibiotics to combat these infections. Confirmation may be obtained by determination of the serum gamma globulin level. In such cases it appears logical, therefore, to attempt to control clinical symptoms by the administration of compatible, but exogenous, immune gamma globulin. On the basis of currently available evidence, the Council concluded that routine "replacement" therapy with poliomyelitis immune globulin (human) is useful for the treatment of this syndrome. The immunity thus provided is temporary and passive: continued protection depends on routine and regular administration of the immune globulin. Although data were considered on poliomyelitis immune globulin (human) only, the Council was aware that the older preparation, immune serum globulin, is equally effective for the treatment of patients with this condition. The Council further concluded that, insofar as the other serum antibodies are concerned. poliomyelitis immune globulin (human) is equivalent to immune serum globulin and that both preparations can be used interchangeably in patients with agammaglobulinemia or hypogammaglobulinemia. For this purpose the preparations are administered by deep intramuscular injection, preferably in the gluteus. No arbitrary dosage schedule has as yet been determined. Judicious management of dosage should be on an individual basis with an attempt to determine for each patient the lowest dose required for his protection. Likewise, the interval between injections must be individually determined. Factors such as the age and weight of the patient, his general state of health, and the bacterial and viral antigens to which he has been exposed should be taken into consideration. As a general pattern, monthly injections of 30 to 50 cc. for adults and 20 to 40 cc. for children may be given; however, it is possible that doses much smaller than these may be adequate with less discomfort to the patient.

The Council voted to amend New and Nonofficial Remedies accordingly to describe the use of poliomyelitis immune globulin (human) and immune serum globulin for the treatment of agammaglobulinemia and hypogammaglobulinemia.

Merck Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of the usefulness of poliomyelitis immune globulin (human) for the treatment of agammaglobulinemia or hypogammaglobulinemia.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . *Fifteen dollars per annum in advance*
Cable Address . . . . "Medic, Chicago"

EPILEPSY AND THE EPILEPTIC

GUEST EDITORIAL

William G. Lennox, M.D.

The frontiers of epilepsy are many: the anatomy, physiology, and chemistry of the brain; psychology and psychiatry; pharmacology, sociology, and legal medicine; and the broad borderland of human relations. On each of these fronts some advance is being made. For example, the World Health Organization sponsored a six-day conference in London last October devoted to a discussion of juvenile epilepsy as a problem in public health. Broadly considered, any illness that affects a significant segment of the population, and that may yield to well-directed effort, deserves that resources be pooled for its prevention and control. In the past, public health efforts have been centered on the epidemiology and control of infectious disease. The phenomenal success that has resulted should release efforts for the control of other forms of serious illness. One of these, emphasized by the London conference, is epilepsy. This conference was attended by experts on the subject drawn from eight different countries. The findings will be issued from Geneva. Aside from recognition by the World Health Organization, three principal areas of progress may be outlined. The first, physiology, concerns epilepsy, the disorder. The second and third, therapeutics and social-psychological, concern the epileptic, the person.

The brain is the master organ of the body. Other organs may become diseased and the individual suffers; one disordered brain may disrupt a community, or nation. Yet, study and understanding of the brain has lagged far behind that of other organs. Its inaccessibility and complexity have awed the physician; the sad consequence of any dysfunction has frightened the people. How else can the public neglect of the brain as compared with, for example, the heart or even the joints be explained?

Twenty-seven years ago Berger breached the bony bastion that surrounds the brain by demonstrating that its electrical potentials, when led off from the scalp, would write a record of cerebral activity. This discovery has released epilepsy from the crypt of the unknown. "Cryptogenic" is now an outmoded term. Epilepsy is simply a paroxysmal dysrhythmia of brain potentials. Unless complicated by some cerebral lesion, this dysrhythmia, epilepsy, is based on some peculiarity in the metabolism of brain cells. Hence, epilepsy is a metabolic disease, comparable, for example, to diabetes. The student of epilepsy is especially favored, because the brain-wave pattern, when not distorted by some acquired brain lesion, is a hereditary trait. One study includes electroencephalograms and intelligence tests of 225 twin pairs affected by seizures. The relative influence of heredity and of acquired conditions in the cause of seizures and of mental retardation is thereby weighed. Identical twins, without acquired brain injury, have a high concordance not only of epilepsy but of a certain type of seizure and of a certain pattern of electroencephalographic abnormality.

Epilepsy has been the chief beneficiary of electroencephalography, but the technique is now an important tool for that most important of all tasks, an understanding of the working of the human brain and, hopefully, how dysfunction may be corrected. Present interest in both epilepsy and the science of brain function centers in the temporal lobe and its communicating structures. Seizures indigenous to this area are varied and bizarre, causing hallucinations of smell or taste; peculiar dream-like states; vivid pseudomemory of places or events; and automatic behavior that ranges from the ludicrous to the antisocial, with amnesia for what occurred. A display of spikes in the electroencephalogram made during sleep points to the temporal lobe as the responsible area. Because associated seizures (broadly termed psychomotor) respond poorly to anticonvulsant drugs, excision of the epileptogenic area offers a possible means of drastic relief. A thoroughgoing analysis of present-day knowledge of the brain in relation to psychomotor epilepsy is being made by a panel of experts from various countries. These will meet successively in Marseilles and in Washington, D. C., and, finally, in 1957, will meet in Brussels. The last session will be with the international congress of the League Against Epilepsy, of which Prof. A. Earl Walker is president.

The key to the mechanism of uncomplicated epilepsy is marked neurochemistry, and not neuropathology or neurophysiology. Slices of the cortex of the human brain that emit seizure discharges have proved to be defective with respect to acetylcholine, glutamic acid, potassium, and energy systems. The addition of L-glutamine or L-asparagine to such slices corrects these defects. Although in vitro studies require clinical confirmation, observations such as these may be a crack in the door that hides the secret of abnormal neuronal function in epilepsy.

The second area of progress, therapeutics, is the most important for the immediate prospects of the person subject to seizures. Success has been commensurate with that attained with the antibiotics against infections. Physicians now have half a dozen drugs variously effective in the control of convulsions and psychomotor seizures and another half-dozen useful in control of the petit mal seizures of childhood. By skillful use of medicines, alone or in combination, the majority of patients can be relieved of a majority of

---

From the Seizure Division of the Children's Medical Center, Boston 15.

their seizures and a substantial number indefinitely rid of them. Nor is therapy only with drugs. With the aid of electrodes planted on, or even below, the cortex, epileptogenic foci, especially those from the brain surface, can be removed with minimal impairment of the functioning of body or mind.

The third area of treatment, social-psychological, is as important to the patient as the other two, but progress has been less real. Because of the stigma of seizures, the epileptic, though rid of his attacks, may encounter social and psychological barriers to satisfactory living. Among repressive laws, those that bar marriage are most archaic. Largely through the efforts of doctors, laws that forbid marriage have been recently rescinded or amended in 3 states, but they remain in 16.

A second and more controversial question concerns the licensing of persons to drive motor vehicles. Provisions vary greatly from state to state. For some, epilepsy is a reportable disease. Some states rule against use of anticonvulsant medication. The application blanks of most states ask specifically about epilepsy, but avoid mention of the use of alcohol. How do the fatality records compare? In Massachusetts each case is judged on its individual merits, with heavy dependence on the recommendation of physicians experienced in the treatment of epilepsy. During the last three years epilepsy caused not a single death and less than 1% of all accidents, whereas fatalities because of alcohol numbered 265. A number of factors enter into a physician's recommendation: the interval of time since the last seizure (at least 18 months); the age at onset of seizures and the former type and frequency of these; the constancy and the duration of the warning aura; the time of seizures, whether they occur only at night; the degree of abnormality of the electroencephalogram; the person's veracity and sobriety; the person's adherance to prescribed treatment; and the amount and kind of the expected driving.

A third and even larger problem is that of employment. Epileptics have been excluded from employment because of general prejudice and fear of a high accident rate, a fear that is unjustified if there is proper job placement. But how is proper job placement possible if admission of a history of seizures is an automatic bar to employment? Enactment of a workable second injury clause would seem to lessen this handicap.

With the aid of a grant from the U. S. Public Health Service, the physicians' League Against Epilepsy has sponsored a survey of state laws with respect to marriage, drivers' licenses, and employment of epileptics. Roscoe L. Barrow, dean of the University of Cincinnati School of Law, and Dr. Howard D. Fabing have written a book entitled "Epilepsy and the Law."[1] Increased public understanding, acceptance, and active assistance of the epileptic proceeds at too slow a pace. As emphasized by the current motion picture "The Dark Wave," patients or their relatives are loath to join public efforts in their own behalf. A glowing exception is the account of her own illness by the English author Margiad Evans.[2] In terms of number of dollars or hours expended, therapeutic results are far greater for epilepsy than for most neurological disorders. Yet, public interest and support of the large body of epileptics has been relatively meager. Through the journal *Epilepsia* and a growing number of medical articles and books, clinicians have access to present-day knowledge of epilepsy and of the means of its control. The physician should also help to remove the attendant social and psychological impediments to useful living. The epileptic is not a muscle-nerve preparation, dissected out of a frog for experiments in pharmacology. Prescription of medicine is but half the treatment. Laboratory and pharmaceutical research have lifted epilepsy out of the dark ages. With the practitioner of medicine rests the opportunity and the responsibility for quickened progress in the area of human relations.

W. M. A. MEETING IN CUBA

Within a matter of weeks physicians from over the world will meet in Havana, Cuba, to attend the 10th Annual Assembly of the World Medical Association. Those who know this delightful Caribbean country will need no second invitation to plan for the pleasures that accompany meetings of the World Medical Association, and those who want firsthand accounts of what is transpiring in medical practice in other countries can find no better meeting to satisfy their curiosity. Dr. Louis H. Bauer, secretary general of the association, has mailed to delegates from national medical associations the program for the meeting. It offers a diet for all doctors genuinely interested in medical practice. Those physicians who have not completed plans for attendance should do so now, before it is too late. Details will be supplied gladly by Dr. Louis H. Bauer, Secretary General, World Medical Association, 10 Columbus Circle, New York 19.

The date of the meeting is October 9-15. Included in the program for the Assembly are a variety of topics on problems facing physicians and their patients and the experiences of doctors from among the 50 or more national medical associations that make up the World Medical Association. Also included is a session of scientific papers to be formally presented by leading physicians in Cuba. Of interest to medical editors will be the half-day program featuring Pan-American medical publication problems with discussants from Germany, Japan, Luxembourg, Finland, and elsewhere. This, however, only suggests the breadth of the topics that will be explored, as the thoughts expressed in the discussions that follow the reports often are as revealing as the reports.

Wives of physicians attending the Assembly will be pleased with the social and entertainment program arranged for their enjoyment. As for the renowned hospitality of the physicians of Cuba, words are not necessary for those who have been guests of Cuban physicians. Add thoughts of this to the climate, the beaches, the countryside, and other attractions and the future is appealing for the visitors to this 10th annual meeting of the World Medical Association.

---

1. Barrow, R. L., and Fabing, H. D.: Epilepsy and the Law: A Proposal for Legal Reform in the Light of Medical Progress, New York, Paul B. Hoeber, Inc., 1956.
2. Evans, M.: A Ray of Darkness, New York, Roy Publishers, 1953.

ORGANIZATION SECTION

JOURNAL INDEX

The index to volume 161 of The Journal appears in this issue. Those who wish extra copies of the index may receive them without charge on request to the Order Department, American Medical Association, 535 N. Dearborn St., Chicago 10.

TWO ADDITIONS TO A. M. A. STAFF

Philip L. White, B.S., M.S., D.Sc., who has been with the department of nutrition of the Harvard School of Public Health for a number of years, is the new Secretary of the A. M. A. Council on Foods and Nutrition, and Wallace Wesley, B.Ed., M.S., Hs.D., has been appointed consultant in health and fitness in the A. M. A. Bureau of Health Education.

Dr. White will take over his new job on Sept. 1. In 1951, he served as nutrition advisor to the department of nutrition of the Peruvian Ministry of Public Health. His publications in this field include reports etary surveys conducted on the coast, in the e, and in the high sierras of Peru; a table of the position of Peruvian foods; a study of the necessity amino acid supplementation of all-vegetable diets in human nutrition; reports on the nutritive value of some Peruvian seed products; and the iron requirement of children infested with intestinal parasites. On returning to Harvard, he did research in experimental atherosclerosis and on protein metabolism. Last winter, Dr. White was a member of the U. S. team that conducted a nutrition survey for the armed forces of Iran.

Miss Wesley, who will work with Fred V. Hein and Donald A. Dukelow in furtherance of the health of the school-aged child, began her new duties on Aug. 1. She has taught health on the elementary, high school, and college levels and general science and physical education in the public schools. Miss Wesley is a registered physical therapist, with hospital experience.

A. M. A. PAMPHLET SALES

More than 396,000 health education pamphlets were sold by the A. M. A.'s Bureau of Health Education during the 12 months ending June 30, 1956. These sales indicate a widespread use by nonmedical persons of materials prepared and sold by the A. M. A. They also furnish an index of the health interests of a considerable cross section of the American people. The largest single group of pamphlets sold was 69,000 on the health of the school-age child. Mental health pamphlets sold totaled 35,574, those on accidents and first aid 25,575, teeth 18,674, nutrition and diet 18,000, maternal health 17,296, physical fitness 15,319, and heart and circulation 12,400. Most of the pamphlets are reprinted from *Today's Health.*

CRASH INJURY FILM

The general public will learn about the role played by physicians in prevention of auto crash injuries in a new motion picture just completed by the American Medical Association in cooperation with the Ford Motor Company. The 15-minute film, entitled "On Impact," incorporates information on auto crash injuries presented at the A. M. A.'s Annual Meeting in June and an analysis of recent safety improvements in motor vehicle design. Featured in "On Impact" are Dr. Fletcher D. Woodward of the University of Virginia School of Medicine, Chairman of the A. M. A.'s Committee on Medical Aspects of Automobile Injuries and Deaths, and John O. Moore of Cornell University Medical College. "On Impact" will be released to television stations across the nation, for use on public service time, on Sept. 1. After that date, county and state medical societies and their auxiliaries can obtain prints from the A. M. A.'s TV Film Library for showing at either professional or public meetings.

FEDERAL MEDICAL LEGISLATION*

Second Session, 84th Congress

United States Nursing Academy

Senator Ives (R., N. Y.), in S. J. Res. 188, proposes to establish in the Department of Defense an Academy of Nursing to train young women in nursing for the armed forces. The Secretary of Defense would select one "cadette" annually for each member of Congress from among candidates submitted by the member. The President would appoint 30 "cadettes." Graduates of the academy would have to agree to serve for not less than three consecutive years in the armed forces. This measure was referred to the Committee on the Armed Services.

---

*From the Washington Office of the American Medical Association.

Poliomyelitis Vaccine Liability

Senator Welker (R., Idaho), in S. 4168, would "authorize the payment of compensation for certain losses suffered as the result of the outbreak of polio following the early use of poliomyelitis vaccine" if contracted "(1) prior to June 1, 1955, and within thirty days after receiving one or more injections of poliomyelitis vaccine, or (2) as the direct result of exposure to one or more individuals who contracted poliomyelitis under the circumstances specified in clause (1)." This measure was referred to the Committee on the Judiciary.

Health Insurance Pooling

Senators Hill (D., Ala.) and Smith (R., N. J.), in S. 4172, and Congressmen Thompson (D., N. J.), in H. R. 12140, and Priest (D., Tenn.), in H. R. 12153, have introduced the administration's measure "to encourage the extension and improvement of voluntary health prepayment plans or policies by permitting pooling." The proposed plan is a redraft of the administration's reinsurance scheme. However, it abandons the proposal of a government-operated reinsurance fund and instead waives the federal and state antitrust laws so that small insurance companies (writing less than 1% of total health insurance) and voluntary plans may pool certain of their assets to guard against individual losses from experimental types of coverage. These measures were referred to the Committee on Labor and Public Welfare.

Scholarships for Postgraduate Education in Public Health

Senator Magnuson (D., Wash.), in S. 4208, proposes "to amend the Public Health Service Act to provide a program of scholarships for postgraduate education." The bill would authorize $250,000 annually for five years. The surgeon general of the Public Health Service would consult the National Advisory Health Council in determining the need for scholarships in each of the fields relating to public health. Awards would include the cost of tuition, books, equipment, and maintenance. This measure was referred to the Committee on Labor and Public Welfare.

State Committees on Higher Education

Senators Smith (R., N. J.) and Hill (D., Ala.), in S. 4211, and Congressman Elliott (D., Ala.), in H. R. 12237, propose "to encourage and assist the States in the establishment of State committees on education beyond the high school." The bills would authorize $800,000 to be allotted to the states for the purpose of calling together educators and other interested persons to consider educational problems beyond high school and to make appropriate recommendations. Appropriation authorization would also be provided for the expenses of the President's Committee Beyond High School. This measure was passed by both Senate and House and became Public Law 813.

Presumption of Service Connection for Multiple Sclerosis

Senator Morse (D., Ore.), in S. 4286, proposes to increase from two to three years the period after discharge from active military service during which multiple sclerosis of 10% or of more degrees is considered service-connected. This measure was referred to the Finance Committee.

Narcotics Addict Treatment and Rehabilitation Act

Senators Eastland (D., Miss.), Daniels (D., Texas), Welker (R., Idaho), and Butler (R., Md.) propose, in S. 4296, "to authorize the care and treatment at facilities of the Public Health Service of narcotic addicts committed by State courts and other authorities." Any narcotics addict making application voluntarily for treatment in federal hospitals for his addiction would make application to the U. S. District Court for commitment. Commitment would be made for a period of time estimated by medical authorities as sufficient for the addict to receive maximum benefits from the treatment. Addicts would not be admitted if they had been treated on three or more occasions in federal hospitals and had again lapsed to the use of drugs. The voluntary patient could be required to pay for care and subsistence; otherwise, the Public Health Service would bear the expense. The surgeon general would also accept, treat, and forcibly detain narcotics addicts committed by state courts. The cost of providing care would be a charge upon the state whose courts committed the addict. This measure was referred to the Committee on Labor and Public Welfare.

Tax Deduction for Contributions to Medical Research

Congressmen Keogh (D., N. Y.), in H. R. 12151, and Curtis (R., Mo.), in H. R. 12152, have introduced identical measures to permit contributions to medical research organizations as a deduction in computing personal income tax. The present law allows deduction of contributions to hospitals up to 10% of the taxpayer's adjusted gross income in addition to 20% allowance for contributions to other recognized charitable organizations. The proposed bill would permit inclusion of contributions to "medical research organizations directly engaged in the continuous active conduct of medical research in conjunction with a hospital" as well as to hospitals. These measures were referred to the Ways and Means Committee.

Grants for Studies and Projects for Aged

Congressmen Williams (D., N. J.), in H. R. 12154, and Flood (D., Pa.), in H. R. 12260, have introduced measures identical to S. 4117, introduced by Senators Hill (D., Ala.) and Kennedy (D., Mass.) and previously reported. These bills "would authorize Federal grants to assist in the development and operation of studies and projects to help older persons." Eight similar measures previously reported would establish a Bureau of Older Persons in the Department of Health, Education, and Welfare, but this is not provided in the William, Flood, or Hill-Kennedy bills. The House measures were referred to the Committee on Education and Labor.

Extension of Vocational Rehabilitation Act Amendment

Congressman Elliott (D., Ala.), in H. R. 12161, has introduced a measure identical to S. 3875, introduced by Senator Magnuson (D., Wash.), and H. R. 11369, introduced by Congressman Dempsey (D., N. Mex.), previously reported. These measures would extend until June 30, 1957, that part of the Vocational Rehabilitation Act that pertains to grants and other nonprofit organizations and agencies that are "planning, preparing for, and initiating . . . substantial nationwide expansion of vocational rehabilitation programs in the States." The House bills were handled by the Committee on Education and Labor and the Senate bill by the Labor and Public Welfare Committee. The Senate bill became Public Law 937.

Medical Care for Foreign Service Employees Overseas

Senator George (D., Ga.) has introduced, in S. 3481, an administration measure to make foreign service more attractive for citizens of the United States. The provisions of the bill include medical benefits for certain government employees while they are stationed abroad. The covered employees would be State Department Foreign Service officers and employees and employees of the International Cooperation Administration, the U. S. Information Agency, and the Foreign Agricultural Service of the Department of Agriculture and their dependents. There are roughly 10,000 employees and 13,000 dependents in these groups. The government would assume responsibility for medical expenses within prescribed limits for illnesses or injuries incurred abroad when they are sufficiently serious to require hospitalization or similar care outside a hospital. For officers and employees the government would pay the full cost of treatment. For the employee's dependents the employee would be required to assume a part of the cost in each instance, and a maximum is placed upon the government's liability for financial help. The employee must assume up to $35 of the cost of treatment for his dependents for each illness, with the government assuming responsibility in excess of that amount but not in excess of 120 days of hospitalization or equivalent care for each illness or injury. The Secretary is given authority to pay transportation expenses involved in moving a dependent from a locality in which no suitable hospital or clinic exists to the nearest suitable hospital or clinic. Where hospitalization beyond 120 days is required, the Secretary may authorize continued payment when it is determined that the illness or injury is caused by the fact that the dependent is, or has been, located abroad. It is intended that regulations prescribed by the Secretary will exclude certain types of medical expense, such as optional plastic surgery, dental treatment, and normal maternity cases. Authority is given the Secretary to provide medical benefits through insurance or private health plans, if such methods are as good or as economical as direct payment by the government. The employment of a physician or other medical personnel is authorized in first-aid stations at posts where such is necessary. In cases where suitable government or private facilities already exist, the Secretary is not authorized to make such arrangements. It is thought that much of the care would be in U. S. government military medical facilities. This bill was referred to the Committee on Foreign Relations, where hearings were held for one day only. The bill was reported to the Senate and was passed by both houses to become Public Law 828.

Congressman Morrison (D., La.) in H. R. 12193, introduced a similar measure July 11 providing benefits for all United States citizens who are civilian government employees overseas, but hearings were not held. It is expected that a similar measure will be introduced early in the first session of the 85th Congress. The Morrison bill was referred to the Post Office and Civil Service Committee.

MEDICAL NEWS

CALIFORNIA

Lane Medical Lectures.—The 33rd course of Lane Medical Lectures will be delivered in Lane Hall, Stanford University School of Medicine (Sacramento Street near Webster, San Francisco), by Sir Charles Dodds, M.V.O., M.D., Ph.D., F.R.S., Courtauld Professor of Biochemistry, the Middlesex Hospital Medical School, London, England. The medical profession, students, teachers, and research workers in medicine and allied sciences are cordially invited to attend the series on "Biochemical Experiments in Endocrinology," which will be presented on the following dates at 8:15 p. m.:

Sept. 17, The Sex Hormones and the Development of the Synthetic Estrogens.
Sept. 18, Biological Action of the Synthetic Estrogens.
Sept. 19, Adrenal Secretion.
Sept. 20, Aldosterone.
Sept. 21, Pituitary Hormones.

Course in Medical Photography.—"Photography in Medical Practice and Research," a new postgraduate course, will be offered on Thursdays at 7:30 p. m., Sept. 20-Dec. 13, at the Medical Center of the University of California at Los Angeles to graduates of approved medical and dental schools and to research workers with consent of the course chairman. The fee is $35. Topics will include lighting, exposure, black-and-white film processing, the print, the motion picture camera, the reproduction of color, and other pertinent factors. Information and registration blanks may be obtained from Dr. Thomas H. Sternberg, Assistant Dean for Postgraduate Medical Education, University of California, Los Angeles 24.

IOWA

Personal.—Dr. Robert C. Hardin, professor of internal medicine, State University of Iowa College of Medicine, Iowa City, has been given a training grant ($8,000 a year for five years) by the Institute of Arthritis and Metabolic Diseases, National Institutes of Health. Dr. Hardin's studies are on long-term follow-up of patients with diabetes.

General Practice Meeting.—The annual meeting of the Iowa Academy of General Practice will be held at the Hotel Savery in Des Moines, Sept. 13-14. Greetings will be extended Thursday morning by Dr. Walter D. Abbott, Des Moines, president, Polk County Medical Society. Presentations by out-of-state speakers will include:

Pain Patterns in Abdominal Disease. Disease of Left Colon, Lucian A. Smith, Rochester, Minn.
Diagnostic and Therapeutic Nuggets, Oscar F. Rosenow, Columbus, Ohio.
Use of Adrenal Steroids in Practice, H. Dalton Jenkins, Denver.
New Therapeutic Methods in Dermatology, Roy L. Kile, Cincinnati.
Diagnosis of Hypertension. Treatment of Hypertension, J. Harold Kotte, Cincinnati.
Diagnosis and Management in Peripheral Vascular Disease. Surgery of Blood Vessels (with movie), Fay A. LeFevre, Cleveland.
Indications for Gastrectomy, Claude J. Hunt, Kansas City, Mo.

After the luncheon address by Mr. Philip G. Green, Washington, D. C., director, Division of Juvenile Delinquency Service, Department of Health, Education, and Welfare, the Ernest E. Shaw Lecture, "Diagnosis and Treatment of Thyroid Disease," will be delivered by Dr. George Crile Jr., Cleveland.

MASSACHUSETTS

Endocrine Society Medal.—The 1956 medal of the Endocrine Society has been bestowed on Frederick L. Hisaw, LL.D., Ph.D., professor of zoology at Harvard University, who discovered relaxin. He also investigated the fundamental nature of the hormonal interrelationships between the pituitary body and the ovary in the regulation of cyclic reproductive functions.

Wien Cancer Award.—Ruth Graham, cytologist from the Massachusetts General Hospital in Boston, has received the Wien award of $1,000 for 1955, in recognition of "outstanding research in cancer cytology." The presentation of the award was made by Dr. Edmund V. Cowdry, St. Louis, at the Cancer Institute at Miami, Fla., following her paper, "Cytologic Evaluation of Radiation Sensitivity of Cancer of the Cervix."

MICHIGAN

Personal.—At commencement exercises June 14, Wayne University, Detroit, bestowed the honorary degree of doctor of laws on Dr. Lawrence Reynolds, professor of radiology. Dr. Reynolds is president of the Detroit Public Library Commission and editor of the *American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine.*

Personal.—Dr. Leo G. Christian, Lansing, a member of the Ingham County Medical Society for 34 years, received the society's Service Citation at its Clinic Day, May 3, in Lansing. The citation read, in part: "Doctor Christian has enriched the practice of medicine in this community, and focused our attention on the significance of medical education in general hospitals."

Psychiatric Hospital Dedicated.—The Lafayette Clinic, a 145-bed psychiatric hospital, adjacent to Wayne University College of Medicine, Detroit, was dedicated May 7. The professional staff, headed by Dr. Jacques S. Gottlieb, is being integrated academically with the university department of psychiatry. The clinic will serve as a research and training hospital in the behavioral sciences. Presently it plans to concentrate its research efforts in three major fields: (1) schizophrenia; (2) factors responsible for defective functioning in children, such as mental deficiency, epilepsy, and cerebral palsy; and (3) study of the primary process of treatment by the psychiatrist—psychotherapy. Diagnostic services of the clinic will be available on a referral basis to the private patients of members of the medical profession. Both outpatients and bedpatients will be accepted, provided they are suitable for the purposes of the clinic.

MONTANA

Society News.—Officers of the Montana chapter of the American Academy of General Practice include Dr. George E. Trobough, Anaconda, president; Dr. William E. Harris, Livingston, president-elect; and Dr. Amos R. Little, Helena, vice-president.

State Medical Meeting in Great Falls.—The 78th annual meeting of the Montana Medical Association (George W. Setzer, Malta, president) and the seventh annual meeting of the Great Falls Medical-Surgical Conference will be held jointly at the Hotel Rainbow in Great Falls, Sept. 13-15. Out-of-state speakers and their first presentations will include:

Frederic C. Bost, clinical professor of orthopedic surgery, University of California School of Medicine, Berkeley-San Francisco, Orthopedic Emergencies of Childhood and Adolescence.
E. Stanley Crawford, assistant professor of surgery, Baylor University College of Medicine, Houston, Texas, Recent Developments in the Management of Occlusive Arterial Disease of the Lower Extremities.
Stanton A. Friedberg, clinical associate professor of otolaryngology, University of Illinois College of Medicine, Chicago, Diseases of the Mouth and Throat (Kodachrome).
Eleanor M. Humphreys, professor of pathology, University of Chicago School of Medicine, Malignant or Benign Disease? Problems in the Right Lower Quadrant.
Arthur J. Jampolsky, assistant clinical professor of surgery (ophthalmology), Stanford University School of Medicine, Stanford University—San Francisco.
Charles E. McLennan, professor of obstetrics and gynecology, Stanford University School of Medicine, Stanford University—San Francisco, Management of Dysfunctional Uterine Bleeding.
Max Miller, associate professor of medicine, Western Reserve University School of Medicine, Cleveland, Historical Developments, Physiological Knowledge and Possible Mechanisms of Action of Orally Administered Sulfonyl-Urea Drugs in Diabetes.
Burtrum C. Schiele, professor of psychiatry, University of Minnesota Medical School, Minneapolis, New Drugs in the Treatment of the Nervous Patient.

The scientific program will include several clinicopathological conferences and a symposium of geriatrics. On Thursday evening the association will hold its annual reception and banquet. The officers of Malmstrom Air Force Base and the Great Falls Chamber of Commerce have arranged a conducted tour of the base for Friday afternoon. On Friday evening the Cascade County Medi-

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

cal Society will be host to Montana physicians and their guests at a dinner dance at the Meadowlark Country Club in Great Falls. All Montana physicians as well as all physicians in the Rocky Mountain area and in Canada are cordially invited to attend this meeting. The women's auxillary will meet concurrently.

NEW YORK

Day Psychiatric Center.—The first of two day hospital centers to be organized by the New York State Department of Mental Hygiene was opened at Hudson River State Hospital, Poughkeepsie, July 2. According to Dr. Paul H. Hoch, state commissioner of mental hygiene, to determine the value of psychiatric and supportive therapy for suitable mental patients in a hospital setting during the daytime hours, patients at the new center will receive psychiatric care on a voluntary outpatient basis, during the day, remaining for the rest of the time at their homes or continuing insofar as possible with their family and community activities. The second day hospital is expected to open in the near future in connection with the Brooklyn Aftercare Clinic, 105 Schermerhorn St. The day hospital has been designed for the care of adults 18 years or older and will operate on a five days a week schedule from 8:30 a. m. to 4 p. m. Patients will be referred primarily by community physicians and social agencies and on a volunteer basis. They also may be accepted after provisional release from the state hospital to complete the course of treatment or for social and vocational readaptation as a means of helping to "tide them over" in making an adjustment from the hospital to the community. The staff of 14 who will administer the day hospital includes Dr. O. Arnold Kilpatrick, director of the Hudson River State Hospital, Dr. Marian F. Axel, psychiatrist-in-charge of the center; two nurses, a social worker; occupational therapist, recreational worker; two male and four female psychiatric aides; and a secretary-receptionist.

New York City

Hospital News.—Lenox Hill Hospital, 111 E. 76th St., has established an Adult Allergy Clinic within the department of medicine, with Dr. Laurence Farmer as attending physician and chief.

Professor of Obstetrics and Gynecology Appointed.—Dr. Martin L. Stone, a member of the faculty of New York Medical College, Flower and Fifth Avenue Hospitals, since 1949, has been appointed professor of obstetrics and gynecology and director of the department. Dr. Stone is a member of the special committee on infant mortality of the New York County Medical Society.

English Course for Foreign Physicians.—A new course in practical English, to be offered during the 1956 autumn semester at New York University's division of general education, will be open to doctors, interns, and hospital administrators whose native tongue is not English. Emphasis will be given to oral and written practice of the vocabulary commonly used in medical histories, consultations, evaluations, case reports, progress notes, and interviews of patients. Several American physicians will serve as guest lecturers for the course. The course, conducted by Mr. Grant Taylor, director of the division's English language program for international students, will be presented from 6:15 to 8 p. m. on Thursdays, Sept. 27-Jan. 17. Interested persons may register either by person or through the mail until October at the Division of General Education, New York University, 1 Washington Sq. North, New York 3.

OREGON

Practitioners Meet in Portland.—The annual meeting of the Oregon chapter, American Academy of General Practice, will convene Sept. 13-15 at the Masonic Temple in Portland under the presidency of Dr. Raymond M. Reichle, Portland. Mr. Mac F. Cahal, executive secretary, American Academy of General Practice, will speak at the banquet at the Heathman Hotel Friday night on "Let the People Behold You." Other out-of-state speakers will include:

H. Corwin Hinshaw, San Francisco, The Questionable Survey Chest X-Ray.
John W. Huffman, Chicago, The Way is Uncharted.
Aram Glorig Jr., Los Angeles, Hearing Loss and the General Physician.
Carl T. Javert, New York, Psychosomatic Abortion.

PENNSYLVANIA

Memorial Tablet. —As the first of a series of events scheduled in connection with the "Year of Commemoration" in Mifflin County, a tablet was unveiled in McVeytown, the birthplace of the late Dr. Joseph T. Rothrock, known as the father of Pennsylvania forestry. Dr. Rothrock, who died in June, 1922, was credited with originating the idea of establishing a tuberculosis hospital at Mont Alto, which resulted in the building of Pennsylvania State Sanatorium No. 1. He served as superintendent of the state sanatorium for consumptives, South Mountain Camp, as professor of botany at the University of Pennsylvania, and as commissioner of forestry. During the commemorative ceremonies, pupils of the Rothrock Joint High School and the Lewistown High School planted thousands of seedlings in memory of Dr. Rothrock.

Philadelphia

Appoint Musser Professor.—Dr. Colin M. MacLeod has been named John Herr Musser Professor of Research Medicine and chairman of the department of research medicine, University of Pennsylvania School of Medicine, to succeed Dr. William C. Stadie, whose retirement with the rank of professor emeritus became effective June 30. Dr. MacLeod has been chairman, department of microbiology, New York University College of Medicine, since 1941. During February and March of this year, he was a member of a mission sent under the auspices of the U. S. Public Health Service to Russia to study research and teaching programs in medical education. Dr. MacLeod, whose special fields of interest are infectious diseases, microbial genetics, and immunology, is a member of the Armed Forces Epidemiological Board, a member of the advisory panel on medical sciences to the Assistant Secretary of Defense for Research and Development, and a consultant to the surgeon general of the Army. Since 1945 he has been associate editor of the *Journal of Immunology*.

Personal.—Earle H. Spaulding, Ph.D., head, department of microbiology, Temple University Medical Center, has been appointed chairman of the advisory committee of certification of the newly organized American Academy of Microbiology.——Dr. Louis H. Clerf, emeritus professor of bronchoesophagology and laryngology, Jefferson Medical College of Philadelphia, has received the 33rd annual Strittmatter award of the Philadelphia County Medical Society, of which he is a past-president.——At the annual meeting of the Endocrine Society, June 7-9 in Chicago, the Ciba award for outstanding research in human endocrine glands, particularly as they affect the development of the child, was presented to Dr. Alfred M. Bongiovanni, associate professor of pediatrics at the University of Pennsylvania School of Medicine. Dr. Bongiovanni, who is currently secretary of the Philadelphia Endocrine Society, received the award for work on the chemical nature of adrenal cortex hormones.——Mr. Edward R. Loveland, for more than 30 years executive secretary of the American College of Physicians, has been made an honorary fellow of the college—the only layman ever so honored. He was presented with an illuminated certificate, reading in part: "As executive secretary of the college from 1926-1956 his ability and devotion have been outstanding. His services have been distinguished by his constant adherence to the highest traditions of the medical profession."

Pittsburgh

Society News.—The Pittsburgh Roentgen Society recently elected Dr. Newton Hornick, Pittsburgh, president; Dr. J. Dutney Hayes, Mt. Lebanon, Pa., vice-president; Dr. Norman B. Tannehill, Pittsburgh, secretary; and Dr. Harrison H. Richardson, Rochester, Pa., treasurer.

RHODE ISLAND

Dr. Donley to Edit State Journal.—Dr. John E. Donley, past-president of the Rhode Island Medical Society, the Providence Medical Association, and the Rhode Island Society of Psychiatry and Neurology, has been named editor-in-chief of the *Rhode Island Medical Journal*, succeeding the late Dr. Peter Pineo Chase. John E. Farrell, Sc.D., continues as managing editor. Dr. Donley was the recipient of the City of Providence Charles V. Chapin medal award in 1955 and in 1953 received a citation from President Eisenhower's Committee on Employment of the Physically Handicapped for his "outstanding services to the disabled" in Rhode Island. Medical director of the Rhode Island Curative Center, Dr. Donley has been chairman of the publications committee of the state medical society for more than 10 years.

TENNESSEE

Refresher Course for Nurses.—In an attempt to overcome a shortage of registered nurses that has hampered the opening of additional floors in the new E. H. Crump Memorial Hospital, the University of Tennessee School of Nursing and the city of Memphis will offer a refresher course, Sept. 10-Oct. 5 at the John Gaston Hospital, for registered nurses now inactive who wish to return to the profession. The fee of $40 will be refunded to those nurses who complete the course and are employed in a permanent position by Memphis city hospitals.

WASHINGTON

State Medical Meeting in Seattle.—The 67th annual session of the Washington State Medical Association will convene in the Olympic Hotel, Seattle, Sept. 16-19. Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will be at the general assembly, Tuesday, 11 a. m., with Dr. L. C. Munger Jr., Vancouver, Canada, who will deliver his presidential address. The complimentary public relations luncheon on Wednesday will have as its theme "Congress, Doctors, and Politics." Panel members discussing the subject will be Dr. J. Lafe Ludwig, Los Angeles, member of the A. M. A. Committee on Legislation; C. Joseph Stetler, Chicago, LL.M., Director of the A. M. A. Law Department; and Richard G. Van Buskirk, LL.B., Chicago, Executive Secretary, A. M. A. Committee on Legislation. A panel has been scheduled on pitfalls in ocular diagnosis and a symposium on asyphxia in the newborn. Two symposiums will also be presented at the eye, ear, nose, and throat section. The following presentations will be made by out-of-state speakers:

Treatment of Psychiatric Problems by Family Physicians, Alexander Simon, San Francisco.
Malpractice Hazards of Drug Therapy, Harry Gold, New York.
Misuse of Endocrine Preparations, Carl G. Heller, Portland, Ore.
Nonobstetrical Problems Associated with Pregnancy, William J. Dieckmann, Chicago.
Problems and Importance of Biopsies and Exfoliative Cytology, James W. Reagan, Cleveland.

Social events will include the annual banquet and dance Tuesday evening (dress optional), the informal no-host family dinner Sunday evening, and a reception Wednesday evening. Headquarters for the annual fishing derby Monday will be Ray's Boathouse, Ballard. The golf tournament will be on Monday at the Seattle Golf and Country Club. The Sportsmen's Banquet is scheduled for Monday evening in the clubhouse of the latter club. The woman's auxiliary will meet concurrently.

WEST VIRGINIA

Symposium on Endocrinology.—A symposium on endocrinology, sponsored by the Cabell County Medical Society, will be held at the Pritchard Hotel in Huntington, Sept. 13. Physicians are cordially invited to this open meeting. Dr. Charles H. Read, associate professor of pediatrics, State University of Iowa College of Medicine, Iowa City, the sole speaker at the morning session, will discuss "Endocrine Problems of Infancy." The following program will be presented during the afternoon sessions:

Endocrine Problems of the Adolescent, Anne P. Forbes, instructor in medicine, Harvard Medical School, Boston.
The Thyroid Gland, William W. Engstrom, associate professor of medicine, Marquette University School of Medicine, Milwaukee.
Current Aspects of Adrenal Disease, Emile E. Werk Jr., associate professor of clinical medicine, University of Cincinnati School of Medicine, Cincinnati.

A cocktail party, 6 p. m., will precede dinner, 7 p. m., at which Dr. Thomas G. Folsom, Huntington, will serve as toastmaster. A panel discussion with questions and answers will follow the dinner.

Meeting on Tuberculosis.—The 36th annual meeting of the West Virginia Tuberculosis and Health Association will be held at the New Beckley Hotel in Beckley, Sept. 13-14, in cooperation with the Raleigh County Tuberculosis and Health Association. The president, Dr. Harold H. Howell of Madison, will preside at the annual business luncheon Thursday, 12 noon, and Dr. John W. Whitlock of Beckley, president of the Raleigh County Medical Society, at the afternoon scientific session arranged by the West Virginia Trudeau Society. Dr. Harry E. Walkup, chief of surgery at the Veterans Administration Hospital, Oteen, N. C., will present a paper on "Asymptomatic Pulmonary Lesion and Unresolved Pneumonia," and Dr. Howard M. Payne, professor of medicine, Howard University College of Medicine, Washington, D. C., will discuss "Basic Considerations in the Problem of Tuberculosis." The final paper (subject to be announced) will be presented by Dr. Sol Katz of Washington, D. C., chief, division of pulmonary diseases, District of Columbia General Hospital. Members of the board of directors of the Raleigh County Tuberculosis and Health Association will be hosts at a reception, 6 p. m., preceding the annual banquet, at which the guest speaker will be Mr. L. Steele Trotter, treasurer, West Virginia Board of Control, who will discuss "Problems Relating to West Virginia Sanatoria." At the general session Friday morning, Mr. Ray Milliron, president, Raleigh County Tuberculosis and Health Association, will preside. "The Role of the Department of Public Assistance in Providing Services to the Disabled" will be presented by Mr. Earle Wolfe, chief, division of social services, West Virginia State Department of Public Assistance, Charleston, and "The Public Health Nurse in Tuberculosis Control" by Miss Sheila Dwyer, assistant director of nursing service, Harlan Memorial Hospital, Miners Memorial Hospital Association, Harlan, Ky. Dr. Joseph E. Martin Jr. of the department of internal medicine, the Golden Clinic, Elkins, will be the final speaker on the program (subject to be announced).

WISCONSIN

University News.—Dr. Albert C. Schmidt, chief of surgery at Milwaukee Children's Hospital and chief of orthopedics at Columbia Hospital, Milwaukee, has been named clinical professor of orthopedic surgery at Marquette University School of Medicine, where from 1946 to 1952 he was assistant clinical professor.

Grant in Human Genetics.—The University of Wisconsin Medical School, Madison, will begin a new program of study in human genetics next fall through a three-year grant of $25,000 from the Rockefeller Foundation. Dr. Newton Morton, a recent graduate of the department of genetics at Wisconsin, will direct the study, teach a course in human genetics, the first of its kind offered in the medical school, and give lectures emphasizing genetics in other aspects of medical, surgical, and pediatrics practices. During 1952-1953 Dr. Morton was a member of the Atomic Bomb Casualty Commission of Hiroshima, Japan, which studied the effects of the atomic radiations on the citizens of Hiroshima.

GENERAL

Federal Hospital Alumni Breakfast.—During the American Hospital Association convention, the Federal Hospital Institute Alumni Association will hold its annual breakfast meeting at the Palmer House, Chicago, Sept. 18, 8 a. m. Captain Edward S. Lowe, commanding officer, U. S. Naval Hospital, Great Lakes, Ill., is in charge of arrangements. Cost of the breakfast is $3.25 per alumnus.

Research in Blood Diseases.—The Hematology Research Foundation invites applications for grants-in-aid in hematological research for a period of one year. Nine copies of application (forms available on request) must be submitted no later than Oct. 15 to the Hematology Research Foundation, 64 W. Randolph St., Chicago 1. Awards will be announced by the medical advisory board of the foundation the first part of November. The board will choose the applicants on the basis of merit of the proposed research project.

Chemists Meet in Atlantic City.—The 130th national meeting of the American Chemical Society will convene at Atlantic City, N. J., Sept. 16-21. Symposiums will be held on methods of combating air pollution, research on promising new drugs, improvements in science education, new findings in the field of cosmetics, use of radioactive materials to sterilize foods and medicines, carbohydrate metabolism and diabetes, and recent advances in cancer research. Mr. Robert C. Watson, United States commissioner of patents, will speak on "Patents and Pharmaceuticals" at a luncheon of the division of medicinal chemistry on Wednesday.

Essay Contest for Welfare Workers.—The recently established Foundation for Voluntary Welfare (214 Front St., San Francisco), a nonprofit corporation, announces its National Awards Com-

GOVERNMENT SERVICES

AIR FORCE

New Air Force Hospital.—The newest of the United States Air Force's medical treatment facilities, a 50-bed hospital, was dedicated at Kindley Air Force Base in Bermuda on June 21, 1956. This is a permanently constructed two-story concrete structure, incorporating many of the newest developments in hospital planning. The principal guest speakers at the dedication ceremony were Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical); Lieut. Gen. Sir John Woodall, governor of Bermuda; and Major Gen. William H. Powell, deputy surgeon general of the U.S. Air Force. Also attending the ceremony were Rear Adm. B. E. Bradley, deputy surgeon general of the U.S. Navy; Dr. Wilburt C. Davison, dean of the Duke University Medical School; Col George W. Peterson, commander of Kindley Air Force Base, Major Ignatius Stein, commander of the hospital; many local dignitaries, and members of the Air Force surgeon general's staff and the Military Air Transport Service surgeon's staff.

Personal.—Brig. Gen. Harold H. Twitchell will be the key speaker at the semiannual meeting of the Fairfield County Medical Association of Connecticut on Oct 3 The subject will be "The Utilization of Reserve Medical Personnel During Total War."

ARMY

Curator of Museum Retires.—Col Hugh R Gilmore Jr, M C., curator of the Medical Museum of the Armed Forces Institute of Pathology, has retired from the Army. After several years in private practice, Colonel Gilmore joined the Army Medical Corps in 1926. In World War II, he was preventive medicine officer for various command headquarters in the North African and Italian Theater of Operations. He has been awarded the on of Merit, the Bronze Star, the European Theater of Op- ons campaign ribbon with four stars, the Italian Order of Crown, and the Italian Cross of Military Valor He is a mate of the American Board of Pathology.

New Commandant at Army Institute of Research.—Col Richard P Mason, M. C., U. S. Army, has been named commandant of Walter Reed Army Institute of Research in Washington, D C. He succeeds Brig. Gen John R. Wood, M C, who has retired from the Army to accept the position of vice-president and director of research of a New York pharmaceutical company.

NAVY

Admiral Pugh Retired.—Rear Adm Lamont Pugh retired on Aug. 1. In June, 1917, shortly after the United States entered World War I, he enlisted in the U S. Marine Corps, serving as a private and later as a corporal At the war's end he was in the Officers' Training School, Quantico, Va. He returned to civil life in 1919 and won the Herndon Scholarship in the department of medicine at the University of Virginia In compliance with a requirement of the scholarship, he entered the Medical Corps of the Navy on receiving his degree of doctor of medicine in 1923 In December, 1946, he was made deputy and assistant chief of the Bureau of Medicine and Surgery, Navy Department, with the rank of rear admiral, and in December, 1950, he was named surgeon general of the Navy and chief of the Bureau of Medicine and Surgery, an office that he held for four years. After the expiration of his four-year tenure he became the inspector general for the medical department of the Navy and remained in that office until ordered to command the National Naval Medical Center, Bethesda, Md., in September 1955.

Research Unit Established in Formosa.—Ceremonies inaugurating the establishment of the U. S. Naval Medical Research Unit no. 2, at Taipei, Taiwan (Formosa), were held on June 22 and included addresses by Carl L. Rankin, U. S. ambassador to China, and Chien Szu Leing, president of the National Taiwan University. The commanding officer of the unit is Capt. Robert A. Phillips, M. C., U. S. Navy.

Personal.—Capt. Frank P. Gilmore, M. C, U. S. Navy, has been raised to the grade of rear admiral Since April, 1955, he has been commanding officer of the U. S. Naval Hospital, Chelsea, Mass

PUBLIC HEALTH SERVICE

Examinations for Medical Officers.—A competitive examination for appointment of medical officers to the regular corps of the U. S. Public Health Service will be held in various places throughout the country on Nov. 27, 28, 29, and 30, 1956 Appointments provide opportunities for careers in clinical medicine, research, and public health. They will be made in the ranks of assistant and senior assistant, equivalent to Navy ranks of lieutenant (j g) and lieutenant. Entrance pay for both grades for persons with dependents is $7,498 per year (Assistant grade entrants are assigned the temporary grade of senior assistant.) Qualified officers are promoted at regular intervals Benefits other than promotions include periodic pay increases, 30 days of annual leave, sick leave, medical care, disability retirement pay, regular retirement pay (three-fourths of annual basic pay at time of retirement), and other priviledges. Active duty as a Public Health Service officer fulfills the obligation of Selective Service Requirements for both ranks are U S citizenship, age of at least 21 years, and graduation from a recognized school of medicine For the rank of assistant surgeon, at least seven years of collegiate and professional training and appropriate experience are needed For senior assistant surgeon, an additional three years, or a total of at least 10 years of collegiate and professional training and appropriate experience, are required. Entrance examinations will include an interview, physical examination, and comprehensive objective examinations in the professional field. Application forms may be obtained from the Chief, Division of Personnel, Public Health Service. Department of Health, Education, and Welfare, Washington 25, D.C. Completed application forms must be received in the division of personnel no later than Oct. 13, 1956

National Library of Medicine.—President Eisenhower has signed a bill establishing a National Library of Medicine in the Public Health Service and transferring to it all of the functions of the Armed Forces Medical Library. In carrying out the provisions of the National Library of Medicine Act. the surgeon general will be guided by the advice and recommendations of a Board of Regents. The board will consist of seven ex officio members—the surgeons general of the Public Health Service, Army, Navy, and Air Force, the chief medical director of the department of medicine and surgery of the Veterans Administration, the assistant director for biological and medical sciences of the National Science Foundation, the Librarian of Congress, and 10 additional members appointed by the President with the consent of the Senate. The appointive members will serve four years The exact site of the library has not been determined but will be selected by the surgeon general after consultation with the Board of Regents

Training Grants.—The Public Health Service's National Institute of Neurological Diseases and Blindness will make funds available to medical schools to strengthen existing clinical programs in advanced training in the neurological diseases in order to stimulate the interest of more young physicians and scientists in careers as teachers and investigators Training grants also are available to basic science departments to expand postdoctoral training programs in the neurological sciences. Further information, together with application forms, may be obtained from the Chief, Extramural Programs, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Md.

New Surgeon General.—Dr. Leroy E. Burney was sworn in on Aug. 8 for a four-year term as surgeon general of the Public Health Service, succeeding Dr. Leonard Scheele, who resigned Aug. 1. Dr. Burney is the eighth person to hold the office of surgeon general. His entire professional career has been spent in public health activities. At the time of his appointment as surgeon general, he was assistant surgeon general and deputy chief of the Bureau of State Services in the Public Health Service

DEATHS

Zahn, Daniel W. ⊕ Seattle; born in New York May 2, 1911; University of Glasgow Medical Faculty, Glasgow, Scotland, 1938; clinical assistant professor of medicine at University of Washington School of Medicine; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Trudeau Society; president of the Western Tuberculosis Conference and the Pacific Northwest Trudeau Society; veteran of World War II; interned at the Bellevue Hospital in New York City, where he served a residency; medical director of Firland Sanatorium; died in the Swedish Hospital May 6, aged 45, of cerebral thrombosis.

Noble, Willis Clarke, Jr., New York City; born in Peking, China, May 19, 1885; University and Bellevue Hospital Medical College, New York City, 1925; served on the faculty of his alma mater; formerly bacteriologist in charge of the division of laboratories and research of the New York State Department of Health, and assistant director of the research laboratory of the New York City Health Department; for many years supervisor of the biochemical laboratory of the Metropolitan Life Insurance Company; member of the Society of Bacteriologists, Association of Immunologists, and the Harvey Society; died in St. Clare's Hospital May 24, aged 71.

Mitchell, Myron Skupnik, Brooklyn, N. Y.; born in 1890; Universität Bern Medizinische Fakultät, Bern, Switzerland, 1916; member of the Medical Society of the State of New York and the American Academy of Dermatology and Syphilology, American Public Health Association, and the Brooklyn Academy of Medicine; medical director of the department of welfare; admitting physician at Kings County and Coney Island hospitals; a lecturer on communicable diseases for the department of health, of which he was a physician, and a physician at the Social Hygiene Clinic; died May 12, aged 66, of coronary disease.

Almes, Emanuel M. ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1937; interned at the Woman's Homeopathic Hospital; veteran of World War II; member of the Industrial Medical Association; associated with the Olney Hospital and Lawncrest Diagnostic Clinic; died May 24, aged 45, of carcinoma of the lungs.

Barnes, Boisey Otha, Wilson, N. C.; Meharry Medical College, Nashville, Tenn., 1932; interned at St. Agnes Hospital in Raleigh; died in the Mercy Hospital April 24, aged 53, of carcinoma of the lung.

Barnum, Francis Goodell ⊕ Brookline, Mass.; Harvard Medical School, Boston, 1907; Boston school committee physician for 40 years and a past-president of the Society of Examining Physicians; veteran of World War I; died May 30, aged 78.

Bell, George Erick ⊕ Wilson, N. C.; Jefferson Medical College of Philadelphia, 1921; fellow of the American College of Physicians; veteran of World War I; past-president of the Wilson County Medical Society; member of the county board of health; president of the Woodard-Herring Hospital; member of the board of trustees of the Eastern North Carolina Sanatorium and the Wake Forest (N. C.) Sanatorium; a director in the National Bank; died in Morehead City May 26, aged 63, of a heart attack.

Blakeman, Lloyd James ⊕ Antioch, Ill.; Chicago College of Medicine and Surgery, 1917; veteran of World War I; on the staffs of the Chicago Memorial and Columbus hospitals in Chicago; died in the Michael Reese Hospital, Chicago, July 7, aged 64, of carcinoma of the bladder.

Blaney, Lilton D., Richmond, Va.; Leonard Medical School, Raleigh, 1911; died March 1, aged 81, of pernicious anemia.

Bigelow, Alice Houghton, Boston; Tufts College Medical School, Boston, 1905; member of the Massachusetts Medical Society; served on the staff of the New England Hospital, where she died May 10, aged 81, of uremia, pyelonephritis, and pappillary carcinoma of the bladder.

Brace, William Morgan ⊕ Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1923; past-president of the Washtenaw County Medical Society; fellow of the American College of Physicians; veteran of World War I; assistant professor, University of Michigan School of Public Health; physician, health service, University of Michigan; died in the University of Michigan Hospital April 23, aged 61, of fibrosis of the lungs and cor pulmonale.

Bullock, Duncan Douglas ⊕ Rowland, N. C.; Medical College of South Carolina, Charleston, 1920; served during World War II; died in the Charlotte (N. C.) Memorial Hospital April 29, aged 62, of acute myocardial infarction.

Burley, Benjamin Thomas ⊕ Cohasset, Mass.; Harvard Medical School, Boston, 1901; specialist certified by the American Board of Psychiatry and Neurology; member of the Association for Research in Nervous and Mental Diseases; formerly practiced in Worcester, where he was consulting neurologist at the Belmont, Fairlawn, and Worcester City hospitals; consulting neurologist at the Harrington Memorial Hospital in Southbridge, Holden (Mass.) District Hospital, and Webster (Mass.) District Hospital; died in Worcester May 16, aged 81, of arteriosclerosis.

Carter, Charles W., Tacoma, Wash.; University of Oregon Medical School, Portland, 1916; died May 13, aged 74, of cardiac decompensation, and generalized arteriosclerosis.

Cifaldi, Alexis, Staten Island, N. Y.; Long Island College Hospital, Brooklyn, 1904; served on the staff of the Parkway Hospital in New York City, where he died May 29, aged 76, of cerebral hemorrhage.

Coburn, Clay Ephraim ⊕ Kansas City, Kan.; Hahnemann Medical College of the Kansas City University, Kansas City, Mo., 1899; Kansas City (Mo.) Hahnemann Medical College, 1906; for 23 years a member of the Kansas State Board of Health, serving two terms as its president; for many years a member of the Kansas Tuberculosis and Health Association, which he served as president; veteran of World War I; died June 8, aged 83, of coronary occlusion.

Clanton, Albert Williamson ⊕ Millport, Ala.; Mississippi Medical College, Meridian, 1907; died in the Lamar County General Hospital in Vernon May 21, aged 76.

Cope, Roscoe Ziegler, Hatfield, Pa.; Jefferson Medical College of Philadelphia, 1913; on the staff of the Grand View Hospital in Sellersville; died June 7, aged 68, of congenital heart disease.

Courtney, Robert Hull ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1919; professor of clinical ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, and the Association for Research in Ophthalmology; on the staff of the Hospital Division of the Medical College of Virginia, where he died May 23, aged 63, of acute circulatory collapse following fracture of the hip incurred in a fall.

Cox, Jane McMahan ⊕ Lewiston, Idaho; Temple University School of Medicine, Philadelphia, 1945; interned at the Philadelphia General Hospital, where she served a residency; on the staff of St. Joseph's Hospital; died June 1, aged 48, of coronary disease.

Crone, Virgil Duane ⊕ Beloit, Wis.; St. Louis College of Physicians and Surgeons, 1906; member and past-president of the staff at the Beloit Municipal Hospital; died June 3, aged 83, of bleeding duodenal ulcer.

Custis, Marvin A. ⊕ Washington, D. C.; Hahnemann Medical College and Hospital of Philadelphia, 1890; president from 1935 to 1947, when he became chairman of the board of the Perpetual

---

⊕ Indicates Member of the American Medical Association.

Building Association, which he had joined in 1914 as director and trustee, and later became treasurer; formerly vice-president of the Fidelity Investment Company, serving as president from 1930 to 1945; died in Gloucester, Mass., June 3, aged 89.

Davis, John Allison, Brooklyn, N. Y.; Long Island College of Medicine, Brooklyn, 1938; interned at the Wyckoff Heights Hospital; served a residency at the Carson C. Peck Memorial Hospital and St. John's Episcopal Hospital, where he died June 11, aged 48, of bronchogenic carcinoma with metastases to the brain.

Davis, Robert Allen ✠ Newport News, Va.; University of Virginia Department of Medicine, Charlottesville, 1909; member of the Radiological Society of North America; past-president of the Seaboard Medical Association and the Warwick County Medical Society; veteran of World War I; on the staffs of the Dixie Hospital in Hampton and the Riverside and Mary Immaculate hospitals; died April 29, aged 69, of coronary thrombosis.

Deer, Blan Forsythe ✠ Lake Worth, Fla., University of Louisville (Ky.) Medical Department, 1914; member of the Indiana State Medical Association; for many years practiced in Indianapolis; died May 8, aged 68, of paralysis agitans.

Dinnison, James Andrew, Ashtabula, Ohio, Jefferson Medical College of Philadelphia, 1912; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; died in the Ashtabula General Hospital April 14, aged 78, of coronary occlusion.

Doan, Edward B., Miamisburg, Ohio; Cleveland Homeopathic Medical College, 1899; for many years served on the county board of health, an honorary member of the staff of the Miami Valley Hospital in Dayton; charter member of the Miamisburg Rotary Club, formerly director of the First National Bank; died May 17, aged 87, of cancer.

Duffy, Vincent Paul ✠ Grafton, W. Va., University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1917, member of the Connecticut State Medical Society; died May 3, aged 72, of cerebral hemorrhage.

Dunham, Harry Bartlett, Glendora, Calif.; Dartmouth Medical School, Hanover, N. H., 1912; died in San Bernardino June 3, aged 70.

Ewing, Edward W., Spickard, Mo.; Rush Medical College, Chicago, 1899; died May 29, aged 80.

Feitler, Alfred George, Elmhurst, N. Y.; Medizinische Fakultät der Universität, Vienna, Austria, 1905; member of the Medical Society of the State of New York; died June 6, aged 75, of carcinoma of the liver.

Ferraro, Francis Peter ✠ Pittsburgh; University of Pittsburgh School of Medicine, 1937; fellow of the International College of Surgeons and the American College of Surgeons; on the staff of St. Francis Hospital, where he died June 2, aged 43, of coronary disease.

Fink, Frank Carl, Pleasant Plains, Ill.; Washington University School of Medicine, St. Louis, 1904; died May 29, aged 75, of heart disease.

Fishman, Samuel ✠ Washington, D. C.; University of Buffalo School of Medicine, 1933; veteran of World War II; on the staffs of the Doctors and Garfield Memorial hospitals; died in Silver Spring, Md., May 30, aged 47, of coronary occlusion.

Frohwein, Ida Louise E. Haverstick, Elizabeth, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; an associate member of the American Medical Association; for many years chief physician in charge of the city's child hygiene department; died in Cranford May 27, aged 77, of cerebral thrombosis.

Garrett, Nevil McClure, Brodhead, Ky.; Louisville (Ky.) Medical College, 1897; past-president of the Rockcastle County Medical Society; member of the Kentucky State Medical Association; died March 2, aged 85, of heart disease.

Gelhaus, William John ✠ Monroe, Mich.; Ohio State University College of Medicine, Columbus, 1923; died May 30, aged 59, of coronary thrombosis.

George, William Adolph ✠ Selby, S. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; served on the staff of the Mobridge (S. D.) Hospital; died May 22, aged 82, of an injury incurred in a fall from his bed.

Gibans, Myer Jacob ✠ Akron, Ohio; Western Pennsylvania Medical College, Pittsburgh, 1905; member of the American Academy of Dermatology and Syphilology; formerly on the consulting staff of the Barberton (Ohio) Citizens Hospital and the Akron City Hospital; died in the Akron General Hospital May 18, aged 73, of gingival carcinoma with metastases.

Goldcamp, Edward C., Youngstown, Ohio; Jefferson Medical College, Philadelphia, 1914; specialist certified by the American Board of Otolaryngology; formerly vice-president of the Mahoning County Medical Society; served in France during World War I; on the staff of the Youngstown Hospital; died June 2, aged 65, of carcinoma of the stomach and colon.

Grady, Grover Quinton ✠ Highland Park, Ill.; Rush Medical College, Chicago, 1919; fellow of the American College of Surgeons; past-president of the Lake County Medical Society; on the staff of the Lake Forest (Ill.) Hospital and the Highland Park Hospital; died in Eagle River, Wis., June 23, aged 63.

Hearne, Charles Alfred ✠ Corpus Christi, Texas; Denver and Gross College of Medicine, Denver, 1904; a director and past-president of the Nueces County Tuberculosis Association; formerly a medical officer for the health department of the Panama Canal Zone; died May 25, aged 80, of heart disease and diabetes mellitus.

Hermann, George Fred, Cincinnati; Eclectic Medical College, Cincinnati, 1916; veteran of World War I; died May 23, aged 62, of coronary thrombosis.

Herrman, Harold C. ✠ New York City; University and Bellevue Hospital Medical College, New York City, 1920; on the staff of the Mount Sinai Hospital; died April 13, aged 59, of muscular dystrophy.

Hill, John Augustus, Allenhurst, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York City, 1894; died May 27, aged 84.

Hill, Roland ✠ St. Louis; Trinity Medical College, Toronto, Canada, 1890; member of the founders group of the American Board of Surgery; member of the Western Surgical Association, of which he was past-president; fellow of the American College of Surgeons; past-president of the St. Louis Surgical Society and the St. Louis Medical Society; consultant, Evangelical Deaconess Hospital and St. Luke's Hospital; died May 27, aged 87.

Hodgkin, Williard Edward ✠ Spokane, Wash.; College of Medical Evangelists, Loma Linda and Los Angeles, 1934; interned at the Portland (Ore.) Sanitarium and Hospital; died in St. Luke's Hospital June 4, aged 47, of coronary disease.

Hodsdon, Benjamin Franklin, Jacksonville, Fla.; Medical School of Maine, Portland, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; an associate member of the American Medical Association; member of the American Academy of Ophthalmology and Otolaryngology; past-president of the Dade County Medical Society; served on the staff of the Jackson Memorial Hospital in Miami; died May 29, aged 90, of coronary occlusion.

Horne, Frederick, Carriere, Miss.; University of Tennessee Medical Department, Nashville, Tenn., 1907; died March 2, aged 79, of arteriosclerosis.

Husted, Franklin Pitkin ✠ Bay City, Mich.; University of Michigan Medical School, Ann Arbor, 1929; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; member of the Industrial Medical Association; president-elect of the Bay County Medical Society; served five years in African and European campaigns in World War II; on the staffs of the Bay City and Mercy hospitals; died in St. Francis Hospital, Miami Beach, Fla., May 17, aged 51, of coronary thrombosis.

Jackson, Lindsay A., Fort Myers, Fla.; Cleveland Homeopathic Medical College, 1898; died May 21, aged 80.

Jackson, Nathaniel E., Laurinburg, N. C.; Leonard Medical School, Raleigh, 1907; died May 31, aged 75, of adenocarcinoma of the stomach.

Janci, Julius Sebastian ⊕ Owosso, Mich.; Wayne University College of Medicine, Detroit, 1935; died May 31, aged 51.

Jellison, Robert Thompson ⊕ Salt Lake City; John A. Creighton Medical College, Omaha, 1914; veteran of World War I; served on the medical staff of Kennecott Copper Corporation, Western Division, from 1915 until his retirement; for many years on the staff of St. Mark's Hospital; died May 17, aged 63, of coronary occlusion.

Johnson, James White, Union Level, Va.; Baltimore Medical College, 1907; died May 31, aged 76.

Jones, Edgar A. P. ⊕ Cambridge, Md.; Baltimore Medical College, 1893; formerly deputy state health officer in Dorchester County; served as a member of the state board of health, and in the Maryland legislature; on the staff of the Cambridge-Maryland Hospital; died May 27, aged 83, of arteriosclerosis.

Jones, Edward Hallaran, San Angelo, Texas; Jefferson Medical College of Philadelphia, 1912; died May 28, aged 71, of coronary thrombosis.

Jones, Ulysses Simpson Grant, Norfolk, Va.; Leonard Medical School, Raleigh, N. C., 1913; died in the Norfolk Community Hospital April 6, aged 70, of hypertensive cardiorenal syndrome.

Keisling, Frederick Carter ⊕ Jacksonville, Fla.; St. Louis College of Physicians and Surgeons, 1906; on the staff of the St. Luke's Hospital; died May 18, aged 72, of hypertension.

Keller, Morris David ⊕ New York City; Columbia University College of Physicians and Surgeons, New York City, 1907; died June 9, aged 72, of acute coronary artery thrombosis.

Keyes, Paul Hunt, Lakeland, Fla.; Medical College of Indiana, Indianapolis, 1901; retired in 1953 as a member of the Employees Compensation Board, Department of Labor at Washington, D. C.; died May 18, aged 75, of arteriosclerotic heart disease.

Kraft, Alfred Hartman, Aspinwall, Pa.; University of Pittsburgh School of Medicine, 1913; died March 23, aged 69, of coronary occlusion and arteriosclerosis.

Lininger, Carl Blaine ⊕ Erie, Pa.; Cleveland Homeopathic Medical College, 1911; veteran of World War I; died in the Hamot Hospital May 23, aged 71, of myocardial infarction and arteriosclerosis.

McCracken, Jacob O. ⊕ Montgomery, Ind.; Medical College of Indiana, Indianapolis, 1905; on the staff of the Daviess County Hospital, Washington, where he died May 12, aged 81, of carcinoma of the nasopharynx.

Massover, Alfred Jacob ⊕ Chicago; Rush Medical College, Chicago, 1940; interned at Michael Reese Hospital in Chicago; formerly a resident at the Edward J. Meyer Memorial Hospital in Buffalo; veteran of World War II; on the staffs of the Grant, Alexian Brothers, and Walther Memorial hospitals in Chicago; died June 12, aged 44, of coronary thrombosis.

Mehl, Rudolph Alfred ⊕ Evansville, Ind.; Emory University School of Medicine, Atlanta, 1931; on the staffs of the Protestant Deaconess and St. Mary's hospitals; died May 21, aged 50, of coronary occlusion.

Messick, William Rodney, Rehoboth Beach, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1896; retired druggist; served as mayor; on the staff of the Beebe Hospital in Lewes; died in the Delaware Hospital, Wilmington, June 16, aged 83, of cerebral hemorrhage.

Ninde, Frederick Ward, New York City; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912; an associate member of the American Medical Association; died in the Harlem Hospital May 21, aged 78, of pneumonia.

Owens, Raymond Leroy ⊕ Livermore, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1925; member of the American Academy of General Practice; past-president of the San Joaquin County Medical Society; veteran of World War I; on the staff of St. Paul's Hospital; died June 4, aged 60, of arteriosclerotic cardiovascular disease.

Robertson, Stanley Barnes ⊕ Detroit; Detroit College of Medicine and Surgery, 1918; on the staff of the Detroit Memorial Hospital; member of the American Academy of General Practice; died June 8, aged 64.

Thomson, George Geddes, Rockaway, N. J.; Long Island College Hospital, Brooklyn, N. Y., 1896; died in St. Clare's Hospital, Denville, June 30, aged 89, of postoperative gas bacillus infection.

Tingdale, August C. ⊕ Minneapolis; Minneapolis College of Physicians and Surgeons, 1902; served as superintendent of the Minneapolis workhouse; on the staff of the Lutheran Deaconess Home and Hospital, where he died June 5, aged 83, of cerebral hemorrhage.

Tomlinson, Hubert George, Duffield, Va.; Medical College of Virginia, Richmond, 1952; interned at the Lewis-Gale Hospital in Roanoke; died in Johnston Memorial Hospital, Abingdon, April 30, aged 32, of astrocytoma.

Tower, Samuel, Brooklyn, N. Y.; General Medical College, Chicago, 1923; died in the Coney Island Hospital June 29, aged 63, of myocardial infarction.

Van Buren, Howard Gunther ⊕ Hines, Ill.; University of Illinois College of Medicine, Chicago, 1950; interned at the West Suburban Hospital in Oak Park; associated with the Veterans Administration Hospital, where he served a residency; died in the Veterans Administration Hospital in Biloxi, Miss., April 6, aged 37.

Vaughan, Edward W. ⊕ Port Arthur, Texas; Chicago College of Medicine and Surgery, 1910; died in Lampasas July 3, aged 76.

Vaughan, Richard Wingfield ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1916; on the staffs of the Grace and Richmond Eye, Ear, Nose and Throat hospitals, and the Retreat for the Sick; died in St. Elizabeth Hospital June 30, aged 63, of a heart attack.

Vesely, F. Vaclav ⊕ Lewellen, Neb.; University of Nebraska College of Medicine, Omaha, 1940; member of the American Academy of General Practice; instantly killed in an automobile accident June 8, aged 41.

Waldinger, Emanuel, Old Saybrook, Conn.; New York Homeopathic Medical College and Hospital, New York City, 1921; fellow of the American Geriatrics Society and the American Association for the Advancement of Science; died June 30, aged 58.

Warren, Thomas Francis ⊕ Fall River, Mass.; Baltimore Medical College, 1905; veteran of the Spanish-American War; died July 5, aged 77.

Wheeler, James Alexander Van Vleck ⊕ Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1904; vice-president of the board of directors of Fairmount Hospital; died June 29, aged 75, of carcinoma of the colon.

Wichman, August Gustav, St. Louis; Washington University School of Medicine, St. Louis, 1902; on the staffs of St. Mary's and Evangelical Deaconess hospitals; died in St. Mary's Hospital July 5, aged 76, of carcinoma of the pharynx.

Wilcox, Earl Victor ⊕ Flanagan, Ill.; Chicago College of Medicine and Surgery, 1914; died in St. James Hospital, Pontiac, June 6, aged 80.

Wilkins, John Crawford, Cathedral City, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; veteran of the Spanish-American War; fellow of the International College of Surgeons and the American College of Surgeons; died June 6, aged 81.

Wilkins, John Peter, Mound, Minn.; the Hahnemann Medical College and Hospital, Chicago, 1905; veteran of the Spanish-American War; member of the school board; local health officer; surgeon for the Great Northern Railway Company; died in the Veterans Administration Hospital, Minneapolis, June 4, aged 81, of leukemia.

Wojcicki, Henry Telesfor ⊕ Fairhaven, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1933; served on the staff of St. Luke's Hospital in New Bedford; died June 6, aged 53.

FOREIGN LETTERS

INDIA

Hepatic Lipids After Partial Hepatectomy.—Chatterji and Chatterjee (*Bulletin of the Calcutta School of Tropical Medicine*, April, 1956) stated that the normal liver contains about 4% total lipids as phospholipid and neutral fat in the proportion of 3:1. After partial hepatectomy there is extensive deposition of phospholipids, cholesterol, and neutral fat in the remaining portion of the liver. The authors investigated the effect of adrenalectomy on the development of fatty liver after 48 hours of partial hepatectomy. Six albino rats were subjected to bilateral adrenalectomy under anesthesia with ether. They were then put on their usual diet. Seven days later 75% of the liver was removed under anesthesia with ether from the adrenalectomized rats as well as from six normal rats. After another 48 hours all of them were killed and total lipid content of the liver at operation and at autopsy determined. The deposition of fat in the remnant of liver in adrenalectomized rats was less than that in normal rats.

Histoplasmosis.—Patients who show signs of lung infiltration but have a negative tuberculin test are frequently seen. Sen and Ghosh have studied the incidence of histoplasmosis in 4,855 such patients (*Indian Journal of Tuberculosis*, June, 1956). In addition to history and clinical examination, fluoroscopy was done and skiagrams were taken if indicated. All patients were tested with tuberculin. Simultaneously and on the same forearm, 0.1 cc. of a 1% solution of histoplasmin was injected intracutaneously. The time of reading and standard of reaction were the same as those of the tuberculin test. Sputum samples of patients who had a positive histoplasmin test were examined for Histoplasma capsulatum. Biopsy specimens of enlarged lymph nodes and skin lesions were examined for H. capsulatum in some cases. In a few cases sternal marrow aspirations were made for the same purpose. Sputum from all patients was examined for tubercle bacilli. Twenty-six of the patients had a positive histoplasmin test, 3,881 had a positive tuberculin test, 33 had a positive reaction to both tests, and 915 had a negative reaction to both. Of the 26 who reacted to histoplasmin, 14 had pulmonary calcification, 3 had pulmonary infiltration, 8 had no definite lung infiltration or calcification, and one had a large mediastinal shadow on the right side. No H. capsulatum could be isolated from any of these patients.

Imidazoline for Hemiplegia.—A. L. Annamalal reported the results of treatment of 50 hemiplegic patients with 2-benzylimidazoline hydrochloride in the *Journal of the Indian Medical Association* (July, 1956). The drug is a synthetic sympathicolytic compound with a histamine-like component and a component that is present in epinephrine. It appears to exert its action by reversing the action of adrenergic drugs and has been used extensively in the treatment of peripheral vascular disorders. The rationale of this therapy in hemiplegia is the same as that of stellate ganglion block. Intravenous injections of 10 mg. of the drug were given twice daily till there was appreciable improvement, which took about three days. Later it was given only once a day. The patient could walk after the fifth or sixth injection. Injections were continued until a total of 300 mg. had been given. This was followed by oral medication. The response was good in patients with inflammatory conditions or syphilis and in thrombosis occurring in young persons with hypertension. In patients with arteriosclerosis the response was slow but gratifying. Some of the toxic reactions and side-effects noticed were excessive salivation, profuse sweating on the paralyzed side, transient edema on the affected side, gastric irritation, and hiccup. Hiccup was the only reason for discontinuance of the drug.

Liver Biopsy in Intestinal Amebiasis.—Chaudhari and Saha (*Bulletin of the Calcutta School of Tropical Medicine*, April, 1956) stated that the liver is the commonest extracolonic site of amebic infection, but the factors that cause hepatic lesions in one patient and not in another are not known. There is little correlation between the degree of clinical activity of intestinal amebiasis and the likelihood of invasion of the liver. Nutritional disturbances leading to liver damage may predispose to amebic invasion. The authors studied liver biopsy specimens from 15 patients with active amebic dysentery. The duration of the disease ranged from 15 days to eight months. On admission all but one had diarrhea with mucus and blood in the stools. Fourteen patients had had one or more attacks of dysentery in the past. Vegetative forms of Endameba histolytica were found in all patients. The liver was enlarged in nine patients, none of whom had a past history of malaria or infectious hepatitis. No specific antiamebic treatment was given in the hospital before the liver biopsy was performed. The commonest change was round cell infiltration of the periportal areas. A slight increase of portal connective tissue and patchy fibrosis were present in about half the patients. Parenchymatous degeneration of varying degree was present in eight. A few areas of focal necrosis with round cell infiltration were found in two. Four showed slight fatty changes. Brown granular pigment that did not give a positive reaction for iron was frequently present. In seven patients there were varying degrees of hyperactivity of Kupffer's cells. Repeated examinations failed to reveal amebas in any of the specimens.

Portal Circulation.—The portal venous system can be outlined by injecting a radiopaque dye through the spleen. Berry and coworkers used this technique to investigate the state of portal circulation in 18 patients (*Journal of the Association of Physicians in India*, April, 1956). A 50% iodopyracet injection was given, and liver function tests, radiological examination for esophageal varices, liver biopsy, esophagoscopy, examination of ascitic fluid when present, and measurement of intrasplenic pressure were performed. No serious untoward effects were noticed after the splenic venography; two patients vomited, and a third complained of slight pain in the left side of the chest. Splenic venography is the easiest means of diagnosis of the presence of portal hypertension and its extent and is useful in studying patients with ascites of unknown origin. It is also of use in the investigation of gastrointestinal bleeding when the cause is not obvious. It can be a useful aid in following the patient's progress after ligation of the hepatic or splenic artery for portal hypertension. It may be used prior to postcaval shunt to demonstrate the patency and size of the veins to be used for the anastomosis. It is a safe method for differentiating portal hypertension due to extrahepatic or intrahepatic obstruction. It has been used in cases of splenomegaly of unknown origin for diagnosis and for diagnosis of abdominal tumors. It may be used in diagnosing congenital anomalies of the portal venous system and metastases in the liver. Involvement of splenic or portal veins in carcinoma of the head of the pancreas may be demonstrated preoperatively by its use. It may be of value in the prognosis of portal cirrhosis. Demonstration of a normal intrahepatic pattern of the portal tree should help in the differential diagnosis of hepatic enlargements of unknown origin. The method is safe, useful, and reliable.

Changes in Renal Glomeruli in Eclampsia.—G. P. Sharma in *Journal of the Indian Medical Association* for June 16, 1956, reported a study of the kidneys of two patients who died of eclampsia. The basement membrane of the glomerular capillary walls was not thickened. Thickening of the capillary wall in this disease is due to swelling of cytoplasmic extensions of the epithelial cells and of the endothelial cells along both surfaces of the basement membrane. Ischemia is due to occlusion of the lumens of the capillaries by excessive swelling of the endothelial cells. The development in the capillary lumens of fibrils similar to those found in diffuse glomerulonephritis has been described

---

The items in these letters are contributed by regular correspondents in the various countries.

Renal failure in eclampsia appears to be due to swelling of both the endothelial and epithelial cells of the glomerular capillary loops and subsequent glomerular ischemia and diminished filtration. Proteinuria in eclampsia appears to be the result of hypoxic or anoxic damage of the capillary walls.

PERU

Treatment of Fleshy Moles.—Dr. Bazul favors active treatment of fleshy moles, as it averts hemorrhage and septicemia. He reports a series of 14 patients treated by means of curettage and pituitary extract (*Ginecologia y obstetricia*, volume 2, number 1, 1956). As soon as the diagnosis is made, therapeutic abortion should be attempted. If the metrorrhagia is copious, a suitable dilatation with Heger's dilators must be attained prior to curettage. If abortion has already started, it must be allowed to proceed unimpeded, and, when completed, 24 hours must elapse before performing curettage, though oxytocic drugs may be given in the meantime to strengthen the uterine walls. A similar approach should be adopted for incomplete abortion with mild hemorrhage, but, if the miscarriage is accompanied by severe hemorrhage, it is preferable to stimulate the uterine muscular contractions with posterior pituitary injection given parenterally as well as manual expression, since both these procedures favor the expulsion of the moles, reduce the capacity of the uterus, and permit the ultimate performance of curettage. Curets and placental forceps must be used with the utmost caution due to the danger of perforating the uterus. In the present series, toxemia of pregnancy was a predominant feature in five patients. In the remainder the chief symptom was profuse hemorrhage with resultant severe anemia, which in one patient was fatal. In a follow-up period of at least two years, no choriocarcinoma developed.

Endometrial Hyperplasia.—In the same issue of *Ginecologia y obstetricia*, Dr. Gordillo Delboy states that it is not possible to show a causative relationship between the different grades of endometrial hyperplasia and uterine adenocarcinoma. He reviewed 1,087 endometrial smears and 642 clinical records and concluded that no definite relationship existed between the grade of hyperplasia and the age of the patient. Although most patients were between the ages of 35 and 50, a few were just starting to menstruate and a slightly larger group had passed the menopause. The less severe grades of hyperplasia were by far the commonest. Women with endometrial changes usually have atypical menses and ill-defined menstrual cycles, especially if the hyperplasia is of advanced grade. In the author's series only 5.76% of the women had normal menses, and in none was the duration of the menses shorter than 10 days. There was no significant relationship between infertility, abortion, and dysmenorrhea and hyperplasia of any grade. In 150 women the endometrial hyperplasia followed infertility, and in 98 both were of the same duration. Dysmenorrhea was complained of by 44.28% of the women.

In this series 166 women had suffered at some time from varying gynecologic disorders, 80 from general diseases, 43 from endocrinopathies, and 8 from psychoneurotic disturbances, but there was no relationship between any of these conditions and the grades of hyperplasia. Histologically the pattern shown by the nuclear chromatin is the most characteristic feature, regardless of the grade of hyperplasia, and reflects marked estrogenic stimulations. In 17% of the patients a secretory-granular endometrial picture was observed along with the abnormal proliferative findings typical of the hyperplasia. This was probably produced by the luteinizing factor released by the hypophysis due to an excess of estrogens arresting the production of follicle-stimulating hormone.

Latent Genital Tuberculosis.—Peru is passing through a period of mass tuberculization, mainly in its cities. The mortality rate for the whole country is about 3%. Campaigns aimed at increasing the early diagnosis of the disease are being initiated. Dr. Ascenzo Cabello, in the same issue of *Ginecologia y obstetricia*, states that the diagnosis of genital tuberculosis in women has been neglected, most of the cases being missed. The author found 9 patients with latent genital tuberculosis in a group of 110 private patients who complained of sterility. Partial or total tubal obstruction with neither previous history of gonorrhea nor inflammatory antecedents was found in eight of the nine persons with detected cases. Hypermenorrhea was noticed by four and either amenorrhea or oligomenorrhea by three of the patients. Tuberculosis in organs other than the genitals was found in three and genital hypoplasia in two. Biopsy of the endometrium is the best procedure for the diagnosis of the condition. In all the patients medical management and psychotherapy were started soon after the diagnosis was made, and 37 also underwent operation, but none were able to become pregnant. Although histological findings in the endometrium returned to normal in four of the five patients who were followed, they remained under close medical supervision, as a negative biopsy does not rule out the existence of active lesions.

New Naval Hospital.—A new naval hospital, opened in July, is located between Lima and Callao and was built along lines similar to those of the American Naval Hospital in Beaufort, Calif. Its anchor-shaped building has a five-story main body with two three-story wings and a total capacity of 302 beds, but, when future expansions are completed, it will accommodate 722 patients. Rear admirals Milton E. Miles, representing the Department of Naval Operations, Charles W. Wilkins, director of Pan-American affairs in the same department, and Bartholomew W. Hogan, chief of the Bureau of Medicine and Surgery, all of the U. S. Navy, attended the opening ceremonies.

UNITED KINGDOM

Home Care and Nursing.—Dr. G. E. Godber, in a symposium in the July issue of *The Practitioner*, points out that the health service depends primarily on comprehensive home care, with hospital and specialist services only for diagnosis and treatment of illness outside the scope of the family physician and his supporting team. It should not be regarded as a service for hospital inpatients supported by facilities for home care. He draws attention to the fact that in England and Wales the hospital admission rate per 1,000 of population in 1952 was only 77.7, compared with 118.5 in Sweden and 106 in Denmark. This disparity is attributed, in part, to the greater range of home care made possible by the assistance a highly developed outpatient service can give to the family physician and his supporting team. The growth of consultative outpatient work is the most striking development in hospital services since the end of the war. Outpatient services are now more rigidly restricted to their proper consultative functions, and their further development has provided consultation in the patient's home when medical considerations forbid transport to the hospital. One person in every 12 is admitted to the hospital each year, and nearly one person in every 6 attends the hospital outpatient service; but family physicians see each of their patients on an average five times a year, home nurses make one visit for every 2 members of the population, and health visitors make one visit for every 4. On any given weekday, of every 1,000 persons, 10 will be in the hospital, 3 will have attended the outpatient clinics, 16 will have seen their family physician, and 3 will have been visited by a home nurse or health visitor. Home care depends primarily on wives, mothers, and daughters, not on physicians and nurses, whose function is to supplement, not to replace, the contribution of the family. The scope of home care is determined as much by the capacity of the family as by medical considerations.

In the past 25 years there has been a steady decrease in the proportion of home confinements, until now it is little more than 33% of the total number. Although the official policy has been to maintain a domiciliary midwifery service insofar as medical and social conditions permit, in London less than a quarter, and in some towns barely a tenth, of the births occur at home.

Home-Care Project.—Dr. Reginald Lightwood gives an account of the St. Mary's home-care project, which was instituted in April, 1954. The primary aim was to enable the hospital staff to cooperate more closely with family physicians by giving them professional support and by providing a diagnostic and th [illegible] peutic service. By such arrange [illegible] family physicia [illegible] share in the clinical responsibili [illegible] losing it, and also kept in touch wi [illegible] ent [illegible] The sec [illegible] was the avoidance of admission of children to the hospital except when necessary. At St. Mary's Hospital, before the home-care project started, it was estimated that 25% of the children in the hospital could have been treated at home if the family physicians had had the facilities and experience required, and there were other children whose stay could have been shortened. The third aim was to cut the high cost of inpatient treatment by providing a cheaper alternative that nevertheless afforded a standard of care as high as that in a hospital ward.

The basic feature of the project is a mobile team, based at the hospital, and consisting of pediatricians and nurses with pediatric training. When a family physician wants the help of the team, he telephones the home-care office at the hospital, and one of the pediatricians goes with him to the patient's home. If it is found that the child does not need inpatient treatment, specimens are collected for any necessary tests, and treatment is started at once. The results of the tests are reported to the family physician promptly, and he remains in charge of the patient, the team being at his disposal if needed. The nurse, responsible for organizing the work of her two colleagues, attends the consultation and can then see what nursing care will be required. Any necessary equipment can be brought from the hospital to the home. A home-care project such as this is likely to be more valuable in an urban area than in a more sparsely populated one. Most of the visits have been made within an area of two miles from the hospital. The staff can comfortably handle a case load of 25 to 30 children, and during the initial period of two years their help has been given in the treatment of 582 children. Most of the patients have been referred by family physicians. A smaller number have been transferred from hospital to home care for the completion of treatment, and a few have come from casualty and outpatient departments after the family physician has been consulted. The technique of home care is suitable for most nonsurgical conditions met with in a children's ward, digestive disorders and feeding disturbances in infants, most of the ordinary infectious diseases, and many types of chronic illnesses, including certain cases of tuberculosis.

Care of Maladjusted Children.—Prof. W. S. Craig, writing on home care of the maladjusted child, states that children of all ages cause parental anxiety because of behavior disorders that have no organic basis and arise from maladjustment within the household. To designate these children as maladjusted is misleading, because it ignores the real source of the trouble. Craig's article consists of a review of his findings in a study of 200 children between 3 and 14 years of age. Unhappiness of long duration was characteristic of most of the households. In 51 households tension could be traced to exhaustion of the mother resulting from combining outside employment and domestic duties. When both parents were working, home had little significance to many children beyond that of a place to sleep. A number of other examples were encountered of children who knew little of satisfying home life and still less of true maternal love because of the mother's absorption in social activities. Two distressing cases concerned children whose fathers were ministers and whose mothers undertook an inordinate amount of parochial work in addition to household duties although handicapped by lack of domestic help and financial resources. A nursemaid or more often a series of nursemaids is not an adequate substitute for an absent mother in homes more economically favored. Management of these cases consists largely and sometimes solely in rectifying influences within the home—influences that the family physician is in a position to recognize and often to remedy.

Feeding Habits of Tsetse Flies.—The annual report of the Lister Institute of Preventive Medicine for 1955-1956 includes a study of the natural feeding habits of tsetse flies. The blood meals of about 2,000 flies caught in 17 different localities in the Sudan, Uganda, Tanganyika, Kenya, and Southern Rhodesia were identified serologically. The species studied were Glossina morsitans, G. swynnertoni, G. pallidipes, G. palpalis, G. brevipalpis, G. austeni, and G. longipennis. Each species has characteristic feeding habits; in some instances these were due to differences in habitat. Thus, the riverine G. palpalis feeds largely on reptiles, although it feeds also on birds and on some of the mammals that come to drink at the water edge. The savannah species (G. morsitans and G. swynnertoni) depend on the wart hog for half their food supply, which is surprising, since it was thought that ruminants were their main source of food. Other mammals such as rhinoceros and elephant are commonly used by the flies, whereas monkeys, baboons, and birds are not often used. G. pallidipes feeds chiefly on bushbuck. In Zanzibar, the main host of G. austeni was the bushpig, which is an interesting finding, as this fly is a crepuscular feeder and the bushpig a creature of nocturnal habits. None of the tsetse flies fed on hartebeest, topi, wildebeest, or zebra, though in some localities the hartebeest and zebra were numerous and readily available to the flies. Similarly, impala, thought to be the main source of food, provided only 0.8% of the feedings of G. morsitans, although there were numerous large herds in the neighborhood.

Health Control Regulations.—As a result of recent administrative arrangements, the seven member states of the Western European Union now form a single territory for health control of sea and air traffic. This is an extension of the scheme operated by the five-power Brussels Treaty Organization. Under the new arrangements, health control regulations at airports no longer apply to aircraft coming from airports of any of the member countries. On the other hand, each country may apply to an aircraft arriving from outside the Union any measures of health control it considers appropriate. In the case of sea traffic, the Maritime Declaration of Health is no longer required from member countries' vessels plying only between those ports of the seven countries included in the scheme.

Automobiles and Air Pollution.—At a meeting of the Royal Society of Health, Dr. Arnold Fitton of the Fuel Research Station reported that in 1954 the amounts of smoke, sulfur dioxide, and carbon monoxide discharged from the use of 5.9 metric tons of gasoline and 1.4 metric tons of diesel oil in road vehicles were 0.015, 0.02, and 4 metric tons of diesel oil in road corresponding figures for the 200 metric tons of coal burned were 2, 5, and 20. Thus, the total air pollution by exhaust gases was small compared with that by coal-burning, but the former was emitted in the street at a low level and had, therefore, little time for dispersal before being inhaled. The greatest difference between gasoline and diesel engines was in the carbon monoxide content, which was about 4% in the former and 0.1% in the latter. In gasoline-driven vehicles, the carbon monoxide content was at a maximum when the motor was idling. Practically no benzpyrene was detected at gasoline engine loads exceeding 50%, and in efficiently run diesel engines only a trace was found. As long-term methods of reducing pollution from exhaust gases, control of the air-fuel ratio to give complete combustion; catalytic or direct combustion of exhaust gases; better combustion chamber design; use of filters, absorbers, and adsorbers; and better dispersion of exhaust were recommended.

Dr. E. T. Wilkins of the Fuel Research Station stated that, compared with the three polluants, grit, smoke, and sulfur, which amounted to 1, 2 and 5 metric tons, respectively, each year, carbon monoxide pollution totaled about 24 metric tons, of which 10 were from industrial chimneys, 10 from domestic appliances, and 4 from automobile exhausts. The average concentration of carbon monoxide in the air of the streets of London in 1955 was 15 ppm, the highest figures being obtained in Oxford Circus and Regent Street (52 and 40 ppm respectively). In the smog of January, 1956, the figure rose to 50 ppm in London, but in Salford, Lancashire, it rose to 80 ppm. In streets there is a steady decrease in concentration with increasing height to about one-third of the ground level rate at 100 ft. Assessments of the toxicity of carbon monoxide at various concentrations varied. On the average, a pedestrian may experience a just perceptible effect after exposure of four to eight hours to a concentration of 50 ppm. At 100 ppm there would be slight headache and shortness of breath after two or three hours. In view of the marked individual variation, the hazard of air pollution in our streets should be assessed from the reaction of the more susceptible persons.

Dr. Burgess, chief chemist to the London County Council reported concentrations of up to 460 ppm of carbon monoxide in the Blackwall and Rotherhithe Tunnels. Dr. Lather, of the Medical Research Council, reported that an analysis of the air breathed by people working in close proximity to the source of gas emission in a London transit garage containing 250 diesel buses had failed to show any increase in the benzpyrene content as compared with the air outside.

CORRESPONDENCE

FOCAL EMPHYSEMA

To the Editor:—The description of "focal emphysema" as a distinct pathological entity in coal workers is associated with the Welsh National School of Medicine. The existence of this form of emphysema, characteristic of the simple dust lesion in coal workers, has been confirmed by a number of pathologists in different countries. Your correspondents, Drs. Mayer, Rappaport, and Schepers (*J. A. M. A.* 160:230 [Jan. 21] 1956), are the only ones we have encountered who have misinterpreted our descriptions (Gough, J.: *J. Path. & Bact.* 51:277, 1940; Report of Advisory Committee on Treatment and Rehabilitation of Miners in Wales Region Suffering from Pneumoconiosis, London, His Majesty's Stationery Office, 1944, p. 17; *Occup. Med.* 4:86, 1947. Heppleston, A. G.: *J. Path. & Bact.* 59:453, 1947; *A. M. A. Arch. Indust. Hyg.* 4:270 [Sept.] 1951; *J. Path. & Bact.* 66:235, 1953; ibid. 67:51, 1954) and those of Williams (Report of Advisory Committee on Treatment and Rehabilitation of Miners in Wales Region Suffering from Pneumoconiosos, London, His Majesty's Stationery Office, 1944, p. 18), to which, however, they make no specific reference.

Emphysema is a term implying enlargement of air-containing spaces or inflation due to the presence of air. We are not concerned here with interstitial emphysema of the lung. Pulmonary emphysema may affect all segments of the bronchiolar tree bearing alveoli, including respiratory bronchioles. As original observers, we are entitled to our definition of focal emphysema as "a group of dilated respiratory bronchioles occurring in and around a focus of dust such as coal." French pathologists, confirming our work, make a slight alteration and use the term *emphysème perifocal.* This implies that the dilated air passages are limited to the periphery of the dust focus, and we therefore prefer our original term, since enlarged airways also occur within the focus of dust. If there is no dust focus, then, by our definition and descriptions, the condition is not focal emphysema. Focal emphysema is not restricted to coal workers but occurs in hematite, graphite, and foundry workers and also after inhalation of purified carbon. The fully formed classic silicotic nodule, although it develops at the same site as the coal dust lesion, is not associated with focal emphysema as defined above. The fibrosis of the simple silicotic nodule surrounds and constricts respiratory bronchioles (Heppleston, A. G.: *J. Path. & Bact.* 66:235, 1953. Simson, F. W.: ibid. 40:37, 1935). The air spaces around some silicotic nodules, however, may be somewhat enlarged, but these spaces develop from various segments of the airway and represent a vicarious emphysema such as may occur around any pulmonary scar as it contracts. It is this localized form of vicarious emphysema that Kuschner (*A. M. A. Arch. Indust. Health* 13:147 [Feb.] 1956) describes as focal emphysema. Such an application of the term appears to be uncommon. In Europe the term focal emphysema is now used in the specific sense, and it would be of obvious advantage if such usage were universal. The term focal emphysema does not appear in Dorland's American Illustrated Medical Dictionary, so it can justifiably be used specifically in the United States.

Mayer, Rappaport, and Schepers consider that inhaled dust may cause other forms of emphysema than the focal variety. Anatomic studies in man (Heppleston, A. G.: *J. Path. & Bact.* 66:235, 1953) reveal that nonindustrial generalized vesicular emphysema, whether in older persons or not, is characterized by enlargement of alveolar ducts and alveolar sacs at the expense of alveolar spaces. These changes occur in the absence of dust, and respiratory bronchioles are little, if at all, involved. Generalized vesicular emphysema sometimes coexists with focal emphysema, but this association does not necessarily mean a common causation. Localized destruction of lung tissue occurs in some cases of generalized vesicular emphysema, giving rise to bullae, that is, spaces from which parenchyma has disappeared and into which air passages open irregularly. Whether the generalized form of emphysema is commoner in industrial workers than in the rest of the population has not been proved, but the question certainly merits inquiry.

There is, moreover, another nonindustrial emphysematous state from which focal emphysema must be distinguished, namely, centrilobular emphysema (Gough, J.; Fletcher, C. M.; Gibson, J. C., and Oldham, P. D.: *Proc. Roy. Soc. Med.* 45:576, 1952). In this condition groups of dilated respiratory bronchioles, usually the more distal orders (Leopold, J. G.: Personal communication to the authors), occur toward the centers of secondary lobules, whereas generalized vesicular emphysema affects alveolar ducts and alveolar sacs (Heppleston, A. G.: *J. Path. & Bact.* 66:235, 1953). Centrilobular emphysema is not necessarily associated with dust collection, occurring in both miners and the nonindustrial population, but it is associated with chronic inflammation of parent nonrespiratory or respiratory bronchioles (Leopold, J. G.: Personal communication to the authors. Spain, D. M., and Kaufmann, G.: *Am. Rev. Tuberc.* 68:24, 1953). The chronic bronchiolitis is most likely the primary change. A distinction must also be drawn between focal emphysema and small tension cysts of the lung (Heppleston, A. G.: *J. Path. & Bact.* 66:235, 1953). Schepers (*A. M. A. Arch. Indust. Health* 12:306 [Sept.] 1955) has produced in guinea pigs a condition that may correspond with centrilobular emphysema and has mistakenly called it focal emphysema. He has, furthermore, produced this change by a highly artificial method, namely, by exposure to an aerosol of rare earth fluorides. It is quite unjustifiable to interpret the changes in the lungs of coal workers on the basis of these experiments, the conditions of which cannot be considered as remotely similar to the working environment in coal mines. A much more rational experimental approach is to expose animals in coal mines to the same atmosphere as is breathed by the miners. By this method it has proved possible to demonstrate the evolution of focal emphysema after the formation of coal dust foci (Heppleston, A. G.: *J. Path. & Bact.* 67:349, 1954).

Schepers has written to one of us (A. G. H.) suggesting that in coal miners emphysema occurs first and then coal dust is deposited between the emphysematous spaces. Our studies on the pathogenesis of coal dust pneumonoconiosis in man (Heppleston, A. G.: *J. Path. & Bact.* 59:953, 1947; ibid. 66:235, 1953; ibid. 67:51, 1954) and in animals (Heppleston, A. G.: *J. Path. & Bact.* 67:349, 1954) are strongly opposed to this view. Furthermore, we have available for examination, by anyone who wishes, whole lung sections from thousands of coal workers of ages ranging from 17 to 80 years. The young miners show collections of dust with no emphysema. As the age increases, the incidence of focal emphysema increases also. There is no doubt that the formation of dust foci precedes the development of focal emphysema.

We agree with your correspondents that the degree of clinical and physiological disability in simple pneumonoconiosis does not correlate with the radiological appearances. This is only to be expected in coal workers and similar employees, since the radiological opacities reflect the presence of dust foci and may give no indication of either the existence or the degree of focal emphysema or of generalized vesicular emphysema (Gough, J.; James,

W. R. L., and Wentworth, J. E.: *J. Fac. Radiologists* 1:28, 1949). Cases of pneumonoconiosis are frequently classified on the basis of their radiological features for diagnostic and investigatory purposes. There is, however, a growing opinion in Great Britain that respiratory disability developing in coal workers is not proportional to the radiological changes and may be present with a normal chest radiograph (Chest Radiography in Pneumonoconiosis, *Lancet* 1:326, 1956. Gilson, J. C., and Hugh-Jones, P.: Lung Function in Coalworkers' Pneumonoconiosis, Medical Research Council Special Report Series no. 290, 1955).

Your correspondents' letter arose from an editorial by Dr. O. A. Sander (*J. A. M. A.* 158:1526 [Aug. 27] 1955). Regarding focal emphysema, Sander asked why it occurred in coal workers, hematite miners, foundry workers, and Kolar gold miners but not in the siderosis of welders. We believe that focal emphysema is due to mechanical overloading of the lung with relatively inert dust and therefore that a comparison of the quantity of dust in the different occupations should be made. Sander apparently has access to cases of siderosis, and it would be of value if he could determine the weight of iron oxide in these lungs to see whether it compares quantitatively with 30 gm. or more of coal dust often found in colliers' lungs showing simple pneumonoconiosis. In the patients with tin oxide pneumonoconiosis whom we have examined, the degree of focal emphysema is slight but the weight of dust in the lungs is less than one-fiftieth of that found in coal workers with well-marked simple pneumonoconiosis. Dr. G. Nagelschmidt has drawn our attention to the great difference in the quantity of dust in different forms of pneumonoconiosis. Compared with coal, a small amount of iron and an even smaller amount of tin will give rise to similar radiopacity. We recognized that the amount of dust is not the only factor in the genesis of focal emphysema. The degree to which the smooth muscle of the respiratory bronchioles is developed and the extent to which dust accumulation interferes with muscular action will also influence the severity of focal emphysema (Heppleston, A. G.: *J. Path. & Bact.* 67:51, 1954). Sander pleads for the study of emphysema by a third dimensional technique. We support him and would emphasize that many of our results are based upon e extensive use of serial sections (Heppleston, A. G.: *J. Path. Bact.* 66:235, 1953; ibid. 67:349, 1954. Leopold, J. G.: Personal communication to the authors); from them a cinephotographic technique has been evolved to demonstrate the lung changes in depth (Heppleston, A. G.: *Lab. Invest.* 4:374, 1955).

J. Gough, M.D.
A. G. Heppleston, M.D.
Welsh National School of Medicine
Institute of Pathology
Cardiff, United Kingdom.

BASAL METABOLIC RATE

To the Editor:—During the past 17 years we have done several thousand pulmonary function studies by spirometric methods and with these we have obtained as many determinations of the basal metabolic rate. Again and again we have noticed the tendency of the basal metabolic rate to be low when calculated by the "accepted" standards. What are the accepted standards? At present there are three slightly different standards in use: the Aub and DuBois standards (1917), modified by Boothby and Sandiford (1929); the Harris and Benedict standards (1919); and the Mayo Clinic standards of Boothby, Berkson, and Dunn (1936). The normal basal metabolic rate is usually considered to range from −10 to +10% when compared with any of these standards.

Observations similar to ours have been made before. DuBois and Chambers (*J. A. M. A.* 119:1183 [Aug. 8] 1942) found that the old standards were too high and that rates in most normal persons come within +5 and −20% of the so-called standard. Keys (*J. A. M. A.* 142:333 [Feb. 4] 1950) says: "The excellent basal metabolism standards of the Mayo Clinic [Boothby, Berkson, and Dunn] overestimate the true basal metabolism by something like 10 per cent." Robertson and Reid (*Lancet* 1:940, 1952) state: "It became apparent that either the standards of Aub and DuBois were too high for people in this country, or that there were some differences in technique in measuring the BMR or both." These authors found the standards for normal people in England to be 10% less than the Boothby-Sandiford standards of 1929 and 9% less than the Mayo Clinic normal standards of 1936. In spite of these observations, most textbooks still accept the old standards. Best and Taylor (Physiological Basis of Medical Practice, ed. 6, Baltimore, Williams & Wilkins Company, 1955) refer to Boothby and Sandiford (1920) and to Boothby (1924). Wakefield (Clinical Diagnosis, New York, Appleton-Century-Crofts, 1955) quotes the standards of Boothby and Sandiford (1924). West and Todd (Textbook of Biochemistry, New York, the Macmillan Company, 1951) refer to the standard values of Boothby, Berkson, and Dunn (1936). Fulton (Textbook of Physiology, ed. 16, Philadelphia, W. B. Saunders Company, 1950) accepts the DuBois normal standards as modified by Boothby and Sandiford. Bray (Clinical Laboratory Methods, St. Louis, C. V. Mosby Company, 1951) reproduces the DuBois normal standards as modified by Boothby and Sandiford. This is only a small example of a large number of books that can be quoted.

The basal metabolism test apparatus used in the United States are supplied with "normal standards," mostly the standards of 1936. But different companies recommend various standards—differing by a small percentage from each other—for their machines. In summary we wish to say that the old basal metabolism standards are too high and different standards are used in different laboratories. We would like to make a plea for establishing new standards that can and should be used with every basal metabolism test apparatus in every laboratory.

George C. Leiner, M.D.
Consultant in Pulmonary Physiology
Sol Abramowitz
Chief, Cardio-Pulmonary Laboratory
Veterans Administration Hospital
East Orange, N. J.

SALICYLATES AND URINARY CALCULI

To the Editor:—On the basis of recently published reports (Prien, E.L., and Walker, B.S.: Salicylate Therapy of Recurrent Calcium Urolithiasis, *New England J. Med.* 253:446-451 [Sept. 15] 1955; Salicylamide and Acetylsalicylic Acid in Recurrent Urolithiasis, *J.A.M.A.* 160:355-360 [Feb. 4] 1956), various drug companies are currently conducting an extensive mail campaign advertising their particular brand of salicylates for prevention and treatment of urinary calculi. It should be pointed out that this group of drugs was recommended for use only in the presence of calcium-containing calculi. Their use in the management of patients with recurrent uric acid calculi is contraindicated because of the well-known property of salicylates to increase the urinary excretion of uric acid. Before beginning salicylate therapy, every effort should be made, including stone analysis, to determine the chemical nature of the calculi being formed.

Jack Hughes, M.D.
1200 Broad St.
Durham, N. C.
Claude L. Yarbro
Department of Biochemistry
University of North Carolina
School of Medicine
Chapel Hill, N. C.

TREATMENT OF HERPES ZOSTER

To the Editor:—The treatment of herpes zoster has a perennial popularity in medical writings. Because it is a disease that subsides spontaneously and because its duration may vary from several days to a number of weeks in different patients, the response to a therapeutic agent is difficult to assess. In recent textbooks (Blank, H., and Rake, G.: Viral and Rickettsial Diseases of the Skin, Eye and Mucous Membranes of Man, Boston, Little, Brown & Company, 1955) it has been pointed out that, as with other viral diseases, no specific effective treatment exists. Van Blaricom and Horrax (Chronic Postherpetic Neuralgia, *J. A. M. A.* 161:511 [June 9] 1956) in their recent article have effectively emphasized the variable results to be expected in treating postherpetic neuralgia with even the most modern forms of neurosurgery. All would agree with their suggestion that prevention of the neuralgia by effective treatment during the acute stage of the herpes zoster would be most desirable. As indicated, however, no such treatment is known, and their admonition to use Aureomycin, Chloromycetin, and Pituitrin is contradicted by available evidence. In all of the series of patients reported it has been impossible to show that any therapeutic agent was effective when results were compared with use of a placebo in a properly controlled study. Because this is a point worthy of emphasis to the profession, several pertinent reports are summarized in the accompanying table.

Summary of Reports on Effect of Therapeutic Agents in Treatment of Herpes Zoster

Authors	Drugs	Controls	No. of Patients	Conclusions
Schaffer and Svendsen: Acta dermat.-venereol. 32:184, 1952.	Aureomycin Chloromycetin	Lactose capsules	46	"No difference in the course of the disease in the experimental and control group, neither with regard to the duration of the skin lesion nor the neuralgias"
Kass, Aycock, and Finland: New England J. Med. 246:167, 1952.	Aureomycin Chloramphenicol	Empirin compound	72	"No measurable effect of the use of Aureomycin or chloramphenicol as compared with the use of a simple analgesic"
Carter: Brit. M. J. 1:987, 1951.	Aureomycin	Glucose capsules	44	"No significant difference between the groups in respect of pain, paresthesias, or the appearance of fresh herpetic lesions"
Simons: Dermatologica 103:109, 1951.	Pituitrin	Saline injections	57	"The spontaneous healing could hardly be influenced by injections of saline, antiphyretics, or hypophysis extracts"

Harvey Blank, M.D.
Professor of Dermatology
University of Miami
School of Medicine
Miami 36, Fla.

MEPROBAMATE

To the Editor:—With regard to reactions to meprobamate (Kositchek, R. J.: Reactions to Meprobamate, Correspondence Section, *J. A. M. A.* 161:644 [June 16] 1956), my colleague and I have now given this drug to more than 200 patients, including the prerelease testing that we were asked to do. We found absolutely no toxic adverse effects, except dizziness in some patients, when 400 mg. was used as a dose. We therefore now prescribe 200 mg. (½ tablet) to be taken after meals and before bedtime. We have never found erythema in our patients. However, we are not under any delusion on this score; we will probably get our 2% of reactions all at one time. There is hardly a useful drug on the market that does not give this small percentage of reactions. The author of the letter dramatically states that all types of antihistamines were prescribed but to no avail. I hope this sentence is merely a figure of speech, because one wonders how many types of antihistamines can be tried in 24 hours. The latest report I have come across on meprobamate is by Thimann and Gauthier (*Quart. J. Stud. Alcohol* 17:19-23 [March] 1956). These authors emphatically state that this drug was found essentially nontoxic and that its continued use did not result in habituation or addiction. Lowell S. Selling (*J. A. M. A.* 157: 1954-1956 [April 30] 1955) reported three urticarial reactions in 187 patients. Patients with these reactions responded very well to treatment with antihistamines and the discontinuance of meprobamate therapy.

Louis Pelner, M.D.
1352 Carroll St.
Brooklyn 13, N. Y.

BRUCELLOSIS

To the Editor:—In the article "Chronic Localized Pulmonary Brucellosis," by Weed, Sloss, and Clagett (*J. A. M. A.* 161:1044 [July 14] 1956), it was stated that "modern reviews do not mention this manifestation of brucellosis," with a reference to the first edition of my book "Brucellosis (Undulant Fever): Clinical and Subclinical" (New York, Paul B. Hoeber, Inc,. 1941). The subject of pulmonary lesions in brucellosis, including nodular granulomas, was covered quite extensively in the second edition of this monograph, published in 1950 (pages 105-107 and 162-172).

Harold J. Harris
25 Fifth Ave.
New York 3.

POLIOMYELITIS IN THE UNITED KINGDOM

To the Editor:—My attention has been drawn to the figures of poliomyelitis notifications and deaths quoted in the passage commencing "Increase in Poliomyelitis," in Foreign Letters, on page 1351 of The Journal, April 14, 1956. These figures have apparently been taken from the Registrar General's Weekly Return, no. 52, 1955, and are the total numbers of uncorrected notifications and of deaths in the Great Towns during the 52 weeks of 1953, 1954, and 1955. Naturally they differ considerably from the final figures for England and Wales as a whole.

W. P. D. Logan, M.D.
Chief Medical Statistician
General Register Office
Somerset House
London, W. C. 2, England.

MUSEUMS OF INTEREST TO PHYSICIANS

To the Editor:—The letters of Drs. Stenn (160:1090) and Gebhard (161:643), published in The Journal in the issues of March 24 and June 16, both failed to mention the Museum of the History of Science at Florence. In spite of the fact that it is just around the corner from the Uffizi Gallery, very few people seem to know about it. The museum has many of Galileo's mathematical instruments and, among other things, a considerable collection of medieval surgical and dental instruments.

Junius P. Smith, M.D.
Box 566
Poultney, Vt.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Malpractice: Doctrine of Res Ipsa Loquitur Applicable to Dentists.—This was an action for damages for injuries alleged to have been caused by the negligence of the defendant dentist during and after the extraction of a wisdom tooth. From a judgment in favor of the dentist, the plaintiff appealed to the court of appeals of Kentucky.

The plaintiff, suffering severe pain from a wisdom tooth, accompanied by great swelling, went to the defendant dentist for relief. The defendant took an x-ray, determined the position of the tooth, and proceeded to extract it, after injecting Novocain to relieve the pain. In the process the tooth shattered, but the defendant removed the splinters, packed the cavity with medicated gauze, and gave the patient a sedative. For the next three days, the plaintiff went back to the defendant and complained of much pain in the socket, which eventually spread to the arm. At the end of the third day, the plaintiff said, the defendant told him that he did not want to fool with it any more and that he was through with the case. Three weeks later, the plaintiff went to another dentist, who took an x-ray and discovered a piece of the broken tooth, about the size of the head of a kitchen match, embedded in the jaw. This dentist removed the fragment, and the plaintiff subsequently recovered from his disability.

The only bit of the plaintiff's evidence that was contradicted by the defendant was that the defendant insisted that the plaintiff's jaw was not swollen. All the rest of it stands admitted, said the court, and the plaintiff well proved the condition of his jaw before the extraction and after. The defendant testified that he had pursued the proper course and the customary practice for routine extractions, which he regarded this one to be. He testified, "If you break a root, most of the time you feel it or you hear it." He had not felt or heard any breaking of this patient's tooth. The trial court directed the verdict for the defendant at the close of the plaintiff's case on the grounds that no dentist testified that pulling a tooth, even where there is a swollen condition, was improper medical practice and that, on the contrary, the defendant's professional testimony was that he had pursued the proper practice.

Several of our opinions, said the court of appeals, contain the broad statement that "in malpractice suits against dentists such proof can only be established by the testimony of experts skilled the dental profession. They are the only witnesses who are qualified to testify as to whether there was negligence in the method of treatment." But, there is a limitation on the rule that expert testimony is essential to support a cause of action for malpractice when the common knowledge or experience of laymen is extensive enough to recognize or to infer negligence from the facts.

Some features of the case at bar, said the court, may be regarded as requiring opinion evidence because they are exclusively within the domain of an expert; however, the court of appeals continued to state that the fundamental fact is that this defendant dentist only partially extracted the plaintiff's tooth and left a fragment in the socket. He did not complete the operation. Although the sequence of events indicated something was wrong, the dentist callously abandoned his patient in a condition of suffering.

It is within the realm of common knowledge of laymen that to leave a part of a broken tooth in the socket, which was easily discovered by another dentist, is malpractice unless proof tending to excuse the act is introduced. This is knowledge that is not exclusively within the province of practitioners of the dental profession. A juror needs no scientific enlightenment to see at once that leaving a portion of a broken tooth in the socket can be accounted for on no other theory than negligence. Such act is somewhat analogous to leaving a foreign substance or object in a patient's body during a surgical operation. The rule of *res ipsa loquitur* generally applies in such cases.

In the case at bar there is added to the proof that a piece of the plaintiff's tooth was left in the socket the element of continued treatment with little or no effort on the part of the defendant to discover the cause and relieve his patient. Dentists are subject to the rules that govern physicians and surgeons generally, and there may be legal liability for postoperative negligence by a dentist. In this day and time, the use of x-ray apparatus by competent dentists and the information revealed through its ordinary use are so well known as to be within common knowledge and frequent experience of laymen. The defendant had such a machine and had used it before the operation but had failed to use it afterward in diagnosing and attempting to remedy the unsatisfactory condition that was so apparent When another dentist did use an x-ray apparatus, he discovered the fragment of tooth. In the circumstances shown, the jury could well believe that the failure to take x-rays after the operation was a factor to be taken into account in the over-all question of postoperative negligence without having an expert tell them so

Accordingly, the judgment of the trial court in favor of the defendant dentist was reversed. *Butts v. Watts, 290 S.W. (2) 777 (Ky., 1956).*

Insanity: Liability of Physician in Relation to Commitment Procedure.—The plaintiff filed an action for damages for malicious prosecution against the defendant physician. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Michigan.

The defendant had known the plaintiff and her family for many years and had acted as physician to various members of the family. In 1947, the plaintiff's father told the defendant that the plaintiff had threatened suicide, that she had attacked her sister and had fought her husband and father when they interfered, and that he kept his doors locked in fear of what the plaintiff might do to her mother. The plaintiff's husband, father and brother all asked the defendant's advice as to the desirability of having the plaintiff submit to a mental examination and he told them they should discuss the matter with the probate court. Subsequently the plaintiff's father signed a petition to have the plaintiff committed for a mental examination and requested the defendant to be one of the examining physicians required by statute. The defendant declined to so act. In response to a question by the probate judge, however, he stated his opinion that the plaintiff should be hospitalized for mental treatment, and wrote "9/25/47. In my opinion Mrs. Florence Nash should be hospitalized for mental treatment. /s/ Harold E. Mayne, M.D." The probate court then issued an order for a hearing to determine the plaintiff's mental condition, which order directed that the plaintiff be taken into custody 24 hours before the hearing. The plaintiff was taken into custody and was kept in jail for approximately 33 hours, following which she was released after being examined by four doctors, three of whom certified she was sane. The Supreme Court said that the only issue to decide was whether or not the defendant's signed statement was the proximate cause of the plaintiff's imprisonment.

The petition filed in the probate court, upon which the order directing the plaintiff be held was entered, was signed by virtue of section 330.21 of the Michigan Statutes, which provides: "If it shall appear, upon the certificate of two legally qualified physicians, to be necessary and essential so to do, the court may order such alleged mentally diseased person . . . to be detained until such petition can be heard and determined." Under this section, said the court, an order for temporary detention can only be made after the court has on file the certificates of two physicians certifying that it is necessary to temporarily detain the alleged insane person. There was no record in the present case that such certificates were on file before the plaintiff was detained, therefore the detention order was not in compliance with the statute. In order for there to be proximate cause, it must appear that the injury to the plaintiff was the natural and probable consequence of the defendant's wrongful or negligent act and that such consequence ought to have been foreseen, in the light of the surrounding circumstances. The plaintiff's imprisonment was not the natural and probable consequence of the defendant's signed statement, said the Supreme Court, because the defendant could not foresee, or have any reason to expect, that the probate court would issue an order contrary to the statute. He had the right to rely upon the process of the probate court being regular and proper. Therefore, concluded the court, the writing of the defendant could not be and was not the proximate cause of the plaintiff's injury. Accordingly the judgment of the lower court against the physician was reversed. *Nash v. Mayne, 65 N. W. (2d) 844 (Mich., 1954).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Present Status of Treatment of Autoimmune Hemolytic Anemia with ACTH and Cortisone. W. Dameshek and Z. D. Komninos. Blood 11:648-664 (July) 1956 [New York].

Dameshek and Komninos present observations on 43 consecutive patients with autoimmune hemolytic anemia who were initially treated with either corticotropin, ACTH-gel, cortisone, or compound F. Twenty-one of the 43 patients had the idiopathic type of the disease, whereas in the remaining patients it was associated with chronic lymphocytic leukemia in 18, disseminated lupus erythematosus in 2, periarteritis nodosa in one, and cirrhosis of the liver in one. During the early phases of this study, corticotropin was used not only while the patient was in the hospital but also for maintenance therapy at home, since at that time it was the sole available preparation. When cortisone became available for oral administration, it became the drug of choice for maintenance therapy and was used more and more as the initial medicament. Blood transfusions were given as necessary.

Intensive and presumably adequate hormonal therapy resulted in sustained and complete clinical and hematological responses in 65% of the cases. Complete and sustained remissions were more commonly obtained in the "iodiopathic" than in the "symptomatic" group. In 28% of the cases, although the response was definite, it was not so striking. The treatment failed completely in three patients. When therapy was continued after a remission, some degree of relapse developed in about two-thirds of the patients. In the remaining one-third, full clinical and hematological remission continued well after discontinuation of therapy, although the persistently positive Coombs' test indicated the possibility of future recurrence. Splenectomy was performed as the final therapeutic measure in 9 of the 43 patients and resulted in complete remissions in 6 without the further use of steroid hormones. In two patients splenectomy was followed by the development of disseminated lupus, previously undiscovered and presumably latent. The steroid hormones in adequate dosage represent a remarkably effective form of therapy for at least the initial control of most cases of autoimmune hemolytic anemia. Their use for a lengthy period is often followed by a lasting remission, and the end-results of continued steroid therapy, either alone or in some patients combined with later splenectomy, are definitely better than those of splenectomy alone. Thus, control of this rather unpredictable disease has become possible in most cases, and its management is simply a matter of varying the dosage of steroid hormones.

New Hypothesis on Congestive Heart Failure. V. Macchi and M. Corti. Minerva med. 47:1489-1493 (May 16) 1956 (In Italian) [Turin, Italy].

The authors believe that congestive heart failure and muscular fatigue have the same etiology. A decrease of metabolic energy that is probably caused by oxygen deficiency is noticed in both affections. The potential kinetic energy of the myocardial fibers is not restored, and the normal membrane cation gradient is not re-formed. An unequal concentration of sodium and potassium ions in the intracellular and extracellular fluids respectively causes the gradient that is indispensable for the contraction of the myocardial fibers. Compensation comes from an active retention of sodium and a loss of potassium in the adrenal tubules with a consequent change in the water balance. Rest, cardiotonic drugs, and any treatment that can normalize the electrolytic disturbances of the organism constitute the best therapy.

Therapeutic Trial of Total Cardiac Extract (Recosenin) in Man. K. Donat and M. Loos. München. med. Wchnschr. 98:916-918 (July 6) 1956 (In German) [Munich, Germany].

Forty-six patients with angina pectoris averaging 62 years of age were treated for at least four weeks with Recosenin, a protein-free water-soluble extract of the entire heart of healthy animals. Thirty-one patients were hospitalized and fifteen were treated ambulatorily. Circulatory disturbances in the extremities or myocardial infarction had resulted from degenerative arteriosclerotic vascular disease in some of these patients, and others had hypertension and pulmonary emphysema that placed an extra load on the heart. Most of the patients had abnormal electrocardiograms with disturbances of the stimulating period (auricular fibrillation, extrasystoles), prolonged auriculoventricular conduction, branch block, or typical lowering of the ST interval and changes of the T waves. Treatment was instituted with daily intramuscular injections of 1 or 2 cc. of the extract, and in addition 1 or 2 tablets were given three times daily. The injections were discontinued at the end of the second or third week depending on the idividual case, and oral treatment was continued up to six weeks. With the exception of two patients with generalized arteriosclerosis in whom the incidence and severity of the anginal attacks were not influenced by the cardiac extract, the anginal pain subsided in all patients after from three to five days of treatment, and the anginal attacks were less frequent or did not recur.

Disturbances of rhythm subsided in five of six patients who had been treated with the cardiac extract for from three to five days. In three of these patients changes in the terminal ventricular portion of the electrocardiogram were favorably influenced. Improvement in the duration of apnea and in vital capacity were considered as manifestations of increased cardiac performance. The average values were 21 seconds and 1,900 cc. before the institution of the therapy and 33 seconds and 2,500 cc. when the treatment was discontinued. The cardiac extract apparently exerts a favorable effect on the cardiac metabolism; this was shown by the definite improvement of the subjective anginal complaints, and by the normalization of the disturbances of rhythm and circulation particularly in patients of advanced age with degenerative disturbances of cardiac metabolism.

Pituitary Necrosis in Diabetes Mellitus. C. F. Brennan, R. G. S. Malone and J. A. Weaver. Lancet 2:12-16 (July 7) 1956 [London, England].

The authors describe the clinical and the postmortem findings in five patients with diabetes mellitus who had necrosis of the anterior lobe of the pituitary. The most important finding in three of these patients was the fairly identical pattern of healed pituitary necrosis. Plaut observed 2 patients with diabetes mellitus among 24 who had pituitary necrosis. The five cases presented here were discovered among 7,326 successive autopsies on adults, of whom 146 had suffered from diabetes mellitus. Three of these 146 had "moderate pituitary atrophy," whereas of 7,180 nondiabetic patients 13 showed such pituitary lesions. Thus the diabetic patients showed an incidence of approximately 1 in 50, as opposed to 1 in 550 in the general series. The histological changes and the clinical histories failed to throw light on the cause of the pituitary necrosis in the five patients. While two of the patients were women, neither of them had a history of postpartum hemorrhage.

With regard to the question whether partial pituitary lesions are of clinical importance, the authors quote the opinions of other investigators and suggest that, while some effective function may be maintained with a partially impaired pituitary

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1947 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

under ordinary circumstances, it is doubtful whether function and the emergency supply of corticotropin would be adequate under conditions of stress such as anesthesia, infection, pregnancy, or diabetic ketosis. Such a lesion might be very dangerous, since the paucity of symptoms and signs may prevent recognition of the condition. In two of the five patients with pathological evidence of partial pituitary destruction, the postmortem evidence did not disclose an adequate anatomic cause of death, and one can only speculate as to whether in those patients there was an inability to respond sufficiently to stress. The history of one of the patients is analyzed with regard to whether diabetes is more easily controlled in a patient with pituitary insufficiency and whether hypophysectomy will arrest the development of all diabetic complications. This patient seemed to exemplify the Houssay phenomenon (hypoglycemia and increase in sensitivity to insulin produced by hypophysectomy in depancreatized animals). In this patient there was a considerable increase in insulin requirement after cortisone therapy was started. Furthermore, this patient's myelopathy deteriorated during the period of hypopituitarism, which indicates that the neurological complications are not ameliorated.

Endocrine Therapy in the Aging Individual. W. H. Masters. *Obst. & Gynec. 8:61-67 (July) 1956 [New York].*

Sex-steroid replacement in the aging individual is one of the most controversial subjects in medicine today. The author is convinced that a third sex exists in our society, a neuter gender of former males and females who have reached the age of approximately 60 years. If the existence of this third sex is acknowledged, the concept of sex-steroid support is easily explained. The purpose of the technique is to develop a better-adjusted and more useful member of the neuter gender through our ever-increasing life-span. There is no evidence that sex-steroid replacement can increase longevity, and its techniques do not represent a panacea for the problems of the aging, but there is evidence that in the majority of treated patients a physical and mental resurgence of pawer potential is brought about by endocrine control of physiological functions. The entire process of growth, function, and retrogression is stimulated or controlled by the glands of internal secretion. It is therefore of vitual concern to consider the function potential of the entire humoral system during aging phases of the human body. It has become apparent that the gonads are the "Achilles' heel" of the endocrine system in the battle against the aging processes. Their functional failure is the result of a lack of organ-function reserve at a time when there is effective function in other glands. The early failure of gonadal function is due to the infinite sensitivity of these glands to the influence of other elements of the endocrinic chain or to chronic infections that may interfere with adequate ovarian or testicular hormone production and lead to a short-lived activity of the gonads.

If one accepts the usefulness of sex-steroid replacement for the aged individual, there remain the problems of techniques, including the proper time to initiate and the length of time to maintain steroid replacement. The fundamental investigative approach has been to devise steroid-replacement techniques for the support of the former female and then to transpose these techniques to the aged former male. In the aging female, estrogen, progesterone, and testosterone are given in various combinations so as to avoid vaginal bleeding, spotting, endometrial hyperplasia, or even hemorrhage. Combined estrogen-testosterone therapy is well tolerated. There has been no evidence of progressive hirsutism in the female even through three times the clinical dosage of intramuscularly given medicament presently considered effective has been maintained for as long as six months in some cases. The longe-range results include a marked increase in celular activity in the media of the blood vessels leading to the stimulated organs and a general improvement of the physical and psychological components of the individuals studied in the experiments. The treated patients are not ensured against physical and mental disability, but many have shown that they are physiologically better equipped and psychologically better oriented when treated as members of the third sex. Present consideration is directed exclusively toward treating the climacteric syndrome in either male or female by the combined-steroid-therapy technique.

Aldosteronism Associated with Adrenal Cortical Adenoma. O. B. Pratt. California Med. 85:1-6 (July) 1956 [San Francisco].

An electrolyte-regulating corticoid has been identified and given the name aldosterone. This hormone may be produced in amounts above normal in adrenal cortical tumors, in hyperplastic adrenal glands, and in normal-appearing adrenal glands. Since the description of this salt-retaining hormone by Simpson and Tait and the discovery of its chemical structure by Reichstein in 1954, 13 cases of primary aldosteronism have been reported, including one of the two presented in this paper. The clinical manifestations in the two patients observed here were almost identical. Both complained of headache, dry mouth, episodes of weakness, and polyuria. One patient had no edema, the other had minimal edema. Both had hypertension with systolic pressures around 200 mm. Hg. Serum sodium levels were in the upper-normal range or slightly higher. The urine volume was increased and the specific gravity was low in both patients. The prompt return to normal of all the clinical manifestations and laboratory findings after removal of adrenal tumors in these patients indicates that the tumors were producing a hormone that was the cause of the disturbance. The tumor in the first patient was 1 cm. in diameter, was embedded within the adrenal gland, and was well defined by a fibrous capsule. The tumor in the second patient was 3 cm. in diameter and was attached to the adrenal by a narrow pedicle.

Overproduction of aldosterone is accompanied by characteristic clinical manifestations, such as periodic severe muscular weakness, intermittent tetany, paresthesia, polyuria and polydipsia, hypertension, and absence of edema. Patients with symptoms of hypertension, muscle weakness, thirst, and polyuria should be studied with special attention to mineral metabolism. Laboratory tests reveal hypokalemia, hypernatremia, alkalosis, normal blood calcium levels, and a low ratio of sodium to potassium in sweat and saliva. There is also an increase in the exchangeable body sodium and a decrease in exchangeable body potassium. Pronounced resistance to potassium repletion by oral or parenteral administration of potassium is characteristic. Another feature is hyposthenuria that does not respond to Pitressin (beta-hypophamine). The excretion of aldosterone in the urine is increased. The urinary 17-ketosteroids and the 17-hydroxycorticoids are normal and respond to corticotropin stimulation.

True Scleroderma Kidney. R. J. Calvert and T. K. Owen. Lancet 2:19-22 (July 7) 1956 [London, England].

The history of a patient with true "scleroderma kidney," in whom uremia unexpectedly supervened five months after the clinical onset of acroscleroderma, is reported. Mild renal involvement in scleroderma was suspected when the blood urea level was normal and before cortisone treatment was begun. During this treatment moderate azotemia developed, and, although cortisone was withheld, the patient died a week later in uremia. Histological study revealed the renal vascular lesions that are specific for scleroderma, but histological evidence of other visceral lesions was not found. This suggests that the renal involvement may overshadow other visceral manifestations pathologically as well as clinically. Published reports of these poorly recognised renal lesions are briefly discussed. Such lesions in scleroderma ending in uremia, although inconstant and occasionally impure, can be pathognomonic. True scleroderma kidney is characterised by rapid destruction of kidney tissue as the result of an acute or subacute type of focal and minor renal cortical necrosis.

Observations on a Presumptive Case of Primary Aldosteronism. M. G. Crane, P. J. Vogel and K. J. Richmond. J. Lab & Clin. Med. 48:1-12 (July) 1956 [St. Louis].

A case of adrenal adenoma in a 32-year-old man is presented. This patient apparently had a case of simple essential hypertension, with two unusual complaints—dry mouth and occasional episodes of muscular weakness. The laboratory findings indicated severe hypokalemia and metabolic alkalosis. The 17-hydroxysteroids, 17-ketosteroid, and 17-ketogenic steroid excretion rates were within normal limits. The uropepsin rates were increased fourfold. The symptoms, electrolyte disturbances, and increased uropepsin excretion rate were relieved by removal of a small benign adrenal cortical adenoma. It seemed reasonable to believe that the adenoma was secreting a highly specific mineralocorticoid. Facilities were not available for determination of the specific hormone; however, the implications were that the steroid was aldosterone, a potent influence in sodium and potassium metabolism. It is a clinical feature of a new disease entity described by Conn and called aldosteronism.

ACTH and Cortisone in Agranulocytosis. J. S. Blumenthal. Minnesota Med. 39:454-456 (July) 1956 [St. Paul].

The numerous remedies recommended for the treatment of agranulocytosis, such as pentnucleotide, folic acid, vitamin B_{12}, blood, and dimercaprol (BAL), have proved largely inadequate, because they do not influence the underlying pathophysiological disturbance, namely, the arrest in the maturation of the precursors of the granulocytes in the bone marrow. Corticotropin (ACTH) and cortisone stimulate the bone marrow, and so it was natural that these hormones should be used in agranulocytosis. The author reports on a 56-year-old woman who was moribund when seen in consultation. Her temperature was 105 F (40.6 C), pulse rate 135, and respirations 35. The mucous membranes of the mouth and throat were covered by a thick, gray membrane. She was unable to give her history. The white blood cell count had been 450 on admission the previous day and was 400 the next morning. All cells were lymphocytes. The sedimentation rate was 123 mm. in one hour. By the morning of the second hospital day she had already received 2,000,000 units of penicillin intravenously and 400,000 units every four hours intramuscularly, as well as 0.5 gm. of streptomycin twice daily, without apparent effect. Because death seemed imminent and no evaluation could be made as to the status of the adrenals, treatment with both corticotropin and cortisone was started. Corticotropin was given in 25-mg. doses every six hours, and cortisone was given intramuscularly, 300 mg. the first day, 200 mg. per day on the second and third days, and 100 mg. daily thereafter. The dose of both corticotropin and cortisone and also that of penicillin and streptomycin was gradually reduced as the dramatic response of the patient warranted. A marked leukemoid reaction in the bone marrow abated with cessation of the steroid therapy. The immediate response in this patient, confirming other reports in the literature, indicates that corticotropin and/or cortisone with antibiotics should be the treatment of choice in severe agranulocytosis.

Studies on the Control of Hypertension: VII. Effects of Ganglionic Blockade Combined with Hydralazine on the Malignant Stage Complicated by Renal Azotemia. H. M. Perry Jr. and H. A. Schroeder. Circulation 14:105-114 (July) 1956 [New York].

Of the patients admitted to Barnes Hospital, St. Louis, between Aug. 1, 1951, and Aug. 1, 1955, with malignant stages of hypertension and renal azotemia, 82 were treated with a combination of ganglionic blocking agents and hydralazine. In this paper, malignant hypertension implies a clinical diagnosis that makes no prediction about the presence of renal arteriolar necrosis. The term malignant hypertension (as employed here) designates a condition characterized by a persistent elevation of diastolic pressure at rest above 120 mm. Hg; hemorrhagic and exudative retinitis with papilledema; proteinuria, and diminished renal function. All the patients had nitrogen retention that failed to disappear after the correction of heart failure. On admission to the hospital, 8 patients were believed to have hypertensive encephalopathy, manifested by confusion or coma; 7 others had pulmonary edema; and 12 more showed significant signs of left ventricular failure. Five patients had histories suggesting that they had suffered apoplectic strokes, and two had electrocardiographic evidence of previous myocardial infarction; 4 had been subjected to surgical sympathectomies.

Sixty-six of the 82 patients continued the treatment. Twenty-eight of these are alive after an average of 21.4 months, and 38 died after an average of 4.7 months. The 66 were arbitrarily divided on the basis of the degree of nitrogen retention before treatment. Twenty-seven of the 46 patients with less than 61 mg. of nonprotein nitrogen per 100 ml. of plasma are being successfully maintained on therapy, whereas only 1 of 20 patients with more marked azotemia has survived. The 16 patients who discontinued the treatment had less than 61 mg. of nonprotein nitrogen per 100 ml. of plasma before treatment. Four were lost to follow-up immediately after discharge from the hospital and are presumably dead. The other 12 are known to have died within a month of discontinuing antihypertensive drugs. Eight of these died with uremia less than 60 days after starting therapy. The remaining four died from 3 to 15 months after treatment was begun, the first after an episode of hypertensive encephalopathy, the second and third after cerebral hemorrhage, and the last as a result of progressive malignant hypertension when hydralazine was withdrawn because of disseminated lupus erythematosus.

Some of these patients, all of whom were in the final stage of a rapidly progressive fatal disease, lived and worked for years with the aid of the antihypertensive regimen. Their tension was maintained near normal and their cardiac function improved, but renal function did not change. Autopsy was performed on 32 of the patients. Heart failure had occurred in 15 and renal failure in 21. The major postmortem diagnoses were fibrinous pneumonitis in 18, renal arteriolar necrosis in 13, pyelonephritis in 4, and myocardial infarction and cerebral vascular accident in one each; however, in the 11 cooperative patients with initially mild azotemia, uremia occurred only once and fibrinous pneumonitis eight times.

Blood Pressure Studies Among American and Foreign-Born Students. N. Szent-Györgyi. Circulation 14:17-24 (July) 1956 [New York].

The author studied the blood pressure of 3,508 students at the University of Chicago. Those with evidence of heart disease, diabetes, hyperthyroidism, or hormonal dysfunction were excluded. Patients with hypertension who also had albuminuria were likewise excluded. The incidence of hypertension was ascertained with regard to the sex, the geographic location of the birthplace, the duration of residence in America, and the race of the student. The incidence of hypertension was 6.9% among the white Americans and Europeans. Eight per cent of the white American men and 3.2% of the women were hypertensive. The rates were 6.9% for the European men and 6.6% for the European women, but only 3.2% for the non-European foreign-born white men and zero for the women. The incidence of hypertension among American men was significantly higher than among foreign-born men. There was no significant difference in the incidence of hypertension between American and foreign-born women. There was no difference in the incidence of hypertension between American and European-born white students. However, the percentage among foreign-born non-European white men was less than half that of the American and European white men. American-born and African-born Negro men were represented with rates of 15.6% and 14.2% respectively. There was a higher incidence of hypertension in American Negro men than in any other group examined, topping that of the next highest group, the American white men, by a factor of 2.

The incidence of hypertension among American-born Oriental men was six times higher than among Asian-born Orientals but still lower than among American or European-born white men. Only about a fifth of the foreign-born students had lived in the United States more than 10 years prior to the examination. The incidence of hypertension in this group was 8.5%, that is, the same as among American-born white men. It appears that if someone lives in the United States long enough—regardless of birthplace or race—he will stand the same chance of becoming hypertensive as if he had been born here.

Attempt at Treatment of External Lymph-Node Tuberculosis with Cortisone. J. Bernard, P. Grenet and others. Sang 27:131-137 (No. 2) 1956 (In French) [Paris, France].

Treatment of lymph-node tuberculosis must be evaluated according to the characteristics of the disease: on one hand, its habitual mildness and frequent spontaneous curability, and on the other its prolonged course and the deforming scars it produces. Treatment must be harmless and rapidly effective (in 2 to 4 weeks) and it must prevent the scars resulting from fistulization. The ineffectiveness of the ordinary drugs used in treating lymph-node tuberculosis and the good results obtained with adrenocortical hormones in exudative tuberculosis and with cortisone pomade in the treatment of tuberculous ulcers of lymphatic origin led to a therapeutic use of cortisone in 30 patients suffering from lymph-node tuberculosis; they ranged in age from 1 to 52 years, and 18 were less than 10 years old. The duration of the symptoms before the hormone treatment was started varied from 15 days to 1 year. Seventeen patients had no treatment before they were given cortisone; 3 had had a surgical intervention followed by a relapse; 10 had been treated with antituberculous drugs, mostly isoniazid and aminosalicylic acid combined. Two of these patients recovered temporarily, but treatment in the other eight was ineffective. Cortisone was given with isoniazid in six cases. Intralymphatic injections of hydrocortisone were used in 18 patients (associated with isoniazid by mouth in 10), and hydrocortisone in local injections with cortisone by mouth was used in 6 cases under cover of isoniazid. The greater efficacy of hydrocortisone led to its use in unifocal cases, while cortisone was given orally in plurifocal cases. Failures included complete lack of response, cases in which the lymph nodes did not regress to less than two-thirds of their initial volume, and cases in which superinfection forced abandonment of the treatment. Results were considered successful when the swollen lymph nodes disappeared completely or left only small fibrous or calcareous residues. Treatment in 23 cases was effective and rapid. The failures were analyzed and found to be due to insufficient dosage, to superinfection, or to relapse, which is a frequent occurrence. Recovery is rapid, occurring usually in from 15 to 20 days. The value of antibiotics is open to question. Surgical treatment necessitates general anesthesia and dissection of a richly vascularized and innervated region, carrying the risk of injury to the nerves, and does not prevent relapse. Cortisone seems to be the best treatment for external lymph-node tuberculosis because of its harmlessness, its rapidity of action, and its esthetic results.

SURGERY

Results of Valvulotomy for Valvular Pulmonary Stenosis with Intact Ventricular Septum: Analysis of 69 Patients. D. M. Hosier, J. L. Pitts and H. B. Taussig. Circulation 14:11-16 (July) 1956 [New York].

Transventricular pulmonary valvulotomy was performed at the Johns Hopkins Hospital on 86 patients with pulmonary valvular stenosis and an intact ventricular septum. There were seven deaths. Sixty-nine patients have been followed for from three months to four years postoperatively. Subjective improvement was observed in all but two of these patients. The comparison of the hemograms and arterial oxygen saturations shows improvement in all patients but one, in whom an associated anomaly of the pulmonary venous return is suspected. The analysis of the postoperative physical findings showed the murmur to be less intense in 24 patients and a systolic thrill to have disappeared in 14 of these patients. In 15 patients, a systolic murmur was heard in the pulmonic area. Engorgement of the liver was not noted in any of the patients, and, in every instance in which pulsations at the liver edge were present before operation, the pulsations ceased almost immediately after it. Studies on the size of the heart showed that, if the heart was not enlarged preoperatively, there was no change in its size, whereas, when the heart was enlarged, several distinct changes were noted. In patients under 2 years of age, there was an actual increase in the size of the heart in the immediate postoperative period. Later examinations, however, showed the heart size to have remained stationary while the chest grew. In patients over 18 years of age, the heart decreased steadily in size during the first few postoperative months. In some of the younger patients, the size of the heart decreased to within normal limits and then grew normally with the growth of the chest; in others, the heart remained the same size while the chest grew; and in still others, only progressive enlargement ceased, and the heart and the chest grew together. Cardiac catheterization showed a correlation between the postoperative pressure and the change in the size of the heart. In those patients in whom the pressure was reduced to below 100 mm. Hg the size of the heart returned to normal. These patients were considered to have obtained an excellent result.

Carcinoma of the Thyroid. N. D. Wilson, D. B. Seabrook and R. B. Stevens. Northwest Med. 55:767-771 (July) 1956 [Seattle].

A study of mortality in 109 cases of carcinoma of the thyroid, in which one-third of the patients died of uncontrolled cancer, indicates that this carcinoma kills when inadequately treated and should be attacked as vigorously as cancer elsewhere in the body. Early definitive treatment is especially important. Categories of the cases were papillary carcinoma (42.2%), adenocarcinoma in an adenoma or malignant adenoma (36.7%), and anaplastic carcinoma (21.1%). In fatal cases of papillary carcinoma, death is caused by the local spread of the uncontrolled primary tumor in almost every case. The primary tumor frequently is invasive, although metastatic growths in cervical lymph nodes are not. Local recurrence after removal of involved lymph nodes is not common. Recurrences are to be found in the periphery of the gland dissection field or in lymph nodes left behind at the previous operation. The tumors once described as lateral aberrant thyroid tumors were in fact metastases in the lymph nodes from papillary carcinoma of the thyroid. Malignant adenomas metastasize later than papillary tumors, and the spread is usually distant. Papillary tumors metastasize earlier and to the local nodes So-called "benign metastasizing goiter" is in fact malignant adenoma of low grade. Anaplastic carcinomas, which include all adenocarcinomas not in the first two groups, grow and spread rapidly, metastasize early, are resistant to all forms of treatment, and are frequently fatal. Fifteen per cent of the patients with papillary carcinoma died as a result of cancer. Thus tumor was uncontrolled in 30 per cent in this group, which is supposed to respond best to treatment. Twenty-five per cent of the patients with malignant adenoma died; 30% of the cases were uncontrolled. In the patients with anaplastic carcinoma there was a mortality rate of 82.6% and an uncontrolled rate of 95.6%. Treatment received by the 36 patients of this report who died was in most cases inadequate if judged by current standards of cancer surgery. Only 2 of the 36 had total lobectomy and radical neck dissection. Four others had total lobectomy or thyroidectomy with or without therapy. Nine had no treatment or biopsy only. The remainder had some form of subtotal thyroidectomy, usually with radiation therapy. Median survival times of the patients who died were 48 months for those with papillary tumors, 27 months for adenocarcinoma, and 6 months for anaplastic carcinoma. Radical neck dissection was used in the treatment of two of the longest survivors.

Total lobectomy is recommended for all thyroid adenomas. Carcinoma should be suspected in any nodular goiter. Disadvantages of subtotal resection for thyroid nodules include the dangers of leaving cancer in the residual gland, seeding cancer cells throughout the field, and missing the tumor entirely. With total lobectomy there is improved chance of complete control of the primary tumor. Since a high proportion of the patients who die do so as a result of uncontrolled local disease, every effort must be made to eradicate the disease locally. Radical neck dissection should be carried out in every case of carcinoma of the thyroid when the primary tumor is resectable and no distant metastases can be demonstrated. Regional metastases, found in a high percentage of cases (perhaps 50%), may be present without palpably enlarged lymph nodes. Irradiation is no substitute for surgical excision of the gland.

Radiological Tests to Determine the Use of Surgery in Carcinoma of the Bronchi. L. Caldarola. Minerva chir. 11:406-416 (May 31) 1956 (In Italian) [Turin, Italy].

Expansion of carcinoma of the lung can be more successfully diagnosed and studied if the standard ronetgenological tests are combined with bronchography, stratigraphy, pneumonography, and angiocardiography. The author advises surgery only in case of cancer that lends itself to complete resection, isolated or together with hilar lymph nodes. Patients with infiltration of the mediastinum, pleura, ribs, diaphragm, and pericardium have better results if treated medically. Stratigraphy is particularly useful in the study of carcinoma of the parahilum. The separation of the different planes makes is possible to detect the tumor. Pneumonography helps to establish with certainty the extent of infiltration in the mediastinum. The topography and benign or malignant nature of the affection are best determined with angiopneumonography. To choose one method exclusively or to give it priority is not advisable, since each method complements the others. Bronchography, however, has mainly a local diagnostic value. The other three methods are of particular help in determining the extent of infiltration in the mediastinum.

New Surgical Approach to the Relief of Angina Pectoris. L. T. Palumbo. J. Iowa M. Soc. 46:343-349 (July) 1956 [Des Moines, Iowa].

Palumbo describes an anterior, transthoracic, transpleural approach to the upper dorsal sympathetics, and shows that it is a safer and much simpler procedure than others that have commonly been used in the past. It makes possible a complete and permanent sympathetic denervation of the heart, coronary vessels, head, neck, and upper extremities. It carries lower morbidity and mortality rates than do other methods of sympathectomy. With the use of this technique, the patient can be given greater assurance that complete or almost complete relief of angina pectoris will follow, and his rehabilitation will be more rapid than with other methods of sympathectomy. In many patients cardiac function will improve, and some of them will be able to return to the occupations they had before they were incapacitated by the anginal attacks.

Studies carried out during the development of this new technique revealed a new concept concerning the pupillociliary sympathetic pathways. Even though the first dorsal ganglion (lower third of the stellate ganglion) is removed, a Horner's syndrome does not occur. It is assumed, therefore, that the pupillociliary pathways do not pass via the first ramus communicans to the first dorsal ganglion but are, apparently, conveyed by a separate paravertebral pathway to the upper portion of the stellate ganglion.

Kartagener's Syndrome: Report of a Case Treated by Middle Lobe Lobectomy. T. C. Moore and R. A. Silver. Am. Surgeon 22:595-597 (June) 1956 [Baltimore].

The 20-year-old man whose history is presented had the triad of bronchiectasis, situs inversus, and sinusitis. The bronchiectasis involved the middle lobe in the left hemithorax. The patient had suffered from a severe cough and almost continuous respiratory infection. Middle-lobe resection was carried out. The patient tolerated the operation well. Chest suction was maintained for 48 hours following the operation. The remaining lobes on the left expanded well. The postoperative course was uneventful, and there was considerable improvement, at least during the rather brief period of observation.

The authors point out that the frequent association of situs inversus, bronchiectasis, and sinusitis was first emphasized by Kartagener in 1933. Up to the present time, 105 cases of Kartagener's syndrome have been reported. Pulmonary resection was carried out in only 9 of the 105 patients. A number of these cases were discovered on autopsy. Some were studied prior to the current acceptance of resection for bronchiectasis. Others were too advanced to benefit from resection or too early or minimal to justify this procedure. Middle-lobe resection has been carried out in only one other patient with Kartagener's syndrome.

Mediastinal Emphysema and Bilateral Pneumothorax Following Surgery of the Neck. L. C. Rollins and D. H. Poer. Am. Surgeon 22:567-572 (June) 1956 [Baltimore].

Mediastinal emphysema and pneumothorax constitutes a severe although uncommon complication of any surgery of the neck involving incision into the pretracheal or middle layer of the deep cervical fascia. The authors present the history of a woman in whom emphysema and pneumothorax developed after an operation for an esophageal diverticulum of the pulsion type. This complication has been reported after tracheotomy, radical neck dissection, block or ectomy of the stellate ganglion, esophageal surgery, tonsillectomy, and even after anesthetization alone. The surgeon may cause this complication if the pleura is inadvertently incised beneath Sibson's aponeurosis at the cupola of the lung, and the anesthesiologist may be at fault if hyperinflation of the pulmonary circuit has occurred. In many instances the air enters the mediastinum and pleural space directly by way of fascial planes, as has been shown by autopsy findings. The knowledge of the possible development of this clinical entity and the ability to recognize its presence are essential to diagnosis. The most common early findings are subcutaneous emphysema, pain in the chest, variation from the normal respiratory pattern, evidence of circulatory failure, and auscultatory findings. Roentgen examination of the chest corroborates the diagnosis and may be used to follow the progress of the complication.

The importance of prompt and adequate therapy cannot be overemphasized. If the patient has not yet reacted after anesthesia, an airway must be induced. Oxygen should be given either nasally or by tent, but not by a positive pressure mask. Analgesics and meperidine (Demerol) may be used to alleviate anxiety as well as for shock and pain, but morphine should not be used, because it depresses respiration. Close observation is mandatory, because the development of tension pneumothorax merits immediate needle aspiration and/or closed thoracotomy drainage of the third or fourth intercostal space. If there is little change in the vital signs and if the status of the patient is reasonably satisfactory, it is justifiable to wait for roentgenologic confirmation. Lateral views are valuable in demonstrating the mediastinal and subcutaneous presence of air. Unless this serious complication is recognized and treated, the mortality is extremely high.

Cortisone in the Post-Operative Management of Patients with Advanced Pulmonary Tuberculosis. J. R. Edge. Tubercle 37:166-171 (June) 1956 [London, England].

Five patients, recognized to be very poor surgical risks, were submitted to resection for advanced pulmonary tuberculosis. Each became critically ill in the days following operation, with symptoms of exhaustion and peripheral circulatory failure. After failure to respond to the usual measures, immediate and very striking improvement followed the exhibition of cortisone, which is considered to have been life-saving. One of the patients later died, apparently from pulmonary embolism, whilst the remaining four continue to do well. In no instance has there been evidence of any deleterious effect on the residual tuberculous disease. Two hypotheses may be advanced to account for the action of cortisone in these patients: the facilitation of the effect of the antibacterial drugs, as demonstrated by Houghton; and the relief of nonspecific stress in the presence of presumed adrenal exhaustion by replacement of an active steroid hormone. In view of the very rapid response, the latter action may be the more important; but it has not so far been possible to obtain laboratory evidence in support of this theory. Studies of adrenocortical function before and for several days after operation will be of great interest. Meanwhile, the empirical use of cortisone in the type of case described appears to merit further trial.

The Prognosis in Dissecting Aneurysms of the Aorta: Therapeutic Suggestion. D. J. Freeman. Wisconsin M. J. 55: 709-721 (July) 1956 [Madison, Wis.].

It was the purpose of the studies described to determine the factor or factors influencing the prognosis of dissecting aneurysm of the aorta. The material consisted of 17 patients studied at the Cincinnati General Hospital and 161 cases selected from among 400 described in the literature. The most important single factor seemed to be the spontaneous reentry of the dissected channel into the true aortic lumen at a lower level. Spontaneous reentry of the dissected channel at its distal extent is nature's best method of healing dissecting aneurysm of the aorta. If surgery is contemplated, an attempt should be made to secure reentry at the lowest extent of the dissection.

The author lists the important factors in the management of dissecting aneurysm. Early diagnosis is vital and angiocardiography and retrograde aortography may prove to be helpful in the diagnosis. An effort should be made to estimate the extent of the dissection. Sedatives, analgesics and suitable antihypertensive drugs should be given immediately. Surgical production of reentry of the false dissected channel into the true aortic lumen at the lowest possible level should be attempted without delay, because the mean survival time is only about three or four days, and some patients fail to survive even 48 hours. If surgery is carried out, anticoagulant therapy should be instituted on the second postoperative day.

with adrenocortical hormones in exudative tuberculosis and with cortisone pomade in the treatment of tuberculous ulcers of lymphatic origin led to a therapeutic use of cortisone in 30 patients suffering from lymph-node tuberculosis; they ranged in age from 1 to 52 years, and 18 were less than 10 years old. The duration of the symptoms before the hormone treatment was started varied from 15 days to 1 year. Seventeen patients had no treatment before they were given cortisone; 3 had had a surgical intervention followed by a relapse; 10 had been treated with antituberculous drugs, mostly isoniazid and aminosalicylic acid combined. Two of these patients recovered temporarily, but treatment in the other eight was ineffective. Cortisone was given with isoniazid in six cases. Intralymphatic injections of hydrocortisone were used in 18 patients (associated with isoniazid by mouth in 10), and hydrocortisone in local injections with cortisone by mouth was used in 6 cases under cover of isoniazid. The greater efficacy of hydrocortisone led to its use in unifocal cases, while cortisone was given orally in plurifocal cases. Failures included complete lack of response, cases in which the lymph nodes did not regress to less than two-thirds of their initial volume, and cases in which superinfection forced abandonment of the treatment. Results were considered successful when the swollen lymph nodes disappeared completely or left only small fibrous or calcareous residues. Treatment in 23 cases was effective and rapid. The failures were analyzed and found to be due to insufficient dosage, to superinfection, or to relapse, which is a frequent occurrence. Recovery is rapid, occurring usually in from 15 to 20 days. The value of antibiotics is open to question. Surgical treatment necessitates general anesthesia and dissection of a richly vascularized and innervated region, carrying the risk of injury to the nerves, and does not prevent relapse. Cortisone seems to be the best treatment for external lymph-node tuberculosis because of its harmlessness, its rapidity of action, and its esthetic results.

SURGERY

Results of Valvulotomy for Valvular Pulmonary Stenosis with Intact Ventricular Septum: Analysis of 69 Patients. D. M. Hosier, J. L. Pitts and H. B. Taussig. Circulation 14:11-16 (July) 1956 [New York].

Transventricular pulmonary valvulotomy was performed at the Johns Hopkins Hospital on 86 patients with pulmonary valvular stenosis and an intact ventricular septum. There were seven deaths. Sixty-nine patients have been followed for from three months to four years postoperatively. Subjective improvement was observed in all but two of these patients. The comparison of the hemograms and arterial oxygen saturations shows improvement in all patients but one, in whom an associated anomaly of the pulmonary venous return is suspected. The analysis of the postoperative physical findings showed the murmur to be less intense in 24 patients and a systolic thrill to have disappeared in 14 of these patients. In 15 patients, a systolic murmur was heard in the pulmonic area. Engorgement of the liver was not noted in any of the patients, and, in every instance in which pulsations at the liver edge were present before operation, the pulsations ceased almost immediately after it. Studies on the size of the heart showed that, if the heart was not enlarged preoperatively, there was no change in its size, whereas, when the heart was enlarged, several distinct changes were noted. In patients under 2 years of age, there was an actual increase in the size of the heart in the immediate postoperative period. Later examinations, however, showed the heart size to have remained stationary while the chest grew. In patients over 18 years of age, the heart decreased steadily in size during the first few postoperative months. In some of the younger patients, the size of the heart decreased to within normal limits and then grew normally with the growth of the chest; in others, the heart remained the same size while the chest grew; and in still others, only progressive enlargement ceased, and the heart and the chest grew together. Cardiac catheterization showed a correlation between the postoperative pressure and the change in the size of the heart. In those patients in whom the pressure was reduced to below 100 mm. Hg the size of the heart returned to normal. These patients were considered to have obtained an excellent result.

Carcinoma of the Thyroid. N. D. Wilson, D. B. Seabrook and R. B. Stevens. Northwest Med. 55:767-771 (July) 1956 [Seattle]

A study of mortality in 109 cases of carcinoma of the thyroid in which one-third of the patients died of uncontrolled cancer, indicates that this carcinoma kills when inadequately treated and should be attacked as vigorously as cancer elsewhere in the body. Early definitive treatment is especially important. Categories of the cases were papillary carcinoma (42.2%), adenocarcinoma in an adenoma or malignant adenoma (36.7%), and anaplastic carcinoma (21.1%). In fatal cases of papillary carcinoma, death is caused by the local spread of the uncontrolled primary tumor in almost every case. The primary tumor frequently is invasive, although metastatic growths in cervical lymph nodes are not. Local recurrence after removal of involved lymph nodes is not common. Recurrences are to be found in the periphery of the gland dissection field or in lymph nodes left behind at the previous operation. The tumors once described as lateral aberrant thyroid tumors were in fact metastases in the lymph nodes from papillary carcinoma of the thyroid. Malignant adenomas metastasize later than papillary tumors, and the spread is usually distant. Papillary tumors metastasize earlier and to the local nodes So-called "benign metastasizing goiter" is in fact malignant adenoma of low grade. Anaplastic carcinomas, which include all adenocarcinomas not in the first two groups, grow and spread rapidly, metastasize early, are resistant to all forms of treatment, and are frequently fatal. Fifteen per cent of the patients with papillary carcinoma died as a result of cancer. Thus tumor was uncontrolled in 30 per cent in this group, which is supposed to respond best to treatment. Twenty-five per cent of the patients with malignant adenoma died; 30% of the cases were uncontrolled. In the patients with anaplastic carcinoma there was a mortality rate of 82.6% and an uncontrolled rate of 95.6%. Treatment received by the 36 patients of this report who died was in most cases inadequate if judged by current standards of cancer surgery. Only 2 of the 36 had total lobectomy and radical neck dissection. Four others had total lobectomy or thyroidectomy with or without therapy. Nine had no treatment or biopsy only. The remainder had some form of subtotal thyroidectomy, usually with radiation therapy. Median survival times of the patients who died were 48 months for those with papillary tumors, 27 months for adenocarcinoma, and 6 months for anaplastic carcinoma. Radical neck dissection was used in the treatment of two of the longest survivors.

Total lobectomy is recommended for all thyroid adenomas. Carcinoma should be suspected in any nodular goiter. Disadvantages of subtotal resection for thyroid nodules include the dangers of leaving cancer in the residual gland, seeding cancer cells throughout the field, and missing the tumor entirely. With total lobectomy there is improved chance of complete control of the primary tumor. Since a high proportion of the patients who die do so as a result of uncontrolled local disease, every effort must be made to eradicate the disease locally. Radical neck dissection should be carried out in every case of carcinoma of the thyroid when the primary tumor is resectable and no distant metastases can be demonstrated. Regional metastases, found in a high percentage of cases (perhaps 50%), may be present without palpably enlarged lymph nodes. Irradiation is no substitute for surgical excision of the gland.

Radiological Tests to Determine the Use of Surgery in Carcinoma of the Bronchi. L. Caldarola. Minerva chir. 11:406-41 (May 31) 1956 (In Italian) [Turin, Italy].

Expansion of carcinoma of the lung can be more successfully diagnosed and studied if the standard ronetgenological tests are combined with bronchography, stratigraphy, pneumonography, and angiocardiography. The author advises surgery only in case of cancer that lends itself to complete resection, isolated or together with hilar lymph nodes. Patients with infiltration of the mediastinum, pleura, ribs, diaphragm, and pericardium have better results if treated medically. Stratigraphy is particularly useful in the study of carcinoma of the parahilum. The separation of the different planes makes is possible to detect the tumor Pneumonography helps to establish with certainty the extent of infiltration in the mediastinum. The topography and benign or malignant nature of the affection are best determined with the injury resulted from a fall and in one from a torsion strain The fractures were treated by means of a walking-cast Functional results were good The man who sustained bilateral talus fractures had fallen from a height of 21 ft There was a transverse fracture of the talus of the left foot, with mild dislocation of the anterior part of the foot, and a fracture of the medial tibial malleolus The right foot showed a fracture of the lateral process of the talus and a fracture of the medial tibial malleolus The results of conservative treatment were such that the man was able to resume heavy labor without further symptoms A fall from a considerable height caused transverse fracture of the talus with dislocation of the anterior part of the foot in two other patients A trimalleolar ankle fracture was associated in one The fractures were immobilized for three months following reposition, after which there was a satisfactory functional result

Three patients had a fracture on the medial side of the trochlea tali in addition to their ankle fracture An 11-year old boy sustained an incomplete transverse fracture of the talus combined with a fracture of the medial tibial malleolus Treatment by means of a walking-cast led to complete recovery Two multiple fractures of the talus occurred as a result of severe incarceration of the foot Reposition was insufficient in both cases The talus fragment, which showed dorsal displacement, gave rise to a bone block causing impairment of the dorsal flexion It is hoped that an arthrotomy with extirpation of the prominences will improve the function Avascular necrosis was seen in four cases of old fractures of the talus The corpus tali was sclerotic and flattened, and there was arthritis deformans of the adjacent joints Two patients were treated by arthrodesis for pain and varus position of the foot In a 67-year-old woman the talus had been extirpated elsewhere because of complicated dislocation Tibiotarsal arthrodesis was advised because of pain Dislocation of the talonavicular joint was observed in a woman seen in the outpatient clinic She had had an accident three months previously Treatment was not prescribed because the symptoms were extremely mild

Reconstruction of Thumb by Toe Transfer. B S Freeman Plast & Reconstruct Surg 17:393 398 (May) 1956 [Baltimore]

Freeman reports on a 20-month-old boy who had had his right thumb ripped off by a huge dog The residual stump showed an avulsion of skin and subcutaneous tissue at the metacarpophalangeal joint with the exposed base of the proximal phalanx the distal phalanx and two thirds of the proximal phalanx were gone A dorsal, bipedicle flap was used to close over the bare bone, and the donor site was covered with a thick split graft The stump healed with a durable covering but was obviously too short to be of much functional use A toe-to-thumb transplant was deemed advisable, but, instead of using the relatively stiff big toe, it was decided to use the second toe, which is of much less importance in locomotion than is the big toe Three months after injury, the stump of the thumb was dissected free to expose the remnant of the proximal phalanx, the extensor tendon, and, under considerable tension the tendon of the flexor pollicis longus A transverse dorsal incision over the metatarsophalangeal joint of the right second toe was carried to the midlateral lines, exposing the joint and the flexor and extensor tendons The tendons were cut 0 5 in proximally to the incision and the digit disarticulated The base of the proximal phalanx was sectioned, a mortise cut to correspond with a similar section in the remnant of the thumb, and, after the hand was brought down no 32 wire used for an interosseous suture The flexor and extensor tendons were coapted with no 5-0 white silk and the dorsal skin closed with one row of sutures While the hand and foot were held in position with the fingers wrapped about the sole, a right-arm right-foot skin-tight plaster cast was applied

On the eighth postoperative day the sutures were removed, and it was noted that the hand no longer lay across the instep but had migrated medially. Ten days after that the median plantar pedicle was sectioned to the midline of the plantar surface and the vessels ligated. As the undersurface of the stump had become attached, it was with difficulty that this was raised sufficiently to suture it to the plantar edge of the toe with three mattress sutures The tension due to the retraction of the hand was relieved by shifting the dressing, and the foot defect was closed Later the child fell on the hand and sustained a fracture This was reduced and a cast was applied Three weeks later x-ray examination showed excellent bone formation but an increase in the lateral angulation of the distal thumb portion Obviously the flexor tenorrhaphy had separated and the unopposed extensor mechanism had caused a posterior deformity after the fracture It was difficult to maintain the splint, and it was discarded Although the patient used his hand constantly, the 20 degree posterior deformity was annoying and was corrected by a simple osteotomy and splinting with a plaster cast Three years later the transplanted thumb showed practically normal function and sensation as well as evidence of growth For a child reconstruction of a thumb by toe transfer would seem to be preferable to any other method

Familial Polyposis of the Colon R P McBurney and R L Sanders Am Surgeon 22 583-594 (June) 1956 [Baltimore]

The authors report on 10 patients with polyposis of the colon all of whom had a family history of colon disease, mostly of colonic polyposis and/or cancer of the colon Familial polyposis of the colon is inherited as a Mendelian dominant or recessive It is transmitted by both sexes, and usually appears at puberty or in the second or third decades of life Carcinoma develops in a high percentage of the patients Colonic polyps are premalignant lesions and their presence constitutes a threat to the life of the patient The treatment of the isolated polyp or even a few polyps is not too difficult, familial polyposis, however, wherein the colon contains literally thousands of the growths, frequently presents a serious surgical problem While it is recognized that polyposis calls for surgical intervention, there is some disagreement as to the choice of procedures The advantage of subtotal colectomy with ileosigmoidostomy or ileoproctostomy lies in the fact that sphincteric control is retained the number of stools is low, and little or no nutritional problem arises following operation In addition, the remaining segment of the colon can be observed through the sigmoidc [illegible] guration of residual or subsequent polyps [illegible] tissue is left in the body, however, when this procedure is used, and many patients will not cooperate by having proper follow-up proctoscopic examinations

Peutz described a syndrome of melanosis of the oral mucous membranes with polyposis of the intestines, and Jeghers and associates observed melanosis of both the oral mucosa and the digits in association with intestinal polyposis None of the patients presented here had polyps in regions other than the colon, and none had pigmented areas in the buccal mucous membranes or the digits Nor did any of the group have multiple sebaceous cysts in combination with colonic polyps, an association recently described by Oldfield Multiple polyps and pseudopolyps, found after long-standing inflammation of the colon, are similar in some respects to familial polyposis, but are, in reality, a different disease In both conditions there appears to be a propensity to malignant degeneration An occasional patient with polyposis will meet disaster from hemorrhage, perforation, or intussusception the principal danger, however, is the development of a carcinoma

NEUROLOGY & PSYCHIATRY

Indications for and Results of Surgical Treatment in Temporal Epilepsy. J Guillaume and G Mazars Semaine hop Paris 32 2013-2018 (June 10) 1956 (In French) [Paris, France]

Analysis of the results obtained in 110 patients with temporal epilepsy operated on during an eight-year period shows that more than three fourths were benefited and that about one-half were significantly improved The procedure, which is benign, should not be regarded as a last resort for severely ill patients whose epilepsy is uncontrolled or poorly controlled by medication and who are burdened by an intellectual deficit or personality disturbances The most significant material and social benefits were obtained in patients with a high intellectual level, some of whom had only a few seizures a month, thanks to careful medical control Few as the seizures were, however, they were sufficient to jeopardize a lucrative career. Surgical treatment, therefore, may legitimately be considered for a patient whose inability to lead a normal life interferes with his scholastic or professional career, even though the attacks are infrequent and the disease of long standing. The "temporal" localization of the epilepsy, however, must be well established before the operation is undertaken. No justification can be found for an intervention in patients with long-standing epilepsy in whom the attacks are infrequent and sufficiently controlled by medication not to interfere with a normal life. The operative indications in patients with diffuse or extensive lesions in whom temporal crises are associated with an intellectual deficit or mental retardation and personality disturbances are less clearly defined. Both the epilepsy and the associated defects will be greatly helped by operation in some of these patients; in others, the patient's general status may remain more or less unchanged while the epilepsy alone is relieved. The percentage of improvements and cures obtained in these patients will not be so high as it is when epilepsy alone is present, nevertheless, operation is indicated in many of these cases because it may transform the existence of patients who would otherwise have to undergo long periods of hospitalization.

Social and economic factors should also be taken into consideration, thus the operative indications should be broader for patients whose livelihood depends on their work than for those whose financial position is assured. Special problems arise in connection with epileptic attacks of comparatively recent appearance, especially in patients between the ages of 15 and 40. Neither the absence of associated neurological signs nor the lack of signs of intracranial hypertension can exclude the possibility of neoplasia in such patients, yet they should not be routinely subjected to operation. They should be kept under observation, and intensive anticomitial treatment should be postponed until the possibility of a neoplasm can reasonably be excluded because of the absence of change in the electroencephalographic tracings over an adequate period of time.

New Predisposing Factor in Poliomyelitis: A Previous Neurological Disease. E. Rodriguez-Vigil Lorenzo. Rev. españ pediat. 22:229-240 (March-April) 1956 (In Spanish) [Zaragoza, Spain].

According to the literature, a neurological disease in a child is a predisposing factor to the development of poliomyelitis The author observed four infants and two young children who developed poliomyelitis after a previous neurological disease, consisting of a chronic encephalopathy in three cases, encephalopathy and purulent meningitis in one, and tuberculous meningitis in two. The author believes that the neurological disease causes a weakness of the central nervous system that favors the development of poliomyelitis. For prevention, the antipoliomyelitis vaccine should be given by preference to infants and children who have suffered a neurological disease. In children who have had a neurological disease, the central nervous system is vulnerable to the effect of bacterial and viral agents. It is advisable to give the antipoliomyelitis vaccine as soon as possible after the occurrence of a neurological disease. Poliomyelitis in the cases reported by the author and those cited in the literature occurred at a period that varied from several days to a few months after the neurological disease.

Reserpine and Chlorpromazine in Psychiatry. A. T. Knutsen. Tidsskr. norske lægefor. 76:368-371 (June 1) 1956 (In Norwegian) [Oslo, Norway].

In Eg Hospital 154 patients were treated with chlorpromazine and/or reserpine from February, 1955, to February, 1956. The results are evaluated in the 143 patients observed for from 1 to 12 months. The material includes 94 cases of schizophrenia, 24 of manic-depressive psychosis, and 18 of constitutional psychosis. Most of the patients had a long history of illness, in some cases 20 years or more, and had shown little or no response to other treatment. Thirteen are now without psychotic signs and able to work, 28 are considerably improved, partly able to work and more social, 80 are more easily cared for and in some of these, treated for a short time, there is hope for further improvement, while in 21 the treatment seems to have been without effect, although here also improvement might still be expected in some cases. There was no aggravation ascribable to the treatment. Change to reserpine or a combination of the two agents after start of treatment with chlorpromazine was mostly because of the greater cost of chlorpromazine. To date, the side-effects of chlorpromazine have been few and those of reserpine fewer. Phenergan is a good antidote for the allergic conditions that may be looked for with chlorpromazine and together with chlorpromazine has a good hypnotic effect; it has therefore almost as a routine measure been given to patients who received larger doses of chlorpromazine. The chlorpromazine dosage was from 75 to 600 mg. daily, apportioned in two or three doses and given either by deep intramuscular injection or by mouth. The reserpine dosage was from 0.50 to 4 mg. daily, by mouth, and apportioned in two or three doses. Effective dosage should be reached as soon as possible.

Tuberculous Meningitis: A Study of Cases Treated at Wellington Hospital During the Period 1950-55. I. A. M. Prior. New Zealand M. J. 55:117-124 (April) 1956 [Wellington, New Zealand].

Twenty-seven patients with tuberculous meningitis were treated in a hospital in Wellington, New Zealand, during the years from 1950 to 1955. Thirteen were treated from 1950 to 1952 and 14 from 1953 to 1955. The ages of the patients ranged from 14 months to 50 years. Twelve of the 13 patients treated during the first three-year period (1950 to 1952) died, and the one survivor was the only patient of that group who had received isoniazid. In the second three-year period (1953 to 1955), all but two of the patients received isoniazid, and 11 of the 14 survived. The much more favorable results obtained in the second group seem to be due to the treatment with isoniazid. One of the three who died had not received isoniazid; an infant died of miliary tuberculosis on the day after admission; and the third patient died of a relapse 10 weeks after discharge, despite resumption of treatment. Neurological complications developed in four of the six patients who were treated with systemic and intrathecal administration of streptomycin together with isoniazid. Evidence favors treatment without the intrathecal administration of streptomycin. The early subjective improvement and the cerebrospinal-fluid findings in four patients treated with cortisone or corticotropin confirm the advantages of this treatment, although it did not prevent the development of spinal block in two of these patients. In one of the two patients the block lasted 10 weeks, while in the other it was of shorter duration. Neither patient showed any evidence of spinal-cord involvement.

PEDIATRICS

Delayed Effects Occurring Within the First Decade After Exposure of Young Individuals to the Hiroshima Atomic Bom R. W. Miller. Pediatrics 18:1-18 (July) 1956 [Springfield, Ill

The author reports the findings of the Atomic Bomb Casual Commission (ABCC) on examination of 4,407 patients in 19 at the Hiroshima ABCC Pediatrics Clinic. The youngest were i utero and the oldest were 10 years of age at the time of t detonation of the bomb in 1945. Those who were within 1,80 m. of the hypocenter (the point directly under the atomic bom when it exploded) are believed to have been subjected to som ionizing radiation if they were not by coincidence shielde Most of those beyond this distance probably received an incon sequential amount. Thirty-three children who were expose while in utero to the explosion have head circumferences 2 more standard deviations below normal. Twenty-four of thes were between the 7th and 15th week of gestational age at th time of detonation of the bomb. The incidence and the severity of microcephaly increases as the distance from the hypocente decreases. Mental retardation occurred in 15 of the 33 patients The incidence of this defect was also related to the distance from the hypocenter and the gestational age. No other embryologic effects of exposure to the atomic bomb have been detected to date. In the six years ending in December, 1954, 19 persons who were within 2,100 m. of the hypocenter developed leukemi before attaining the age of 19 years. The annual incidence of this disease among those who were within 1,500 m. and who were younger than 10 years of age at the time of exposure is

1:1,000. There are no cataracts that impair vision among the present pediatric group. An increased incidence of a mild visual disability, the cause of which is thus far indefinite, has been found among those now 16 through 19 years of age who were within 1,800 m. of the bomb center. The incidence of chronic otitis media is the same for the group exposed at 1,500 m. and under and the group exposed at 1,501-1,800 m., as are the means of the hematological values for the patients with this ailment. There is no increase in the tumor incidence in the exposed children as compared with the nonexposed. The impression is that among the survivors the fear of late effects may be common and potentially disabling, although there are no data to prove it. In 1954, doctors examined 2,771 people 19 years of age and younger who were within 3,000 m. of the hypocenter at the time of detonation of the bomb. Twenty-four of these had sequelae of the blast or of thermal effects of the bomb other than well-healed scars. No other abnormalities related to exposure have been identified.

Considerations on Anoxia Neonatorum. G. Murano. Pediatria 64: 161-187 (April) 1956 (In Italian) [Naples, Italy].

The author studied the intrinsic and extrinsic causes of anoxia neonatorum in the forms of anoxic anoxia and anoxia due to venous congestion. Complications arising during intrauterine life or during delivery are extrinsic causes. Nervous, pulmonary, hemochemical, and vascular changes are intrinsic causes. The records of 300 infants showed that anoxia occured in 90% of the prematurely born babies. It was severe in 60% of the cases. It was almost always due to intrinsic causes. All premature babies born after at least 6 months' gestation had some form of anoxia. The high concentration of fetal hemoglobin and the lower concentration of carbonic anhydrase must be regarded as symptoms of premature birth. They do not contribute, at least directly, to the anoxic conditions. Anoxia is the cause of death in many more cases than those in which it is registered. In 200 of 325 deaths, the records of which were examined, the author found that anoxia was also present in those babies whose death had been imputed to hemorrhage or sepsis. Anoxia causes neuropsychic disturbances that appear later in the life of the child. The electroencephalographic patterns of 10 such patients are reported to show that prophylaxis of anoxia neonatorum is also necessary from a social point of view.

DERMATOLOGY

The Treatment of Vitiligo with 8-Methoxypsoralen. J. A. Elliott Jr. South. M. J. 49:691-697 (July) 1956 [Birmingham, Ala.].

The Arabs have used a powder made from the fruit of the plant Ammi majus Linn. for the treatment of vitiligo for hundreds of years. Three psoralen derivatives—8-methoxypsoralen, 5-methoxypsoralen, and 8-isoamyleneoxypsoralen—have been isolated from the Ammi majus Linn. fruit; and these compounds have been used orally and locally, separately and in various combinations in the treatment of vitiligo since 1947. This report describes observations on 22 patients who had had vitiligo for from one month to 25 years. Half of the patients had had their depigmented lesions for more than six years. Their ages ranged from 8 to 55 years. Five of the patients were treated for four months in 1954 and for four months again in 1955. The remaining 17 patients were treated over a period varying from 2 to 4 months in 1955 only. Treatment during the summer of 1954 consisted of (1) oral administration of 10 mg. of 8-methoxypsoralen three times a day after meals; (2) exposure of the depigmented areas to sunshine at noon each day, increasing the time of exposure as tolerated; and (3) avoidance of foods with a high vitamin C content. Laboratory studies during this period included urinalysis, blood counts, cephalin-cholesterol flocculation tests, and the determination of urinary porphyrins and of the prothrombin time. During the summer of 1955, 20 mg. of 8-methoxypsoralen was given once a day two hours before exposure to sunshine; otherwise, the treatment was the same as during the previous summer. Either cephalin-cholesterol flocculation tests or serum Bromsulphalein tests were made.

Eighteen patients showed significant degrees of repigmentation. The amount of repigmentation seemed to be more dependent on the total time of exposure to sunshine and the location of the lesion than on the age of the patient, the duration of the disease, or the extent of involvement. The dorsum of the hands and feet showed less repigmentation than lesions over fleshy areas such as the face, abdomen, or axillas. Four patients did not show significant repigmentation, evidently because they did not cooperate adequately. Liver function tests in two patients were significantly abnormal after a period of treatment, forbidding further oral administration of 8-methoxypsoralen. Serum Bromsulphalein tests should be made throughout the period of treatment with 8-methoxypsoralen.

OTOLARYNGOLOGY

The Adenoid and its Relation to the Ear. L. W. Alexander. Laryngoscope 66:711-721 (June) 1956 [St. Louis].

Although the adenoid was once thought to be a completely functionless structure, there is now an increasing belief that the growing child requires nasopharyngeal lymphoid tissue for protection against infection. When, however, adenoid tissue has become hypertrophied, it not only cannot fulfill its normal function but also serves as a focus of infection. The presence of diseased adenoids may be followed by snuffling, nasal obstruction, mucopurulent nasal or postnasal catarrh, absence of nasal resonance, laryngeal stridor, suppuration of the accessory nasal sinuses, cervical adenitis, gastrointestinal disturbances, defective growth and backwardness, inability to fix attention, neuroses, and systemic infections. Neglect of diseased adenoids may have an extremely serious effect upon the ear. Deafness that follows obstruction to the Eustachian tube by adenoid tissue may occur by several mechanisms: the membrana tympani may be indrawn or retracted; postnasal catarrh may spread along the Eustachian canal, with resulting acute and chronic otorrhea. The most dangerous variety of diseased adenoid tissue is the soft, diffuse type, which is apt to become inflamed and suppurative and to cause middle-ear disease and eventual auditory impairment.

It may sometimes be difficult to decide whether or not to remove the adenoids, but removal should be carried out without delay (1) if enlarged adenoids are present in association with chronic suppurative otitis media, and (2) if auditory impairment is present in association with even minimum adenoid vegetations. Unless the removal of the adenoids is carried out with careful attention to technical details, portions of the hypertrophied structure will inevitably be left in situ. The author describes the surgical technique, pointing out that inadequate surgical removal is the most important cause of recurrence. If postoperative recurrence of nasopharyngeal lymphoid tissue gives rise to symptoms, secondary surgery is usually preferable to irradition.

THERAPEUTICS

Results of Treatment of Angina Pectoris with Choline Theophyllinate by Double-Blind Method. C. Aravanis and A. A. Luisada. Ann. Int. Med. 44:1111-1122 (June) 1956 [Lancaster, Pa.].

Treatment of angina pectoris is a difficult problem. Nitroglycerine gives rapid temporary relief, but choline theophyllinate has been said to cause a lasting improvement in patients with coronary heart disease and anginal pain, far greater than that obtained with aminophylline and without producing symptoms of intolerance. Clinical investigations were made in 72 ambulatory patients selected at random from the cardiac clinics of Mount Sinai Hospital, Chicago, most of whom were in older age groups. Choline theophyllinate was tried in 42, while 28 received only placebos (sugar pills) of the same weight and color. No suggestive influence was involved in the results, because the double-blind method was used. No sedative effect was observed, and tolerance was good. From the onset of therapy with choline theophyllinate, all other drugs were withdrawn except for nitroglycerin when there was severe pain. Choline theophyllinate was given by mouth in doses of 3 200-mg. tablets daily. A remarkable increase in tolerance to free exertion was noted in 30% of the patients after two weeks of choline theophyllinate treatment and in 50% after four weeks of this treatment. The number of steps tolerated without discomfort increased. A decrease was also found in the number of attacks of pain and in their severity. Slight side-effects, consisting of nausea in five patients, dizziness in two, decrease in appetite in one, and a feeling of tremor in one, were noted at first, but these effects disappeared when the dose was temporarily decreased from 3 to 2 tablets a day. Most of the patients treated with the placebo showed no improvement, although a few (less than one-third) had a very slight improvement. Nearly one-third of those given choline theophyllinate, on the other hand, had a definite improvement, and over one-fifth had an excellent improvement. Consideration of the mechanism of the action of the drug leads to the conclusion that the effects it produces are not due to vasodilating action. Three possible effects are discussed: decreased load on the left ventricle, production of enzymes in the myocardium, or inactivation of pressor amines in the heart muscle. The last two would improve the utilization of oxygen by the heart. However, no conclusion has been reached in regard to the action of the drug.

Changing Concepts in the Management of Poisonous Animal Injuries: A Plea for Better Management. R. J. Antos. Southwestern Med. 37:418-421 (July) 1956 [El Paso, Texas].

Antos shows that, whereas relief of pain and sedation have been the chief factors in the currently accepted methods of treating bites and stings of poisonous animals, it has become evident in recent years that morphine and meperidine and most likely other narcotics as well are contraindicated, because it has been shown in experiments with animals and in trials with humans that the toxicity of venoms is increased by narcotics. Experimental studies on animals demonstrated also that chilling of the site of inoculation of the venom can slow down the absorption enough to enable the normal detoxification mechanisms of the body to cope more effectively with the poison. Application of a tourniquet, or impeding of the superficial venous and lymphatic return even by simple pressure will slow down absorption of the poison. The combination of the two methods proved still more effective than either method alone. The author is definitely in favor of chilling. At first only ice-water immersion was used. Then pressure or light intermittent application of a tourniquet was added. Gradually, the length of time of tourniquet application was lengthened from five-minute intervals, until now the tourniquets are left on for a half hour or more at a time. For first-aid measures, ethylchloride spray was used until ice could be obtained. Recently Frigiderm, which is dichloro-tetrafluoro-ethane, was found to be superior to ethylchloride. It is nonexplosive and nonflammable, is not an anesthetic, and does not require refrigeration. It can be kept in a first-aid kit.

The treatment of patients who have sustained venomous stings or bites and in whom the origin of the venom is not known is carried out in the following manner: (1) a moderately firm tourniquet is applied at once; (2) the site of the bite is chilled; and (3) calcium salts are injected intravenously. If peripheral pain is relieved immediately by calcium, the chances are strongly in favor of a black widow spider bite. If the calcium does not relieve peripheral pain, then the tourniquet and chilling alone are used; otherwise, further calcium is given as needed. This procedure has been used with favorable results in 27 cases during the past year.

Acute Viral Hepatitis: Aureomycin Treatment. J. Solsona Conillera. Med. clin. 26:343-350 (May) 1956 (In Spanish) [Barcelona, Spain].

Forty patients with acute viral hepatitis were observed. The disease was caused by blood transfusion in five cases. The majority of the patients were young adults. Aureomycin was given in doses of 0.25 gm. every three hours for 10 consecutive days. A man 66 years old died with acute hepatitis that did not respond to treatment. All the remaining patients recovered. The earlier the drug was given the better and more rapid were the results. When the treatment was started within the first five days of the disease, favorable changes in the subjective symptoms and in the general condition of the patient were observed as early as the second day of the treatment in 14 uncomplicated cases. Improvement continued as the treatment progressed; jaundice abated, diuresis increased, hepatomegaly rapidly diminished, and fever and tachycardia, if present, disappeared. The duration of the disease from appearance to disappearance of jaundice in the 14 patients averaged 18 days. In five patients who had the treatment within the first five days of the disease but who had complications as well as in the patients in whom treatment was started after the first five days of the disease, the results were equally favorable, but the symptoms abated slowly and the disease lasted longer than in the patients of the previous group. Among the patients with complications were one who developed a Loeper's syndrome of edema and jaundice and another with jaundice and ascites of long duration that were controlled by aureomycin. The author concludes that aureomycin is valuable in the treatment of acute viral hepatitis. The liver is not injured when the drug is given in the doses and schedules fixed by the author.

Treatment of Amebiasis with Resotren. L. Pfannemueller. Lancet 1:934-935 (June 16) 1956 [London, England].

Resotren is a chemical combination of chloroquine and iodohydroxyquinoline. It is poorly absorbed when taken by mouth and reaches the lower intestine in considerable concentration. About half of it is gradually broken down in the small intestine, releasing chloroquine and iodohydroxyquinoline, which are then absorbed. The remainer passes into the large intestine, where part of it is also split up; thus both chloroquine and iodohydroxyquinoline are brought to the site of infection, where they never are present in such amounts when given separately by mouth. The author presents observations on 42 patients with amebiasis whom he treated while in Iraq. Five of the patients had uncomplicated amebic dysentery, which was acute in three and chronic in the other two; all five were cured. In 31 patients the amebic dysentery was complicated by amebic hepatitis. The liver was palpable and generally enlarged to three fingerbreadths below the costal margin, and pain on pressure was a constant finding. Treatment with resotren produced striking improvement in all patients: the liver returned to its normal size and the symptoms disappeared. In two patients cysts were still present in the stools at the end of treatment; two other patients were not examined at the end of the course. The remaining 27 had no cysts in their stools after treatment; 14 of them had previously been treated elsewhere with the broad-spectrum antibiotics, aureomycin, or oxytetracycline. Amebic liver abscess complicated the dysentery in 6 of the 42 patients with amebic dysentery. The clinical symptoms rapidly subsided, and trophozoites and cysts disappeared from the stools after treatment with the drug. A course of treatment usually consisted of 40 tablets given over a period of 12 days.

PATHOLOGY

Aneurysmal Bone Cyst. M. Cruz and B. L. Coley. Surg. Gynec & Obst. 103:67-77 (July) 1956 [Chicago].

The literature on aneurysmal bone cyst is reviewed and the characteristic clinical, roentgenologic, and microscopic features of the lesion are presented. Twenty cases from the bone tumor department of the Memorial Center for Cancer and Allied Diseases are reported. There is sufficient evidence to support the theory that it may not be a true neoplasm and that it is definitely not a traumatically induced hematoma. The lesion is often mistaken for giant cell tumor and less frequently for juvenile bone cyst or bone angioma. The main practical consideration is to distinguish it from the telangiectatic type of osteogenic sarcoma and thus avoid unnecessary amputation. The treatment of choice is surgical eradication by curettage complemented by bone graft whenever necessary. Roentgen therapy should be reserved for surgically inaccessible lesions. Delay in treatment may result in severe damage to bones, joints, and soft parts and may eventually necessitate amputation. The authors have not observed any cases of spontaneous regression, and there are no well-documented examples of it in the literature.

BOOK REVIEWS

The Management of Menstrual Disorders. By C. Frederic Fluhmann, B.A., M.D., C.M., Clinical Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco. Cloth. $8.50. Pp. 350, with 121 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1956.

This is the author's second book on menstrual disorders; the first one appeared in 1939. Even though some of the data and illustrations of the first book have been retained, this is a new book, with the emphasis on clinical management. The first chapter, which is most interesting, deals with a historical review of the concepts of menstruation. Fluhmann says that a negative influence is probably responsible for menstruation, not a substance that induces the bleeding. This formed the basis of Edgar Allen's "estrogen-deprivation" theory of menstruation. It is generally believed that the cyclic bleeding of Old World monkeys is the only variety that is identical with menstruation in the human being, but the author mentions the African "elephant shrew," a small rodent that some investigators believe undergoes a true menstrual process. Fluhmann is opposed to the use of vaginal tampons during menstruation when there is an intact hymen, and he says there is a real danger from a forgotten tampon in women who have had children. A simple, useful classification of disorders of menstruation and abnormal uterine hemorrhage is presented in which the main divisions are (1) ovulatory cycles, (2) anovulatory uterine hemorrhage, and (3) arrhythmic uterine hemorrhage. Each of these headings is further subdivided. A table of treatment of dysmenorrhea prepared by Erle Henriksen shows that good results were obtained in 79.2% of patients treated by a wide variety of procedures. This figure was reached after consulting 121 reports on the use of 93 different substances.

A chapter of great value to physicians in practice deals with clinical usage and commercial preparations of sex hormones. In this chapter are listed practically all the hormonal products that are available commercially, the names of the manufacturers, and the doses. The author uses the suffix "tropic" in preference to "trophic" and gives four reasons for this. He uses the term "progestins" to include not only purified progesterone but also natural and synthetic substances with luteoid properties or a chemical relationship. This scholarly book is full of valuable information about menstruation and its disorders. It is exceptionally well written. The data presented are based not only on the vast literature on this subject but also, and in great part, on the extensive and important investigations made by the author in the last 30 years. The lists of references at the end of each chapter are well chosen; the illustrations are numerous, clear, and instructive; and the book is well printed and sturdily bound.

Ciba Foundation Symposium Jointly with the Physiological Society and the British Pharmacological Society on Histamine. In honour of Sir Henry Dale, O.M., G.B.E., M.D. Editors for Ciba Foundation: G.E.W. Wolstenholme, O.B.E., M.A., M.B., and Cecilia M O'Connor, B.Sc. Cloth. $9. Pp. 472, with 133 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill, Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1956.

Almost 50 years ago Sir Henry Dale showed that the injection of histamine into a normal animal produced symptoms essentially identical with those of anaphylactic shock. This fascinating substance has been ultimately connected with the mechanism of the allergic reaction and inflammation and with some other bodily processes. Many men have spent almost a lifetime studying phases of activity of this substance and its source, site and manner of action, release, and inactivation. In the last few years this work has been intensified, and, with newer chemical methods, isotope labeling, chromatography, and other modern techniques, progress in information about the significance of histamine has been rapid. This book constitutes a report of the papers and discussion on histamine held at a symposium in April, 1955, at the Wellcome Foundation and at the Ciba Foundation in London. The participants were outstanding investigators on this subject from many parts of the world. Among them were Sir Henry Dale, in whose honor this symposium was held; William Feldberg and W. D. M. Paton of London, England; Charles Code of the Mayo Foundation, Rochester, Minn.; J. H. Gaddum of Edinburgh, Scotland; F. C. McIntosh of Montreal, Canada; Floyd McIntire of North Chicago, Ill.; M. Rocha e Silva of São Paulo, Brazil; Bernard N. Halpern of Paris, France; E. A. Zeller and Richard Schayer of Chicago; and many others.

The book deals with the occurrence of histamine in the body, release of histamine, the origin and significance of histamine in the body, the origin and fate of histamine in the body, and the location of histamine in the body. The first three parts, presented at the Wellcome Foundation, contain no discussion. The last two parts, presented at the Ciba Foundation, contain extensive discussion by the participants. Many of the papers contain material hitherto unpublished. The discussions, which add immensely to the value of the book, give the reader the benefit of actual attendance at these symposiums and the privilege of listening to an exchange of ideas by these masters. This book represents the world's knowledge about the subject of histamine. For those interested in allergic processes, hypersensitivity phenomena, inflammation, the biochemistry of such an important substance, and physiology and biochemistry in general, this book is invaluable.

Youth: The Years from Ten to Sixteen. By Arnold Gesell, M.D., Frances L. Ilg, M.D., and Louise Bates Ames, Ph.D. From Gesell Institute of Child Development and from Yale Clinic of Child Development. Cloth. $5.95. Pp. 542. Harper & Brothers, 49 E. 33rd St., New York 16, 1956.

This is the third volume in a series on the personality development of children. The other two are "Infant and Child in the Culture of Today" (1943) and "The Child from Five to Ten" (1946). This study is an analysis of 115 children who were seen repeatedly throughout adolescence and 50 children who were seen at only one age. Thus, from 60 to 88 children were observed at each age. Altogether there were 550 contacts with these children over a period of 12 years. No attempt has been made to determine a norm or average but only to establish the sequence of events observable during the development of a personality. The book is divided into three major portions. The first is largely introductory and explanatory; the second gives a complete picture of adolescent thinking and behavior during the years designated; and the third reveals the trends of maturity by describing the observed sequences of growth in a longitudinal perspective throughout the seven-year period for each of nine major areas of behavior development. These areas include the total action system, self-care and routines, emotions, the growing self, interpersonal relationships, activities and interests, school life, ethical sense, and philosophical outlook. By this technique, one is able to compare a child in one age zone with a child in another age zone in terms of similarities and differences, as well as to observe the changes that characterize developing maturity in each of the nine areas named. Anyone concerned with youth should profit by having this volume available for ready reference, since it is a careful description of the characteristics of youth based on extensive study by skilled observers.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

USE OF POLIOMYELITIS VACCINE AFTER EXPIRATION DATE

To THE EDITOR:—*Please comment on the efficacy of poliomyelitis vaccine used one or two months past its stated expiration date. For several months, only expired vaccine was available to us in this community and we were reassured by the public health department that efficacy of the vaccine was retained. Recently, certain drug houses have warned against such a product. In the event that the vaccine used under these conditions is nonefficacious, should the injection be repeated?*

John R. Eggleston, M.D., Danville, Va.

ANSWER.—Unpublished studies on vaccine stability indicate no detectable reduction in potency over the interval indicated when storage was at the prescribed temperature for normal refrigeration.

IODIZED OIL AND BRONCHIECTASIS

To THE EDITOR:—*What is the rationale of using instillations of iodized oil (Lipiodol) into the tracheobronchial tree for the treatment of bronchiectasis?*

R. R. Grayson, M.D., Perryville, Mo.

ANSWER.—A number of years ago intratracheal injections of iodized oil were recommended and quite widely used in the treatment of bronchiectasis. The results were disappointing. Occasionally a patient was markedly benefited, but most patients noticed little if any improvement. The procedure has now been almost completely abandoned. The instillation of antibiotic solutions and the inhalation of antibiotic vapors or dusts, together with the use of such sputum solvents as Alevaire and Tryptar, are much more effective.

HYPERTHYROIDISM

To THE EDITOR:—*A 30-year-old woman, para 2, gravida 2, complained of swelling of the neck, "stary eyes," tired feeling, nervousness, and pain over the heart for one year. Examination revealed a soft, smooth, palpable thyroid with moderate exophthalmos; areas of vitiligo of the neck and hands; pulse rate, 112 per minute; temperature, 98.6 F (37 C); basal metabolic rate, +44%; and urine and complete blood cell count, within normal limits. She was placed on therapy with propylthiouracil, 100 mg. three times a day, and strong iodine (Lugol's) solution, with pulse rate dropping to 84 per minute in about one month. Treatment with strong iodine solution was stopped, and in two months the pulse rate was down to between 66 and 72 per minute. The medication was diminished to 50 mg. three times a day and in another month to 50 mg. daily. Seven months after start of medication, she was placed on therapy with 50 mg. every other day, until the past four months, when she was getting 50 mg. every third day. After more than two weeks with no medication, radioactive iodine uptake was 70%, showing a moderate hyperthyroid condition. The pulse rate has remained down to 72 to 80 per minute, the exophthalmos has markedly diminished, skin pigmentation has cleared remarkably well, and the patient feels well and has gained weight. What is the next procedure?*

Louis L. Dolinsky, M.D., Woodside, L. I., N. Y.

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—Too much reliance should not be placed on an increased uptake of radioactive iodine as indicating persistence of hyperthyroidism, particularly when the patient has recently been taking an antithyroid drug, because the antithyroid drug in itself can increase the uptake even of a normal thyroid. In the absence of any clinical evidence of recurrence of the hyperthyroidism, it might be best to give no further treatment for the present but to keep the patient under close observation. If frank clinical recurrence of the hyperthyroidism takes place, the choice lies between another trial on medical management, to which the patient responded very well before, elective thyroidectomy after the hyperthyroidism has been again controlled by use of a combination of iodine and propylthiouracil, or treatment with radioactive iodine. There would be little agreement among authorities in the field as to which of the three methods would be preferable in such a case, and the decision would probably have to be based to some degree on the availability of the various methods.

ANSWER.—Since your patient is clinically euthyroid at this time, this consultant would not advise surgery. It would be desirable to have other parameters of thyroid function, including determination of basal metabolic rate and, if feasible, a protein-bound iodine determination. The patient could then be observed for a month and the studies repeated. If, according to these parameters and the clinical picture, she is still hyperthyroid, a prolonged course of propylthiouracil therapy for as long as a year would be indicated, particularly since the patient made such an excellent response previously. If at any time the patient becomes markedly hypothyroid, this medication could then be stopped sooner.

IMMUNE GLOBULIN AND SALK VACCINE

To THE EDITOR:—*What is the effect of an attenuative dose of immune globulin on the antibody response in poliomyelitis if given during the course of immunizing with Salk vaccine? The patient in question was given an attenuative dose of measles immune globulin about one week after the second Salk injection (1 cc.). A local pediatrician has criticized this and told the patient's parents that the "measles shot" cancelled out the second Salk shot. Is this true?*

M.D., Tennessee.

ANSWER.—Passively administered antibody, through the use of immune globulin, in no way affects antibody formation as a result of poliomyelitis vaccine. The passively acquired antibody disappears in about six weeks—but, even during the period of retention, it in no way interferes with the antibody-inducing capacity of the vaccine.

RECURRENT PERIVULVAR ABSCESSES

To THE EDITOR:—*A 3-year-old girl for the past year has had recurrent perivulvar and perirectal abscesses. Her mother has been similarly involved over the same period of time. Both have been treated at times with various antibiotics with resolution of the abscesses, only to have them recur weeks or months later. Recently, after treatment of the little girl with antibiotics, Pseudomonas organisms were cultured from the abscess and an autogenous vaccine was prepared. What other suggestions would there be for therapy of this condition?*

Ronald Germain, M.D., Cincinnati.

ANSWER.—First, see which antibiotic best kills the organism by culture and give this antibiotic over an extended period of time. At the same time, give one of the safer sulfonamide drugs. Next, the urine should be checked for sugar. Local causes of irritation in the bladder, urethra, vagina, and rectum must be accounted for, i. e., Trichomonas or Candida (Monilia) organisms, foreign bodies, or worms. If the condition continues after the above routine, the blood proteins can be checked for globulin, especially gamma globulin. Some cases are reported where administration of gamma globulin helps stop the series. Until the irritation can be controlled, application of cold wet packs with Burow's solution (1 teaspoonful to one 8-oz. glass of water) usually cuts down the itching and burning that causes scratching and transfer of organism to another area. Hand cleanliness is also of some importance, especially under the nails. One should not lose sight of other possibilities, namely, improper or incomplete laundering of underclothing, allowing urine, soaps, detergents, or abscess material to remain

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

« Washington News »

U. S. Employee Health Insurance Plan Studied • •
Wider Dissemination of Scientific Reports Planned • •
PHS Regular Corps Examinations Scheduled • •
Nonfederal Hospitals Aid in Indian Medical Care • •

FEDERAL EMPLOYEE HEALTH INSURANCE

At the request of Chairman Tom Murray of the House Post Office and Civil Service Committee, the U. S. General Accounting Office is attempting to gather information that may eventually lead to establishment of a basic payroll deduction health insurance plan for federal civilian employees. A previous attempt to set up such a plan, but without payroll deductions, failed earlier this year, after which a government-paid major medical cost insurance plan was proposed. This also failed to interest Congress. Mr. Murray asked the Government Accounting Office to complete its study and by the end of the year to report back to the House committee, which late in the session held hearings on federal employee health insurance but did not attempt to report out a bill.

At the hearings, the Civil Service Commission and a number of federal employee unions supported legislation for major medical cost insurance for U. S. employees, with the federal government paying the full cost. However, the proposal lost out because of opposition from Blue Cross, Blue Shield, the American Hospital Association, and some national labor leaders. Opponents of the catastrophic coverage plan argued that the first step must be provision of basic health insurance, comparable to that offered by industry, with payroll deductions. At that time it was understood that the administration refused to approve payroll deductions.

To comply with Mr. Murray's request for information on the "feasibility and estimated probable cost of administering a payroll deduction system for basic medical protection for federal employees," the Government Accounting Office has mailed a questionnaire to all groups interested in financing of basic payroll deduction health insurance, including Blue Cross and Blue Shield, the insurance industry spokesmen, federal employee unions now supplying this type of coverage, and cooperative health insurance organizations.

The questionnaire asked the carriers to answer such questions as those that follow. 1. What methods should be used to keep payroll offices notified as to the beginning and ending of individual coverage? Would payroll offices be expected to maintain any information other than name and amount of premium deducted? 2. How often would remittances have to be made? Could a central clearing house for all information and remittances be practical? Would the cost of such a setup result in increased premiums or decreased benefits to the employees? Other questions concern such points as coverage during periods of leave of absence, the responsibility of the government other than deduction of premiums from payroll, and local problems that might cause difficulties in the over-all operation of a national payroll deduction system. As brought out in earlier discussion of the problems of basic health insurance coverage through payroll deductions, the numerous and varied plans now in operation and supported entirely by the employees, are a major complication.

GOVERNMENT-SPONSORED RESEARCH

Steps are being taken by three agencies of government to assure wider dissemination of scientific reports on basic research issued annually by organizations doing government-sponsored research work. Alan T. Waterman, director of the National Science Foundation, announced the new program and said cooperating with it would be the Library of Congress and the Commerce Department.

Dr. Waterman explained the program is designed to assist any research scientist to (1) learn what unclassified scientific reports on government research are being issued in his field and how to obtain them, (2) obtain on a subscription basis a report-announcement service that automatically will keep him informed regarding the bulk of such reports in fundamental research and through which he can purchase copies of listed reports, and (3) obtain access to a well-catalogued reference collection of unclassified scientific reports. "Federally supported basic scientific research of an unclassified nature henceforth will be made more widely available to scientists everywhere," Dr. Waterman declared. He estimates some 20,000 such reports are issued annually by various organizations. Persons interested in the program may write the Government Research Information Clearing-House, National Science Foundation, Washington 25, D. C.

PHS MEDICAL APPOINTMENTS

The Public Health Service has announced that competitive examinations for appointment of medical officers in the PHS regular corps will be held in various

---

From the Washington Office of the American Medical Association.

sections of the United States Nov. 27-30. The appointments provide opportunities for careers in clinical medicine, research, and public health. Ranks will be assistant surgeon and senior assistant surgeon, equivalent to Navy ranks of lieutenant (j. g.) and lieutenant. Applications may be obtained from the Chief, Division of Personnel, PHS, Department of Health, Education, and Welfare, Washington 25, D. C. They must be returned no later than Oct. 13.

Pay for both grades, with dependents, is $7,498 per year. The PHS said benefits include periodic pay increases, 30-day annual leave, medical care, and both disability and regular retirement pay. Requirements are U. S. citizenship, age 21, and graduation from a recognized medical school. In addition, assistant surgeon's rank requires seven years of collegiate and professional training, and senior surgeon, 10 years. Active duty as a PHS officer fulfills the obligation of Selective Service.

INDIAN MEDICAL CARE

The federal government has contractual arrangements with about 130 nongovernmental hospitals in the provision of medical care for Indians. Similar arrangements are in effect with approximately 20 county and state sanatoriums and 10 state and other mental hospitals. In all, some 1,800 beds are thus provided for Indians in other than government facilities. The total number of beds in Public Health Service Indian hospitals is 3,815 in 56 facilities. These statistics are supplied by the Department of Health, Education, and Welfare in a new pamphlet titled "Facts About Indian Health." It notes that "in many respects the health conditions of American Indians are similar to those which prevailed generally a half century ago, when knowledge of sanitation, hygiene, and curative measures was too limited to prevent undue illness and early loss of life."

Now health conditions among the Indians are improving, the report notes. For example, whereas more than 200 of every 100,000 Indians in the U. S. died of tuberculosis during the early 1940's, the 1953 death rate was 62 per 100,000. The death rate from pneumonia and influenza has been reduced from 161 to 108 per 100,000 since 1943. The PHS took over administration of medical and health programs for Indians July 1 of last year. "To many thousands of American Indians and Alaska natives, the Public Health Service fills the role of family doctor and community hospital." The report states, "Most of the general hospitals are small facilities with less than 40 beds, and all of them provide extensive outpatient services."

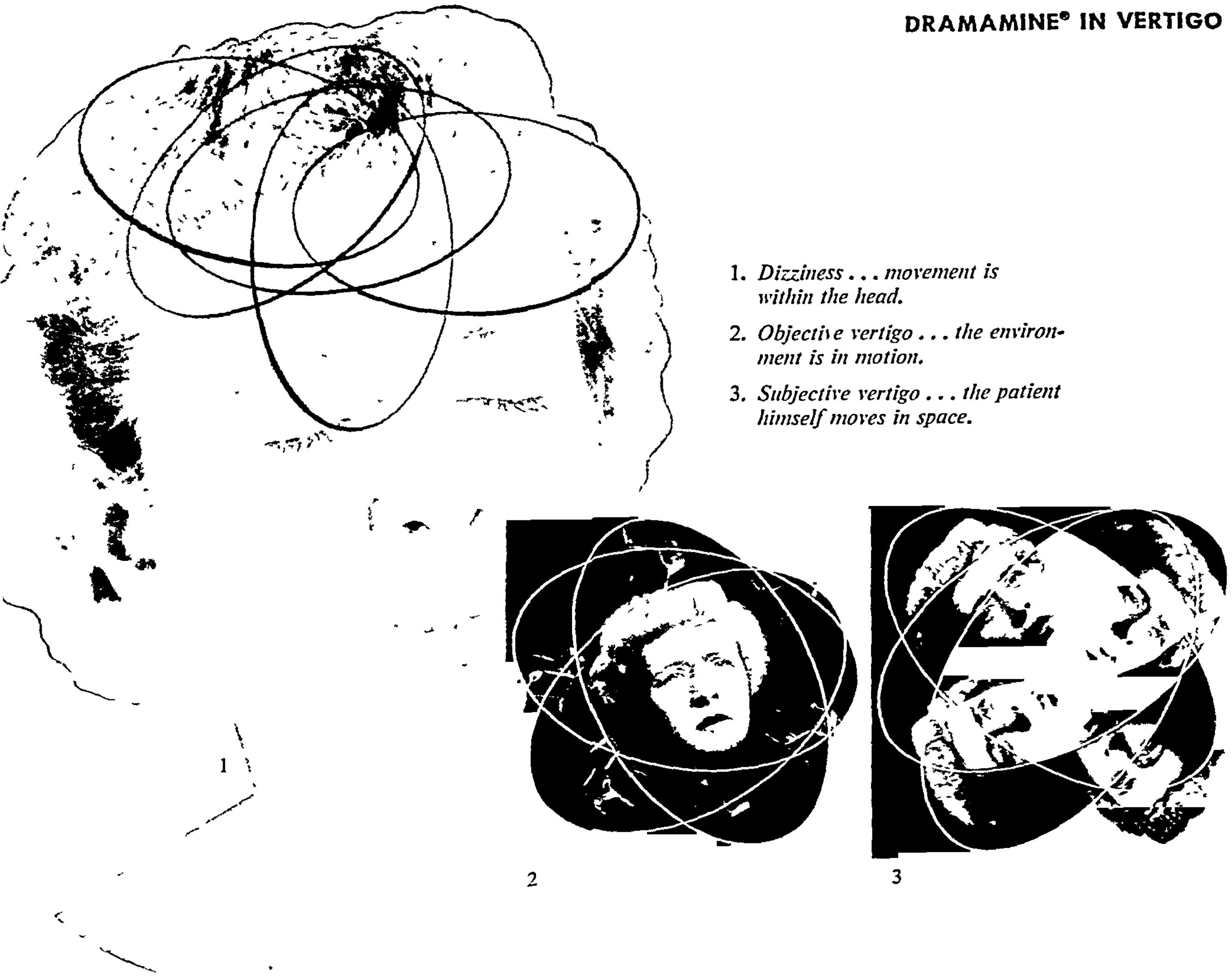
MISCELLANY

The U. S. Office of Education estimates that 58.1% of funds for public education are obtained through local property taxes as against 37.4% through state taxes on incomes, sales, and other business activity a 4.5% from the federal government. The agency pred that college-university enrollment will increase from present 3,200,000 to about 6,400,000 by 1970. " sources for the education of young people beyond high school will have to be considerably expanded the years ahead," the office adds. . . . Reserve med officers and officers of the Medical Service Corps inactive duty may earn reserve credit points for att ance at daily sessions of the 63rd annual me the Association of Military Surgeons. The meeting opens Nov. 12 in Washington, with Rear Winfred P. Dana, M. C., U. S. N., presiding. The fense Department said point credits will be aw eligible reservists on the basis of one point for day of attendance, providing the session is two hours in duration. . . . The first annual National C Defense Week ended Sept. 15, after civil defense ganizations in various parts of the nation staged s cial events, such as mass feedings, test evacuations, rescue, fire, and warden drills. President Eisenh in his proclamation described civil defense as "c the greatest deterrents to an attack on this nat . . . The first fall-off of the year in poliomyelitis ca occurred the week ending Sept. 1, when 566 ca were reported to the PHS, compared with 5 the previous week. Last year the peak week oc at approximately the same time, although the week in September is the median peak week last five years. Regarding the decline, the PH marks: "Due caution should be observed in d conclusions about the current poliomyelitis sea

PERSONNEL

Dr. Robert J. Anderson, a career Public Health cer, has been named chief of the PHS Communic Disease Center in Atlanta, Ga. He replaces Dr. Th dore J. Bauer, who will become deputy chief of t Bureau of State Services. Dr. Anderson has been s ing as assistant chief of the PHS division of spe health services. In this Washington post he has dire operational research in a number of disease con activities. The PHS also announces the appoint of Dr. A. L. Chapman as chief of the division of spe health services, succeeding Dr. Seward E. Miller, w has taken a leave of absence to accept a position at University of Michigan as director of the Institute Industrial Health. Dr. Chapman previously was me cal director of the regional office of HEW in N York City. . . . The new executive officer of Wa Reed Army Hospital is Col. John H. Voegtly. Form chief of the department of atomic casualties at Wa Reed Army Institute of Research, he succeeds C Joseph R. Vivas, who has been assigned to Madig Army Hospital, Tacoma, Wash.

DRAMAMINE® IN VERTIGO



1. *Dizziness . . . movement is within the head.*
2. *Objective vertigo . . . the environment is in motion.*
3. *Subjective vertigo . . . the patient himself moves in space.*

Types of Vertigo:

Effective symptomatic relief of inner ear dysfunctions.

The disagreeable sensations of dizziness which physicians are frequently required to explain to patients have been described by Simonton[1] as varying from a slight sensation of confusion to severe vertigo.

While dizziness or giddiness is classified as a sensation of unsteadiness with a feeling of movement within the head, in vertigo the environment seems to spin (objective vertigo) or the body to revolve in space (subjective vertigo). Labyrinthine disturbances are likely to cause a sensation of rotation. Among the more common causes of dizziness or vertigo, this author lists: Damage to the vestibular nuclei or tracts in the central nervous system, involvement of the vestibular end organs by disease of the ear, Ménière's disease, toxicity of drugs, ocular vertigo from sudden diplopia, visual field defects, looking down from heights and motion sickness due to hyperactive labyrinthine reaction from riding in vehicles.

Dramamine (brand of dimenhydrinate) has proved effective in treating many of these disturbances. The widely accepted indications for Dramamine include: Motion sickness, the nausea and vomiting associated with certain drugs, electroshock therapy and narcotization; vestibular dysfunction associated with streptomycin therapy; the vertigo of Ménière's syndrome, hypertensive disease and that following fenestration procedures, labyrinthitis and radiation sickness. G. D. Searle & Co., Research in the Service of Medicine.

---

[1] Simonton, K. M.: The Symptom of Dizziness, Arizona Med. 6:28 (Sept.) 1949.

SEARLE

From other Pages

Manuel Garcia's Contribution to Mirror Laryngoscopy

The light that revealed the larynx had smoldered for half a century before Manuel Garcia reflected the sun's rays to reveal the hitherto darkened chambers of this organ. . . Attempts to devise an apparatus to visualize the vocal cords were made by physicians who . . . wished to see the interior of the larynx so that they might diagnose and intelligently treat diseases of that organ. . . . Manuel Garcia, a singing teacher, also manifested an interest in the larynx but for a different reason. He probably was as *familiar with the anatomy of the larynx* as any physician of his time for he had dissected it on numerous occasions. He was consumed with a desire to see "a healthy glottis in the very act of singing," so that he might perfect his anatomical and physiological studies. Gratification of this was made possible while he was on vacation. . . . [His account reads as follows:] "One September day, in 1854, I was strolling in the Palais Royal, preoccupied with the ever-recurring wish so often repressed as unrealizable, when suddenly I saw the two mirrors of the laryngoscope in their respective positions, as if actually present before my eyes. I went straight to Charriere, the surgical instrument maker, and asked if he happened to possess a small mirror with a long handle, was informed that he had a little dentist's mirror, which had been one of the failures of the London Exhibition of 1851. I bought it for six francs. Having obtained also a hand mirror, I returned home at once, very impatient to begin my experiments. I placed against the uvula the little mirror (which I heated in warm water and carefully dried), then, flashing upon the surface with a hand mirror a ray of sunlight, I saw at once to my great joy, the glottis open before me and so fully exposed, that I could perceive a portion of the trachea. When my excitement had somewhat subsided, I began to examine what was passing before my eyes. The manner in which the glottis silently opened and [illegible]t, and moved in the act of phonation, filled me with wonder."

[illegible]arcia's wish had been gratified. He had seen a living larynx the act of phonation. Here was a golden opportunity to learn about the physiology of the larynx and to enhance his knowledge of its anatomy. He had a very tolerant throat and as a singer had learned to keep the base of his tongue down. He began to perform autolaryngoscopy making observations on his own larynx during phonation and singing. It is interesting to note that Garcia was the first to conceive the idea of autoscopic examination He became proficient with the mirror and soon studied the larynges of other singers. Both hands were required to manipulate the mirrors and therefore the examiner could not hold the tongue. No one had enlisted the patient to provide this important aid. . . . Garcia presented a paper on "Observations on the Human Voice" *before the Royal Society* of London on May 24, 1855. He explained "that tones are elicited when the stream of expired air is divided into a series of uniformly recurring blasts," which he called explosions, by the regular vibrations of the vocal cords. The closed cords are pushed apart by the escaping air, but because of their elasticity they immediately come together again. When they are in close apposition the tones are pure or brilliant; when contact is incomplete the tones are veiled. He recounted how the different registers, chest, falsetto, and head tones, are entirely determined by the shape of the cords and the extent to which they vibrate; and how the "breaking" of a boy's voice as he approaches puberty is due to their elongation, consequent upon a growth of the laryngeal cartilages that produces the prominent "Adam's apple." Garcia was the first to make and describe these observations.—L. H. Clerf, M.D., Manuel Garcia's Contribution to Laryngology, *Bulletin of the New York Academy of Medicine*, August, 1956.

American Indian Medicine

It is not a matter of wonder that Indians should be plagued with fears and horrible imaginings. . . . Most Indian tribes had a precarious living. They had to contend with the elemental forces of nature and with wild animals. . . . It was easy for the Indian to believe in a god of lightning, thunder or whirlwind and to imagine that animals could communicate with him and influence his life. From this arose the custom of wearing amulets to ward off evil spirits, and the belief in totems. . . .

Harlow Brooks, born in Minnesota, played as a frontier child with red children, but later studied medicine. . . Speaking before the Section of Historical and Cultural Medicine of the New York Academy of Medicine on October 26, 1928, Dr. Brooks said thus: ". . . Back as far as history and tradition go, we know that the Medicine man has always held a position in the tribe and in its social standards far more powerful and important relatively than the white medicine man has yet attained. Many of the great Indians in history have been medicine men:" . . .

[An extract of "The Medicine Man," a paper read before the Bathurst and Rideau Medical Association, Jan. 20. 1886. by Robert Bell, B.A., Sc., M.D., LL.D., Assistant director of the Geological Survey of Canada, reads as follows:]

"*In former times the great medicine-men among these Indians* devoted their whole lives to the study and practice of their art, and even yet (1886) it receives the greater part of their attention. They were accustomed to do no common work, but lived at the expense of the band they were amongst. They had great influence with the people, principally from playing upon the superstitious fears, which had become inculcated by their own class from generation to generation." . . .

Dr. Bell mentions 15 plants used medicinally *by the Ojibway* Indians. One of them is the spruce tree. A decoction of its leaves is used internally as a remedy for scurvy. This was used with signal success by Jacques Cartier and his men at Quebec in 1535 and by Miles Macdonnell and the Selkirk settlers at York Factory in 1812-13. Another of the plants is senega or snake root which . . . is used in cough medicines. . . . Janet Carruthers, a resident nurse on Indian reserves in Northwestern Ontario and Alberta [writes] in the March 1952 issue of "The Beaver" under the title of "Land of the Ojibway":

"Many of the Ojibways' ills are taken care of by the medicine-men, and the medicine-man should not be entirely discounted; nor should he be confused with the philanderers and quacks who exploit the innocent with mystics and charms. Knowledge of healing qualities of plants has come to him from far back in his race. Long before salicylates were listed in a scientific pharmacopoeia he knew the medicinal value of willow-bark. The liniments he makes from pine needles and the infusions he concocts from hepatica, sarsaparilla root and wintergreen are all ancestors of our store-dispensed medicine." . . .

One may say that the Indian medicine-men had a considerable knowledge of the healing properties of herbs, minerals and animal substances, that they could treat wounds and fractures, and they practised psychosomatic medicine long before that term was known to white practitioners. The medicine-men attained their place in the tribe only after long preparations and examinations, they were the intellectuals in their community and they were held in high esteem.—Ross Mitchell, M.D., North American Indian Medicine, *Manitoba Medical Review*, April, 1956.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 3 | CHICAGO, ILLINOIS | SEPTEMBER 15, 1956

Copyright, 1956, by American Medical Association

"SILO-FILLER'S DISEASE"—A SYNDROME CAUSED BY NITROGEN DIOXIDE

Thomas Lowry, M.D.
and
Leonard M. Schuman, M.D., Minneapolis

• *Four patients who entered silos within a day or two after filling with corn silage noted irritating fumes and experienced respiratory symptoms of varying degrees of severity. A period of failure to improve was followed by a period of worsening that ended with death on the 27th and 30th days in two cases. The disease was halted in the other two cases by treatment with prednisone. Intramuscular injections of this drug in 10 mg. doses three times daily were followed by prompt and striking improvement, especially in one case. Chemical evidence showed that the toxic gas was probably nitrogen dioxide, a gas capable of causing early pulmonary edema with subsequent bronchiolitis fibrosa obliterans. The bronchiolitis gives a roentgenogram marked by innumerable discrete nodular densities in the lungs and indistinguishable from that of acute miliary tuberculosis; its nature was verified at autopsy in the two fatal cases. Oxygen gave only symptomatic improvement, and the effects of bronchodilators and antibiotics were only temporary. Prevention of silo-filler's disease depends on adequate ventilation, on means of keeping people and animals from straying into dangerous spaces adjoining a silo, especially during the 7 to 10 days after the silo is filled, and on a wider recognition of the danger.*

The inhalation of irritating fumes encountered in or near freshly filled silos has recently been shown [1] to cause serious and potentially lethal respiratory disease in man. The agent producing this condition is nitrogen dioxide, which is always partially polymerized to nitrogen tetroxide. These two gases are both considerably heavier than air, and both are highly toxic upon inhalation. Since the observation by one of us (T. L.) in September, 1955, of two fatal cases[2] we have attempted to gain a comprehensive view of "silo-filler's disease." This term, as employed in the present report, designates any bronchial or pulmonary condition produced by the inhalation of oxides of nitrogen derived from fresh silage. The pathological changes found at autopsy in lungs and bronchi damaged by this toxic gas vary widely with the amount of nitrogen dioxide inhaled. Correspondingly, clinical findings in the patients differ greatly; it is clear that our meager experience has permitted close study of but one of several different clinical and pathological entities that may be produced by this gas.

The following account is, for the most part, an attempt to describe one form of silo-filler's disease that is, itself, a clear-cut, distinct clinical and pathological entity. Typical bronchiolitis fibrosa obliterans has occurred in four individuals exposed to silage fumes under essentially identical circumstances. Correlation of data derived from a study of the four cases has permitted us to outline the clinical features of this hitherto undescribed syndrome. Two additional instances of silo-filler's disease[1b] have recently been reported, each of which differs greatly from the rather closely similar pattern of our four cases. Yet these two cases clearly belong in the same general category and fit the definition given above. We are led, by these combined pieces of evidence and by a study of the pertinent medical literature, to formulate hypotheses concerning other entities that, together with bronchiolitis obliterans, are to be regarded as clinical types of silo-filler's disease. The future recognition of additional similar cases will require that physicians be aware of the condition as a possibility and also that they be acquainted. in a very general manner. with its basic clinical characteristics.

Although the medical literature contains a number of references[3] to fatal bronchiolitis obliterans resulting from accidental inhalation of nitrogen dioxide in such places as industry and the chemical laboratory, we have been unable to find any record of bronchiolitis in the human caused by exposure to gas or fumes evolved by fresh silage. A probable explanation for the lack of earlier reports is the apparent rarity of this condition; in all likelihood, the production, in a silo, of nitrogen dioxide concentrations sufficient, when inhaled, to cause bronchiolitis depends upon

---

From the Department of Internal Medicine and the School of Public Health, University of Minnesota, and the Medical Service, Northwestern Hospital.

a particular and unusual combination of chemical circumstances. Experimental work now in progress should eventually yield much more information concerning these circumstances.

We wish to emphasize the fact that the observations to be reported do not imply need for any change in current silage-making methods. It is our intent, rather, to describe a distinct, serious, physical hazard that can readily be avoided and to make the essential data available to physicians generally (especially to those practicing in rural areas) prior to the completion of another growing season. The disease under consideration is a clear-cut, specific entity, not previously described nor recognized as an occupational hazard in agriculture. It produces a striking clinical syndrome. The roentgenographic findings may be indistinguishable from those of other well-established pulmonary diseases such as miliary tuberculosis. A history of recent exposure to irritating silage fumes is the essential evidence that identifies this condition and differentiates it from conditions similar in other respects.

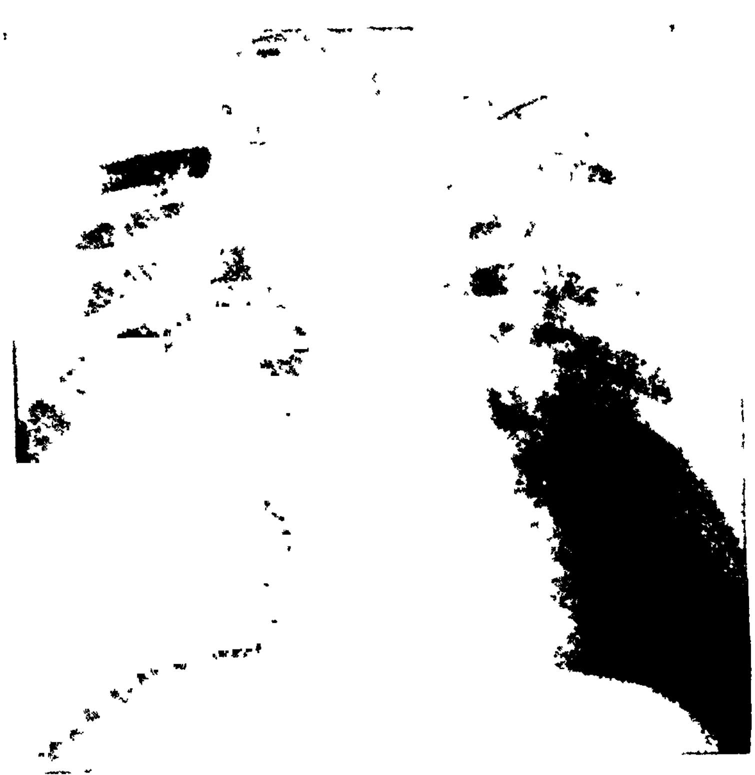


Fig. 1 (case 1).—Roentgenogram made 25 days after exposure to silage fumes and only 5 days before death. Note confluent infiltration of upper lung fields. The numerous discrete nodules throughout remaining lung tissue are not seen in this reproduction.

Since certain clinical features necessarily provide the clues that will permit practicing physicians to recognize silo-filler's disease, one of our cases will be described in detail, whereas the remaining case histories will be briefly summarized. The patients in cases 1 and 2 were observed by one of us (T. L.) during the terminal phase of their illness; those in cases 3 and 4 are reported through the courtesy of their respective physicians.

Report of Cases

Case 1.—A 28-year-old farmer climbed an enclosed ladderway to the top of his silo on Sept. 1, 1955, in order to open the top door for purposes of ventilation. The silo had been filled on the previous day with straight corn silage containing no chemical additives. While climbing this enclosed, nonvented ladder, he noticed an irritating odor, accompanied by oppressive heat and humidity that "almost overcame him" and forced him to climb down without accomplishing his intended task. He came down the ladder coughing and weak; he was nauseated but did not vomit. He coughed intermittently and increasingly from the day of exposure onward, wheezed a good deal of the time, was dyspneic on any exertion, and was noted to be weak, tired, and listless. On Sept. 16, 1955, shaking chills and fever were noted and cough and dyspnea worsened, the patient was finally induced to consult his physician on Sept. 21, 1955. He was given treatment for "pneumonia," but two days later all of the symptoms had increased alarmingly, his cough was incessant, and the slightest exertion or movement now caused him to gasp for breath. On Sept. 24, 1955, he entered Glencoe Municipal Hospital, where he was placed in an oxygen tent and received penicillin together with one other antibiotic the administration of which had been started on Sept. 21, his condition deteriorated further, however, and on Sept. 27, his physician consulted one of us (T.L.) by telephone. In accordance with the suggestion of his physician, arrangements were then made for his transfer by ambulance (and with continuous administration of oxygen) to Northwestern Hospital, Minneapolis.

On admission, the patient was in critical condition. Rectal temperature was 102 F (38.9 C), pulse rate 128 per minute, respiratory rate 52 per minute, and blood pressure 170/80 mm. Hg. Dyspnea was extreme, the respirations were rapid, shallow and gasping in type, and were interrupted frequently by paroxysms of violent, nonproductive cough. Cyanosis was very marked, and, though the atmosphere of an oxygen tent made him slightly less uncomfortable, it did not perceptibly influence his dusky color.

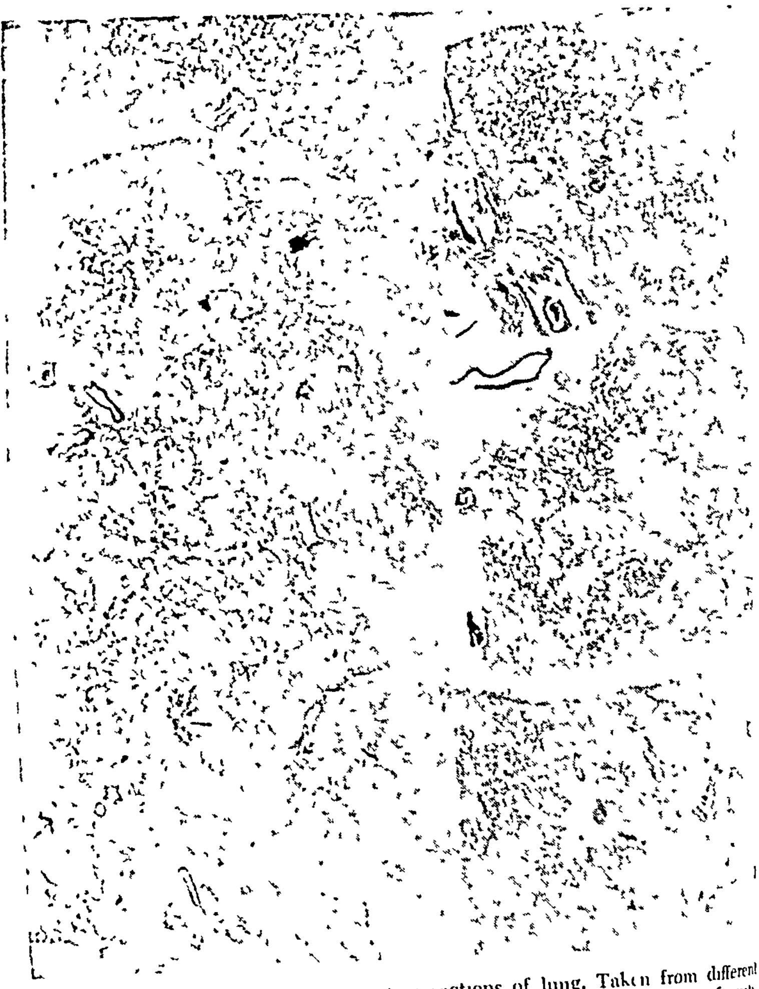


Fig. 2 (case 1).—Representative sections of lung. Taken from different parts of both lungs, these illustrate the extent and remarkable uniformity of infiltration. Both lungs were filled with innumerable small discrete nodules, no portion of either being spared (× 2½).

Physical examination of the chest showed tachypnea, with relative prolongation of the expiratory phase of breathing. The lungs were resonant throughout, but normal vesicular breath sounds were everywhere much reduced. Numerous fine and medium moist inspiratory and expiratory rales were present throughout both lungs; sibilant rales of the asthmatic type, also generalized, were most prominent in the expiratory phase. The heart was of normal size, heart sounds, though very rapid, were normal, and no murmurs were heard. Examination revealed no other abnormalities. The patient was extremely weak and utterly exhausted, so that, although fully conscious, he spoke only single words, and these with considerable effort.

Laboratory studies gave the following findings. The urine was normal except for a faint trace of albumin. Blood studies showed that the hemoglobin level was 14.1 gm. per 100 cc.: the white blood cell count was 26,600, with 85% neutrophils, 13% lymphocytes, and 2% monocytes. The sedimentation rate was 77 mm. in one hour; the carbon dioxide–combining power was 35 mEq. per liter (79 vol. %). Blood cultures were sterile. Sputum showed gram-negative bacilli on smear and paracolon bacilli on culture, but was negative for fungi, both microscopically and on culture. During the patient's four-day hospital stay, the only significantly changing laboratory finding was a progressive rise of the blood carbon dioxide level from 35 to 45 mEq. per liter (102 vol. %). Concomitantly, the serum chloride level decreased from 87 to 82 mEq. per liter and the blood urea nitrogen level rose slightly from 17.5 to 25 mg. per 100 cc. on the day of death. Serum levels of sodium and potassium were normal. X-ray examination of the chest (fig. 1) revealed innumerable nodular densities uniformly scattered throughout the lung fields. These varied in diameter from 1 to 5 mm., and there was confluence of the lesions in the upper one-third of each lung. From a roentgenologic viewpoint, the appearance was consistent with that in miliary tuberculosis or in one of the other conditions capable of producing diffuse nodular infiltration of the lungs. An electrocardiogram on the second hospital day revealed sinus tachycardia, rather tall P waves in leads 2 and 3, and slight irregularity of rhythm due to a "wandering pacemaker."

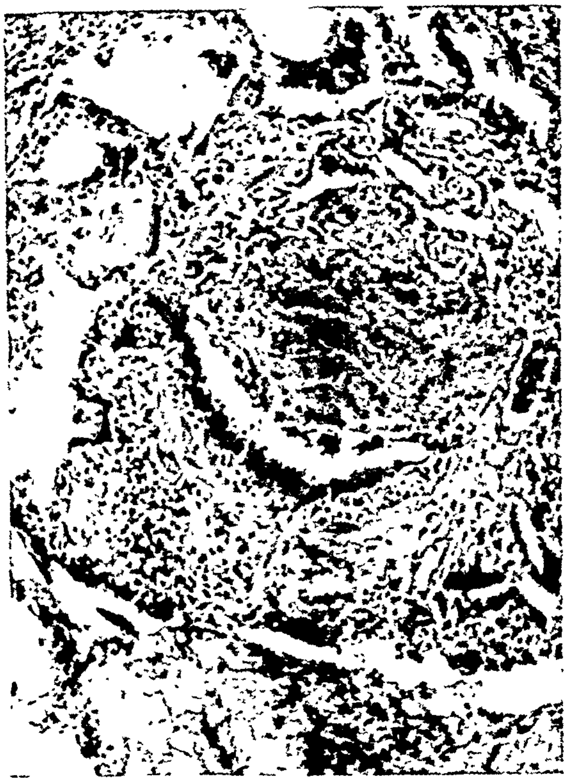


Fig. 3 (case 1).—Cross section through bronchiole, showing lumen almost filled by partially organized fibrin plug. Remnant of lumen is crescentic in shape and is partly lined by epithelium. At upper right, muscular coat is fragmented and plug is firmly attached to the wall (X 100).

At the time of the patient's admission, the clinical picture was that of an acute and widely disseminated pulmonary infection, unlike any of the familiar varieties, together with severe pulmonary insufficiency, which appeared likely to lead rapidly to a fatal outcome. The patient was placed in an oxygen tent; he was given codeine and later meperidine (Demerol) hydrochloride for suppression of his exhausting cough. He received several intravenous doses of aminophylline, which at first seemed to reduce bronchospasm; after the first 12 hours, however, this drug was clearly ineffective. Penicillin, streptomycin, and chloramphenicol (Chloromycetin) were administered intramuscularly in full doses. After a very brief period of slight improvement, the relentless downhill course of the disease continued. Early on Oct. 1, 1955, the patient's condition became rapidly worse, and during that day he became irrational and then comatose. He died on the evening of Oct. 1, 1955, having failed to respond to digitalis, diuretics, or emergency measures. Autopsy revealed no abnormalities elsewhere than in the lungs; these weighed 800 gm. (right) and 700 gm. (left), contained a slight excess of blood and edema fluid, and were filled throughout with innumerable small, discrete, grossly palpable nodules. No portion of either lung was spared. Microscopic sections (fig. 2-5) showed these nodules to be typical lesions of bronchiolitis fibrosa obliterans. The results of complete bacteriological, mycologic, and virologic examinations of pulmonary tissue at the laboratory of the Minnesota State Board of Health were essentially negative. The heart weighed 340 gm. and was normal throughout.

Case 2.—A 31-year-old farmer, brother of the patient in case 1, inhaled irritating fumes on the same day (Sept. 1, 1955), in the same silo chute, and under the same circumstances as his brother. He immediately noted cough and weakness, was nauseated, and vomited. Thereafter he was never totally well but was not incapacitated. He coughed and wheezed intermittently and became gradually more dyspneic. Rapid progression of symptoms began about Sept. 22, 1955, and on the following day he was found to have fever. His physician was consulted on Sept. 24; the patient was hospitalized at Glencoe on Sept. 26. X-ray examination (fig. 6) showed innumerable discrete miliary nodules throughout both lungs, without confluence. His condition, already critical, became rapidly worse. On transfer to Northwestern Hospital, Minneapolis, on Sept. 27, he appeared slightly less gravely ill than his brother (case 1) but became rapidly worse and died in shock and stupor 18 hours after admission. The blood carbon dioxide level was 34.5 mEq. per liter (77 vol. %). Cultures were all negative. Bone-marrow biopsy findings were normal. Autopsy findings were closely similar to those in case 1. The right lung weighed 650 gm. and the left 550 gm.; both contained a slight excess of blood and edema fluid. Microscopic sections of the lungs revealed that they were filled with the tiny nodular lesions of bronchiolitis obliterans, identical with those found in case 1.

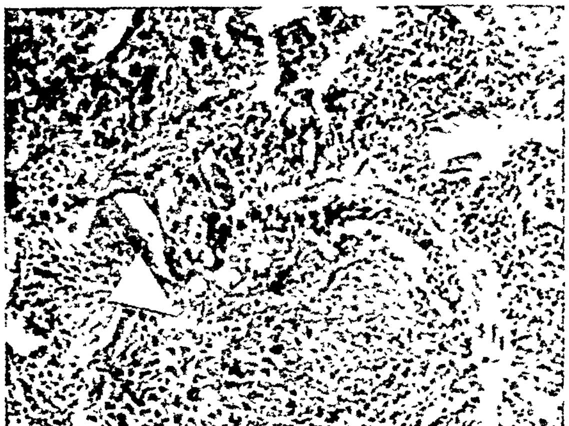


Fig. 4 (case 1).—Further stage in organization of a bronchial plug About half of the muscular coat remains intact but elsewhere has been destroyed (arrows), permitting free ingrowth of fibroblastic tissue. Lumen is obliterated, and no epithelium remains (X 100).

CASE 3.—A 48-year-old male farmer filled his silo with corn silage on Sept. 2 and 3, 1955. He climbed the ladder in the chute Sept. 4 and had to ascend twice because he was nearly overcome by fumes, he was forced to abandon his first attempt After recovering from this exposure, he felt quite weak but stated that he had no cough or dyspnea until Sept. 23, when he developed shortness of breath and diarrhea. The dyspnea progressed rapidly and led his physicians to hospitalize him on Sept. 27. On admission, the patient's temperature was 100 F (37.8 C), his pulse 112 per minute, and respiratory rate 50 per minute He became steadily worse, while receiving antibiotics and oxygen X-ray study (fig. 7) showed diffuse nodular infiltration throughout both lungs. The nodules were larger and the infiltration appeared even more extensive than in cases 1 and 2 On Oct 1, at the suggestion of a consultant, intramuscular administration of 10 mg. of prednisolone (Delta Cortef) three times a day was started. The response was dramatic, and the patient felt better in 12 hours On Oct 3, a roentgenogram showed some clearing of the pulmonary lesions The patient was discharged on Oct. 10, 1955, and has remained well He returned to work about Nov. 1, 1955. Serial x-ray studies of the chest (fig 8) have shown progressive resolution of the nodules, but in March, 1956, tiny nodular densities were still detectable throughout both lung fields.

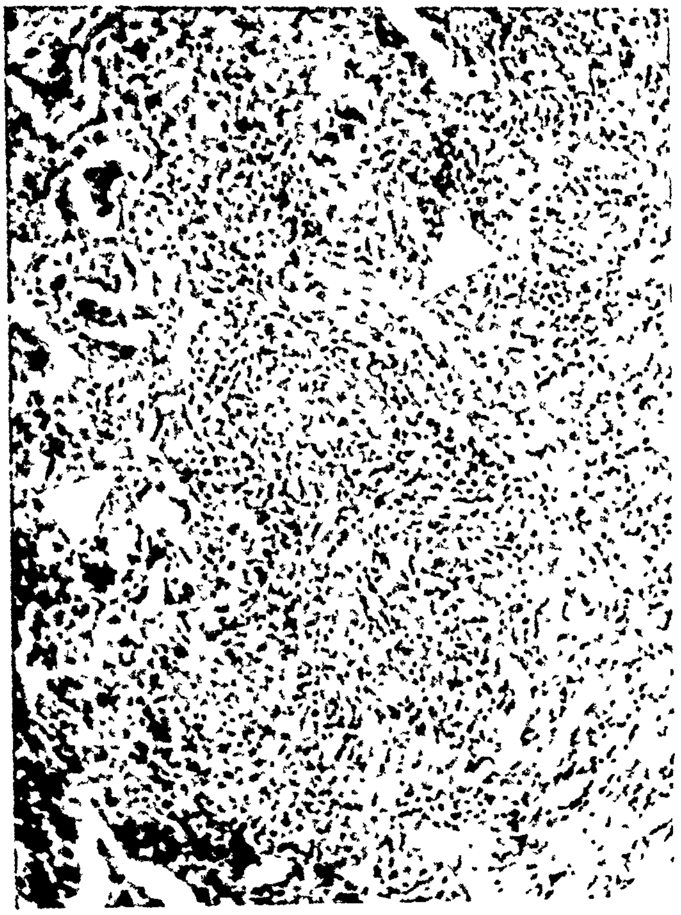


Fig 5 (case 1) —Late stage of obliteration of a bronchiole, whose original location is marked only by two fragments of the muscular coat (arrows). These lie in the midst of proliferating fibrous connective tissue, which is also overgrowing and obliterating the architecture of surrounding lung tissue (X 100)

CASE 4.—A 45-year-old male farmer began to add corn to his silo (still nearly one-half full of alfalfa silage put there in May, 1955) during the morning of Sept. 23, 1955. On Sept. 24, he climbed a ladder in the chute to look for a lost tool, noted irritating fumes and "inability to get air" about half-way up, and was forced to rest before descending. He was almost free of symptoms until Oct. 3. Dyspnea was noticeable then and increased steadily; he first visited his physician on Oct. 14. Breathing was more labored by Oct. 17, and the patient went to the hospital for x-ray study of the chest (fig. 9), which showed extensive, diffuse nodular pulmonary infiltration. He returned home, but was practically unable to move because of dyspnea. At the time of his admission to the hospital on Oct. 20, his temperature was 102.2 F (40 C) and his pulse 112 and respirations 54 per minute; cyanosis was pronounced. He immediately received prednisone in full doses and was given no antibiotic Considerable improvement was noted within 24 hours. By Oct 29, therapy was discontinued, and he was discharged from the hospital on that day. He had employed over-ripe corn as silage and had used heavy nitrate fertilization this year for the first time. He returned to work Nov. 20, 1955. Roentgenograms made at intervals demonstrated resolution of the nodular infiltrate which, however, had not completely disappeared on Jan 30, 1956 (fig. 10), although the patient had disclaimed any residual symptoms for one month previously

Characteristics of Syndrome

The following cardinal points, noted in all four patients. can be considered characteristic of the clinical picture of silo-filler's disease with bronchiolitis obliterans. 1. There is a history of inhalation of irritating gas in or about a silo within a short time (from a few hours to three or four days) after filling is commenced. 2. Cough and dyspnea with a sensation of "choking" and severe weakness are noted immediately upon exposure and do not relent completely during the illness. 3. There is a two-to-three-week period after exposure characterized by a relative remission of symptoms, though some cough, malaise, and dyspnea remain and weakness progresses. 4. Onset of a second phase of illness occurs about three weeks after initial exposure. often accompanied by chills. There is fever, with progressively more severe dyspnea, cyanosis, and cough, which do not respond to administration of antibiotics, oxygen, or bronchodilators and lead to death (or else to the beginning of recovery) three and one-half to six weeks after exposure. 5. Numerous fine and medium moist (bubbling) inspiratory rales are heard over the entire extent of both lungs, together with a few moist expiratory rales and prominence of sibilant,

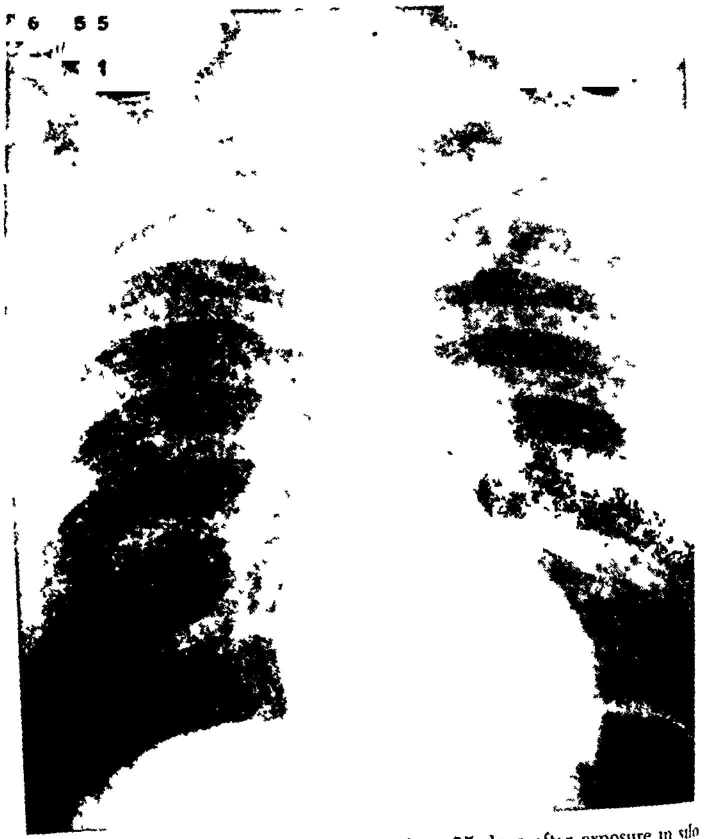


Fig. 6 (case 2).—Roentgenogram of chest 25 days after exposure in silo chute and only 2 days before death. Innumerable discrete nodules are scattered densely throughout both lungs.

asthmatic-type rales during expiration (signifying obstruction of small bronchi and bronchioles). 6. X-ray examination of the chest reveals uniform infiltration of all lung tissue with innumerable discrete nodular densities. The typical roentgenogram cannot be distinguished from that in acute miliary tuberculosis (or any one of the other conditions producing diffuse miliary nodulation in the lungs). Confluence of the lesions may be found in severe and advanced cases (e. g., case 1). 7. Laboratory studies show moderate to marked neutrophilic leukocytosis. In the late stages of the disease, progressive increase of blood carbon dioxide levels, indicating retention of this gas in spite of extreme respiratory effort, is, in our experience, a poor prognostic sign. Results of all other laboratory tests are normal; cultures of blood, sputum, and bone marrow for bacteria and fungi and virus studies are all negative.

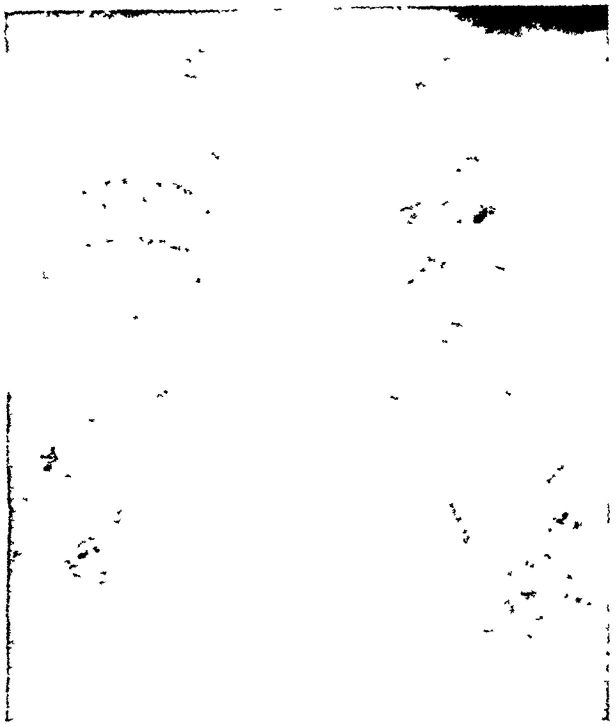


Fig 7 (case 3) —Chest roentgenogram 23 days after exposure to silage fumes

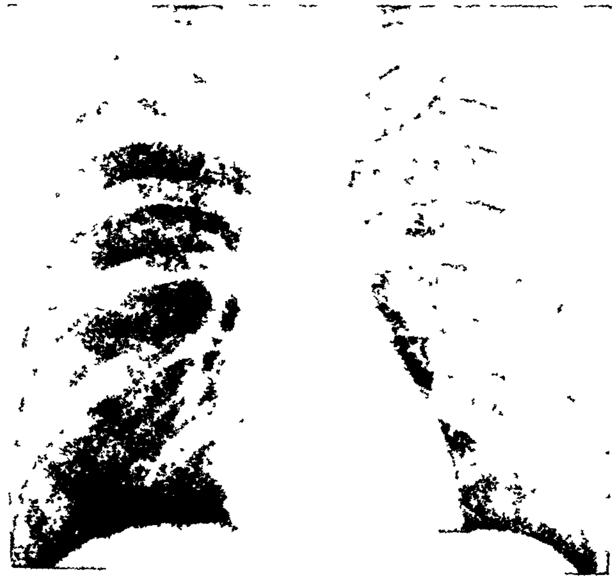


Fig 8 (case 3) —Roentgenogram made 24 days after that in fig 7 and 20 days after start of treatment with hydrocortisone and prednisone

Etiology and Pathogenesis

The diseases that occurred in these four individuals are seen to have been remarkably similar in pattern, the similarity of roentgenographic findings is equally striking, since the picture is an unusual and distinctive one. Our working hypothesis, at this point, formulated for the purpose of eventual testing, is that all four patients were afflicted with an apparently identical illness produced by one and the same etiological agent. On that assumption, all four cases are instances of bronchiolitis fibrosa obliterans, since this diagnosis has been proved by autopsy for the patients in cases 1 and 2 Moreover, since no significant pathogen has been recovered by culture from any of the patients, the initial inhalation of irritant gas by all of them must tentatively be considered the most likely cause of the illness.

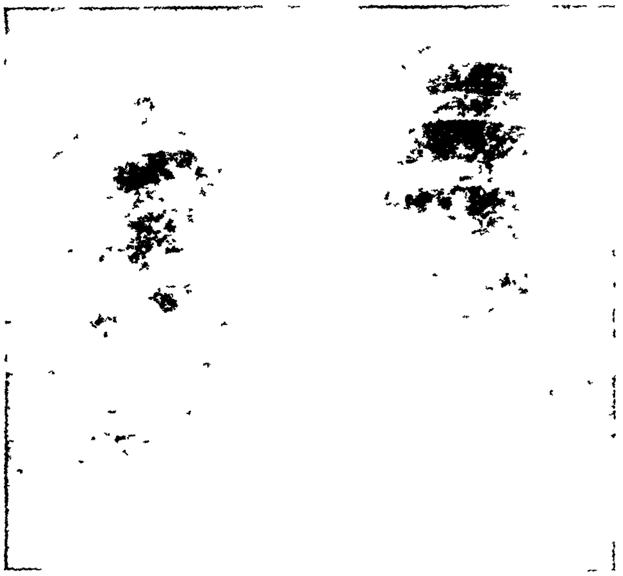


Fig 9 (case 4) —Chest roentgenogram 23 days after exposure to silage fumes and 3 days prior to administration of first dose of hydrocortisone

The next essential step in developing the above hypothesis is identification of a gas that is (1) irritating to the surface lining of the respiratory tract, (2) capable, on inhalation, of causing bronchiolitis obliterans in man, (3) demonstrated to be formed early in the course of silage fermentation, and (4) evolved by silage, under conditions that may occur in normal silo operation, in concentrations sufficient to cause pulmonary disease (including bronchiolitis) in man and animals.

Incidence and Pathogenesis of Bronchiolitis Obliterans and the Possibility of Causation by Nitrogen Dioxide—The pathological entity, bronchiolitis obliterans, is indeed rare. In a series of 70,281 autopsies performed during the 34-year period from 1919 to 1952, filed and indexed in the department of pathology, University of Minnesota Medical School, there were noted but two instances of bronchiolitis obliterans. The pathological features of the condition are very distinctive, and rigid criteria must be employed in making this diagnosis. The lungs contain innumerable, uniformly distributed lesions, which are grossly visible and palpable as firm, discrete nodules of miliary size. Microscopically, each nodule consists of a small bronchus or bronchiole filled with a rather cellular fibrinous exudate; organization of this adherent plug of fibrin by ingrowth of fibroblasts from the bronchial walls tends eventually to occlude the lumen. Bronchiolitis obliterans can be caused by inhalation of an irritant gas[4] or can occur as a complication of certain infections[5] of the lungs and bronchi. It can also be of unknown etiology. Of the known causes, gas inhalation is the most frequent and the most definitely identifiable. It has been shown clinically and experimentally that the oxides of nitrogen[6] as well as certain other toxic gases[7] are capable of producing the condition. These others include phosgene, chlorine, chloropicrin, ammonia, hydrogen chloride, and probably sulfur dioxide. Statistically, the oxides of nitrogen—ordinarily nitrogen dioxide and tetroxide, both of which are relatively stable—have been incriminated in a majority of the total documented cases of bronchiolitis obliterans caused by irritant gas.[8]

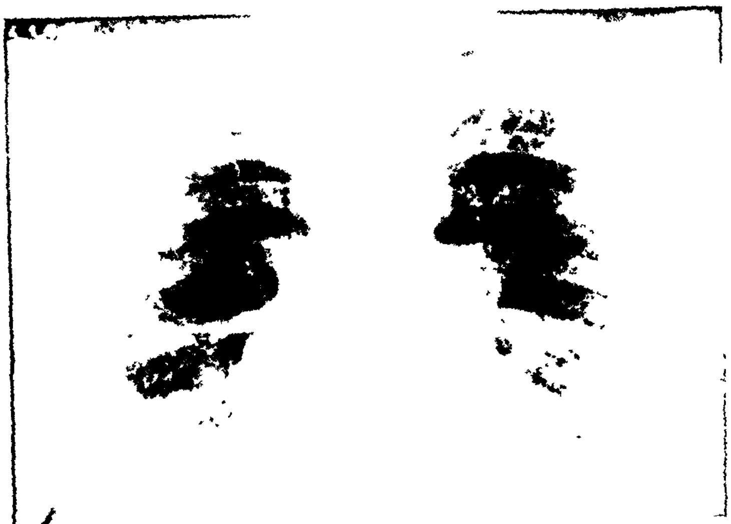


Fig. 10 (case 4).—Appearance of chest on follow-up visit three months after discharge. Patient clinically well.

Among the first gases to be considered, then, in our ch for a toxic agent that might cause silo-filler's isease, were the oxides of nitrogen. At that point in the investigation, our attention was directed to a recent review by McAdams[8a] in which one fatal case of bronchiolitis obliterans due to accidental nitrogen dioxide inhalation was reported. The circumstances of exposure in his case—explosion of several flasks containing red fuming nitric acid in a laboratory, which quickly filled with dense fumes of nitrogen dioxide—identified the gas beyond doubt. The clinical course of the victim's illness—even as to duration of each of its phases—and the observations made at autopsy were identical with the corresponding features in our cases 1 and 2.

Production of Nitrogen Dioxide in Silos.—In the agricultural literature and that of veterinary medicine, reports have been found[9] that contain acceptable evidence that nitrogen dioxide, in toxic amounts, may be given off in the process of silage fermentation. We do not know, as yet, how frequently this occurs, nor will it be possible, until analyses of air samples from silos have been conducted during the 1956 growing season, to measure directly the concentration of nitrogen dioxide attained in full-scale silos. In the meantime, however, information obtained indirectly, through analyses of gas evolved by experimental miniature silos, has been most helpful.

During our studies of this entire problem of toxic "silo gas," we have frequently sought the assistance of our colleagues in the agricultural sciences. Briggs, Jezeski, and Otis,[10] already engaged in a research project concerned with many aspects of silage-making, have in operation a number of miniature experimental silos in which they are studying the properties of different crops with respect to their potential value as silage. The temperature, moisture, nitrate content, and other factors can be altered and accurately controlled in this apparatus, and the gaseous products of silage fermentation under different conditions can be collected and analyzed. Preliminary data derived from such experiments indicate that, although actual amounts of gas vary considerably with growing conditions, a surprisingly large amount of nitrogen dioxide is formed during the first week of silage fermentation. Observed concentrations have ranged from 200 to 4,000 ppm. These figures are not directly comparable with those to be anticipated upon analysis of air samples from full-scale silos, but they indicate that silage may, without doubt, give off sufficient nitrogen dioxide to endanger men and animals. The maximum concentration of this gas in inspired air considered safe for man is 10 to 25 ppm by volume, in contrast to the far larger amounts found in the experiments mentioned above. Peterson and co-workers,[9] in 1949, found 151 ppm of this gas in a sample of silo-room air collected two days after completion of silo filling. This is the only report we have found dealing with quantitative analysis of silo air for nitrogen dioxide. Evolution of the gas begins within a few hours after the start of silo filling, reaches a maximum between one and two days later, and continues at a decreasing rate for a week or longer. No other irritant gas has thus far been noted, and there is no reasonable likelihood that any other such gas could be produced by silage in concentrations approaching toxicity for man.[10]

It may also be stated[10] that oxides of nitrogen emanating from silage are derived almost entirely from inorganic nitrates in the plant. Thus the potential concentration of gas is roughly proportional to the nitrate concentration of the silage crop. Factors known to increase plant nitrates are drought, highly nitrated soil (such as that fertilized with nitrates), and immaturity of the plant itself.[10] A trend in modern farming methods toward increasing use of organic nitrates in fertilizing mixtures and also of other commercial chemical compounds containing nitrogen appears likely to favor increasingly high nitrate concentrations in crops generally.

Other Effects of Nitrogen Dioxide upon Lungs and Bronchi.—This discussion of silo-filler's disease would be incomplete without a brief consideration of other types and degrees of damage to the respiratory system that have been shown, either clinically or experimentally, to result from inhalation of nitrogen dioxide, whether generated in a silo or elsewhere. As might be anticipated, most of the reports concerning nitrogen dioxide poisoning have dealt only with fatal cases, and of these a good number have been recorded. The excellent review of this subject published by von Oettingen[3b] in 1941 refers to at least 175 documented fatalities due to inhalation of this gas prior to that date. The victims died of acute pulmonary edema for the most part, and survived a very short time, varying from one hour or less to a maximum of about three days, after exposure. Another smaller, but distinct, group of individuals, after inhaling toxic amounts of nitrogen dioxide, are reported to have died from bronchiolitis obliterans; these deaths have occurred about three to five weeks after exposure to the gas.

Finally, it is reasonable to suppose that inhalation of nitrogen dioxide in an amount less than that necessary to cause death may produce some degree of injury to the bronchial or bronchiolar mucosa.[11] Individuals exposed to such sublethal concentrations presumably survive the experience; they may develop minor symptoms or none at all.[12] Further careful clinical study of such survivors, both human (when discovered) and also among experimental animals, will be needed to complete the picture of silo-filler's disease. We believe that the evidence, though still fragmentary, strongly suggests that a continuous spectrum, consisting of different types and degrees of bronchopulmonary injury by nitrogen dioxide, exists, and will come to be better understood. In such a spectrum, the bronchiolitis obliterans that we have noted would occupy a place among the more severe types of nitrogen dioxide poisoning resulting from silage fumes.

With this hypothesis in mind, it is of great interest to note that two additional cases of silo-fillers disease have recently been studied by Delaney and co-workers at the Mayo Clinic.[1b] One of these patients died of acute pulmonary edema 36 hours after exposure to fumes in a silo that he was in the process of filling. The second patient also inhaled fumes inside a silo that was being filled; he developed a protracted chronic illness, with extensive bilateral pulmonary infiltration. However, he was never gravely ill, and, although the appearance of the chest roentgenogram closely resembled that seen in bronchiolitis, the clinical course was far different, since this man recovered spontaneously after six to eight weeks of illness without receiving one of the corticosteroids or related compounds. It is our impression that this man had an extensive, confluent bronchopneumonia rather than a true obliterating bronchiolitis.

These cases, reported by Delaney and associates, serve to reinforce the suggestion that in silo-filler's disease we are dealing with a continuous spectrum of conditions whose manifestations are likely to differ widely and whose degree of severity depends upon (1) concentration of nitrogen dioxide inhaled and (2) duration of exposure in each individual instance. Clearly, the conditions of exposure may vary greatly, and the only essential clinical feature common to all cases is a definite history of recent inhalation of irritating fumes (nitrogen dioxide) in or near a silo.

At the present time, then, we may state that nitrogen dioxide poisoning can occur as a result of inhalation of fumes given off by fresh silage. Silo-filler's disease seems to us an appropriate and descriptive name for cases of respiratory disease clearly shown to have resulted from inhalation of nitrogen dioxide in this fashion.

Experimental work is planned that ultimately should define much more clearly the safe limit of concentration for nitrogen dioxide in inspired air. Other studies now in progress are designed to determine accurately how much time must elapse after silo filling begins before a dangerous quantity of nitrogen dioxide may accumulate; at the same time, the maximum duration of a dangerous period in silos will be determined. Finally, a simple qualitative test for nitrogen dioxide should be developed. Such a test, to be practical, must be reliable, so that the farmer who employs it may know when he can safely enter his filled silo. Furthermore, it must be sufficiently simple and rapid so that he will not be unduly delayed in his daily activities.

Prevention

Prevention of the inhalation of silo gas is simple, in theory at least. At the present time, a reasonable plan that may be suggested to farmers is as follows: 1. Allow no one to enter a silo for any purpose from the time filling begins until 7 to 10 days after it is finished. 2. Provide good ventilation about the base of the silo during this period, so that toxic gases, if they develop, will be carried away. 3. Provide fencing (or other effective means) to prevent children and animals from straying into any spaces adjoining a silo during this dangerous period. 4. Always run the blower fan before entering any silo.

The first of these rules alone, if strictly followed, would effectively prevent silo-filler's disease in man. The difficulty remains, however, that farmers generally have known for a long time that silos are dangerous during the week immediately after filling, but their actions do not reflect this knowledge. Each of the four patients in this series stated that he knew he was taking a risk when entering a recently filled silo. The fact that not one of them was deterred by the knowledge strongly suggests that their ideas about this "possible" hazard were not sufficiently definite to make them regard the danger as real. It is hoped that the concrete information embodied in this report may, by better defining the hazard, cause it to be regarded more realistically. It will be well to reemphasize here a point that is now self-evident. By outlining for farmers and silo workers the limits of a danger that they have long recognized as existing in a vague manner, we can show them how to eliminate this hazard from silo operation. Clearly, this simple means of increasing the safety of silos cannot possibly be considered as a deterrent to the making of silage. On the contrary, it should be regarded as justification for an even wider use of silage and of silos, with a serious, if limited, hazard eliminated.

Treatment

Since exposure to the higher concentrations of silo gas or nitrogen dioxide must be rapidly fatal in spite of any treatment, prevention is obviously the treatment of choice. Up to the present time, there has been very little experience with treatment of those who survive the immediate postexposure period. Although further extension and proof are required, it is deemed worthwhile to mention the apparently favorable response to corticosteroids noted in two patients (cases 3 and 4).

It may reasonably be inferred, from the cases reported here, that, if an individual inhales a toxic amount of nitrogen dioxide, diffuse nodular infiltration of the lungs is one of the likely consequences. The histories of the patients in cases 3 and 4 strongly suggest that any patient developing bronchiolitis obliterans of this type should receive full doses of hydrocortisone, prednisone, or one of the related steroids as promptly as possible. However, the diagnosis must be assured before these drugs are used, because several widespread infections, particularly miliary tuberculosis, may create a similar x-ray picture (and sometimes clinical picture as well); in such conditions, the use of steroids alone is not the most desirable form of treatment. The fact must be emphasized that this diagnosis requires an undoubted history of inhalation of irritating gas or fumes in or near a recently filled silo.

Summary and Conclusions

A newly recognized clinical entity, namely, bronchiolitis fibrosa obliterans caused by inhalation of oxides of nitrogen produced in recently filled silos, was seen in four patients. The facts leading to our conclusion regarding etiology were as follows: 1. All four patients became ill immediately upon inhaling irritating fumes in a silo or silo chute, and exposure occurred within 48 hours after filling of the silo was initiated. 2. All four presented clinical and roentgenographic findings of bronchiolitis obliterans. Two of the patients died and were found, at autopsy, to have the classic pathological lesions of the condition. 3. gen dioxide is an irritant gas and has been dem- ated to be capable of causing bronchiolitis oblit- ans upon inhalation. No other gas fulfilling these criteria has been found to emanate from silage. 4. Experimentally, nitrogen dioxide is shown to be produced early in silage fermentation; under certain conditions of soil and moisture, high concentrations—far higher than the safe limit for man—occur. We have chosen to designate as silo-filler's disease the group of pathological and clinical entities resulting from the inhalation of nitrogen dioxide in or near freshly filled silos; bronchiolitis obliterans arising from this should be regarded as one form of silo-filler's disease. Nitrogen dioxide inhalation may (in theory at least) produce a variety of bronchopulmonary conditions; the chief factor determining the type of damage is the amount of the gas inhaled. A recent report of two instances of silo-filler's disease that were widely different from our cases tends to support this conclusion. It is noted that the present trend in agriculture toward greater use of commercial chemicals containing nitrogen may tend to increase production of nitrogen dioxide from silage and hence may increase the possibility of exposure to this gas. Safety measures will prevent the inhalation of toxic silo gas, provided they are enforced. Two cases of bronchiolitis obliterans have been treated with adrenocortical steroids, with apparent success. It is important to establish a firm diagnosis (based essentially upon history of exposure) before using one of these drugs.

629 Medical Arts Bldg. (2) (Dr. Lowry).

Drs. Duane C. Olson and V. A. Schulberg, Gaylord, Minn., gave permission to report case 3. Drs. H. G. Deerhake, P. A. Connaughton, and E. Steere, Lima, Ohio, gave permission to report case 4.

References

1. (a) Lowry, T.: Silo-Filler's Disease: Newly Recognized Syndrome, editorial, Univ. Minn. M. Bull. **27**: 203 (April 1) 1956. (b) Delaney, L. T., Jr.; Schmidt, H. W., and Stroebel, C. F.: Silo-Filler's Disease, Proc. Staff Meet. Mayo Clin. **31**: 189-198 (April 4) 1956. (c) Lowry, T., and Schuman, L. M.: Silo-Filler's Disease: Newly Recognized Syndrome Caused by Nitrogen Dioxide Inhalation, with Report of Six Cases, Univ. Minnesota M. Bull. **27**: 234-238 (May 1) 1956.

2. Footnote 1a and c.

3. (a) Wood, F. C.: Poisoning by Nitric Oxide Fumes, Arch. Int. Med. **10**: 478-504 (Nov.) 1912. (b) von Oettingen, W. F.: Toxicity and Potential Dangers of Nitrous Fumes, Public Health Bulletin 272, Industrial Hygiene Division, National Institute of Health, United States Public Health Service, 1941. (c) Schultz-Brauns, O.: Fatal Poisonings by Gaseous Nitrogen Oxides from Working with Nitric Acid, Virchows Arch. path. Anat. **277**: 174-220, 1930; cited by von Oettingen.[3b] (d) Fraenkel, A.: On Bronchiolitis Fibrosa Obliterans with Remarks on Hyperemia of Lungs and Indurating Pneumonia, Deutsches Arch. klin. Med. **73**: 484, 1902; cited by Wood.[3a] (e) Nichols, B. H.: Clinical Effects of Inhalation of Nitrogen Dioxide, Am. J. Roentgenol. **23**: 516-520 (May) 1930. (f) McAdams, A. J., Jr.: Bronchiolitis Obliterans, Am. J. Med. **19**: 314-322 (Aug.) 1955. (g) LaDue, J. S.: Bronchiolitis Fibrosa Obliterans: Report of Case, Arch. Int. Med. **68**: 663-673 (Oct.) 1941.

4. (a) Blumgart, H. L., and MacMahon, H. E.: Bronchiolitis Fibrosa Obliterans: Clinical and Pathologic Study, M. Clin. North America **13**: 197-214 (July) 1929. (b) Footnotes 3d and g.

5. Winternitz, M. C.; Wason, I. M., and McNamara, F. P.: Pathology of Influenza, New Haven, Conn., Yale University Press, 1920. Footnote 4a.

6. Footnote 3a, d, e, and f.

7. Winternitz, M. C.: Collected Studies on Pathology of War Gas Poisoning, New Haven, Conn., Yale University Press, 1920.

8. Footnote 3b and c.

9. Peterson, W. H.; Thoma, R. W., and Anderson, R. F.: Yellow Gas from Corn Silage, Hoard's Dairyman **94**: 870-871 (Dec. 10) 1949.

10. Briggs, R. A.; Jezeski, J. J., and Otis, C. K.: Unpublished data.

11. Wirth, W.: Contribution to Action of Gas Mixtures (Nitrous Fumes and Carbon Monoxide), Arch. exper. Path. u. Pharmakol. **157**: 264-285, 1930; cited by von Oettingen.[3b] Pflesser, G.: Nitrogen Monoxide and Nitrogen Dioxide Poisoning, ibid. **181**: 145-146, 1936; cited by von Oettingen.[3b]

12. Lehmann, K. B., and Hasegawa: Studies on Effect of Technically and Hygienically Important Gases and Vapors on Man: XXXI. Nitrous Fumes, Arch. Hyg. **77**: 323-368, 1913.

Lung Abcess.—In all the annals of medical therapeutics, one cannot find a story to parallel the progress made in the treatment of pulmonary abscesses. A scant 18 years ago saw pulmonary abscesses carrying a mortality of 34 per cent and a morbidity even higher than that. It a patient were fortunate enough to survive the acute phase of his abscess, in approximately 50 per cent of the cases, he would carry a chronic draining broncho-pleural cutaneous fistula, bronchiectasis, or recurrent pulmonary hemorrhage, which would eventually cause his death. Recently Waterman and Dorm showed that the mortality rate in over 200 cases was less than 10 per cent. Even more important is the lowering of the morbidity following an acute pulmonary abscess. With the use of antibiotics, conservative draining procedures, and surgery, one is able to handle satisfactorily 80 per cent of the acute lung abscesses. The major contributing factor in this miraculous change in a very serious disease is the antibiotics that are now available for the treatment of acute pulmonary infections. In addition to this, the improved techniques for thoracic surgery have lowered the mortality and morbidity of those cases not responding to ordinary therapeutic measures. In spite of this very optimistic picture, we feel that lung abscesses still must be considered a serious disease.—W. A. Hopkins, M.D., J. Free, M.D., and M. B. Davis, M.D., The Treatment of Lung Abscess, *Journal of the Medical Association of Georgia*, February, 1956.

HYPOTHYROIDISM IN THE ADOLESCENT

Felix P. Heald, M.D., Robert P. Masland Jr., M.D., Albert E. Renold, M.D.
and
J. Roswell Gallagher, M.D., Boston

- *Important criteria for judging the status of adolescent patients with respect to the thyroid are the measurement of the uptake of radioactive iodine by the thyroid, the measurement of protein-bound iodine in the plasma, the response of both measurements to administration of the thyroid-stimulating hypophysial hormone, the basal metabolic rate, the serum cholesterol level, and the skeletal age as measured by hand-wrist roentgenograms. In one case here described, inadequate treatment of congenital cretinism had resulted, by the age of 13 years, in physical, emotional, and intellectual retardation; in a second case, myxedema resulted in pseudo-obesity and retarded skeletal growth; in a third, the skeletal age was two years less than the chronological age of 17 years, and sexual maturation had barely begun. Medication with desiccated thyroid had strikingly beneficial effects in these three. A fourth patient appeared to be overweight and had a low basal metabolic rate by surface-area standards; by height standards, however, his basal metabolic rate was found to be normal. Other criteria also showed that his thyroid status was normal. On suitable dietary management alone the changes of adolescence in this patient were completed normally without thyroid.*

Certain misconceptions regarding hypothyroidism in the adolescent are encountered so frequently that it would appear profitable to review some of the clinical and laboratory aspects of this disorder. Too often the obese adolescent is thought to be hypothyroid when actually there is no clinical or laboratory evidence to support the diagnosis. In contrast, the cold-skinned, thin, slow-maturing adolescent is rarely considered a thyroid problem, and yet a thorough diagnostic study may reveal him to have a thyroid deficiency. Furthermore, inaccuracies in computing the basal metabolic rate in the obese patient who complains of fatigue are common enough to merit further discussion. Such matters and representative cases of hypothyroidism in the adolescent are presented in this review.

Hypothyroidism in the adolescent differs from that in the adult in one important aspect. This difference is its effect on growth and development. The progress of osseous growth and development is dependent in part on adequate levels of thyroid hormone, and prolonged thyroid deficiency that retards osseous development in the growing child or adolescent obviously cannot affect in this way the adult whose growth is complete. Clinically what one sees is a retardation or a cessation of growth in a child whose growth had previously been progressing in an orderly fashion. These findings alone do not make the diagnosis of hypothyroidism but should alert the physician to a careful and thoughtful appraisal of the adolescent's growth and development.

While clinical evaluation remains the most important factor in the diagnosis of thyroid dysfunction, a number of laboratory aids have proved their usefulness. These can be classified either into measurements of thyroid hormone synthesis or into measurements of metabolic defects resulting from alterations in the levels of circulating thyroid hormone. We include in the former the measurement of the uptake of radioactive iodine (I^{131}) by the thyroid gland, the measurement of protein-bound iodine in plasma, and the response of both these indexes to the thyroid-stimulating hormone of the pituitary. Among the changes that are secondary to the decrease in circulating thyroid hormone, we measure basal metabolic rate, serum cholesterol level, and bone age.

The determination of the basal metabolic rate merits some discussion. The basal metabolic rate is still to be considered a useful measurement, but its many limitations have to be kept in mind when interpreting the results. It is not a direct measure of thyroid function but a measure of the resting metabolic state. Technical errors are frequent but relatively easy to detect: endogenous interferences resulting in failure to obtain a true basal metabolic level can usually be established by careful questioning and observation of the patient. The chief and least frequently recognized error arises in the calculation of the metabolic rate of obese adolescents.

That formulas that include weight produce erroneous results in those patients is easily understood when one realizes that up to 30% or more of total body weight may consist of fat, which we know to have a low metabolic activity. In fact, basal metabolism seems to be closely related to fat-free active tissue mass.[1] If this is the case, this, rather than a formula that includes total weight, would be a more accurate basis for determining basal metabolism. Unfortunately, however, at the present time the measurement of fat-free tissue is impractical for routine use.

When the patient's fat is not taken into consideration in the calculation of the basal metabolic rate, an erroneously low figure for basal metabolic rate will be obtained. This error is especially likely when surface area standards are used[2]; the reason for this is that as weight increases the surface area does not increase in proportion to the increase in body tissue mass.[1] In our experience it is helpful to calculate the basal metabolic rate of overweight adolescents on the basis of standard height tables.[2] It is to be remembered that the basal metabolic rates calculated in this manner tend to be a little high, but they certainly cor-

---

From the departments of pediatrics and medicine, Harvard Medical School, and the Adolescent Unit of the Children's Hospital, Children's Medical Center.

Read before the Ninth Clinical Meeting of the American Medical Association, Boston, Nov. 30, 1955.

relate more closely with one's clinical impression and with other laboratory tests than do the basal metabolic rates of young obese patients calculated on surface area standards.

From the foregoing, it is clear that the basal metabolic rate of an obese adolescent should be carefully evaluated and appropriately calculated. If it is low, careful appraisal of its method of calculation and of the patient's history and physical examination should be made. Subsequently, any lingering doubts about thyroid deficiency can usually be resolved by such measurements of thyroid function as I^{131} uptake and protein-bound iodine level. As a screening method, determination of the protein-bound iodine level seems to be the most satisfactory means of assaying thyroid function.[1] This test is accurate and reproducible and represents a relatively direct measure of circulating levels of thyroid hormone. The possibility of its invalidation by previous iodine therapy should, however, be kept in mind.

The evaluation of skeletal age by means of hand-wrist roentgenograms is a valuable procedure in the study of patients presenting growth problems.[1] Lowered body metabolism due to true thyroid deficiency directly affects and retards skeletal growth, and if the bone age is equal to or advanced beyond the chronological age, there is little reason to suspect thyroid deficiency. However, retarded skeletal development may represent a normal variation in growth, may be evidence of hypothyroidism, or may accompany pathological processes other than hypothyroidism.

Report of Cases

CASE 1.—A patient had congenital hypothyroidism or cretinism that had been inadequately treated over a period of many years. The most striking findings were the generalized retardation of all osseous development, poor peripheral circulation, and failure of certain body structures to differentiate. The patient came to the adolescent unit of the Children's Hospital at age 13 because of physical, emotional, and intellectual retardation. Her present illness dated from infancy. Her delivery had been normal, but in the first six months of life she was slow, sleepy, and a poor eater. Her weight gain was slow and food intake poor. When she was 17 months of age, a physician said she had an incurable glandular disease and prescribed two small white pills after each meal. This medication was continued for years, but its administration was sporadic and according to the mother's or the child's whims. The child's growth and development continued to be slow and her appetite poor until the time she was seen in our unit.

The patient's height was 43 in. (109.2 cm.) and her weight 68 lb. 12 oz. (31.1 kg.). Her blood pressure was 80/60 mm. Hg, pulse rate 60 per minute, and respiration 24 per minute. She was a very small and "obese" child, with a full face and periorbital edema. Her olive skin was extremely dry and cool throughout and her hair abundant but coarse. All but eight of her teeth were primary ones. Her thyroid was not palpable. Fat pads of moderate size above the clavicles and a hump at the back of the neck were noted. The abdomen was protuberant, and an umbilical hernia was present. There was pitting edema of the lower extremities. Hematological studies showed moderate normochromic anemia. The serum cholesterol level was 410 mg. per 100 cc. A hand-wrist x-ray demonstrated a bone age of 7 years, which was six years behind her chronological age. A gradually increased dosage of thyroid extract was prescribed. After a period of adequate therapy, the patient became euthyroid, and gradually her physical status improved.

CASE 2.—This patient presents a classic picture of myxedema, the end-result of prolonged hormone deprivation. Although she appeared fat, the important fact is that she was not truly obese. Her pseudo-obesity is of the type that is often taken for true obesity and has led to the confusion of hypothyroidism with obesity. This patient was brought to our unit at age 12 years and 6 months because she had changed from a very slender child to a very fat one during the previous 12 months. Two years prior to admission she had had abdominal pain for a two-week period. Gastrointestinal roentgenograms at that tim were reported as showing her small intestine "almost closed." She was given a low-residue diet at that time, but her intermittent abdominal pain persisted. Formerly a sound sleeper she began to wake easily at night, and, although she had had good appetite, it became poor. Her mother thought that th child's hair was becoming coarser than it used to be and sai that her general activity had become increasingly sluggish Frequent bulky stools had been noted in recent months. A her first visit, we found the patient to be a pleasant, but lethargic, plump child. She said she had noticed loss of appeti and loss of energy during the previous year.

Her weight was 102 lb. (46.3 kg.) and her height 53 i (134.6 cm.). Her skin was dry. The thyroid was soft but n enlarged. Her abdomen was protuberant. The reflexes we sluggish but equal. Her bone age was two years less than h chronological age. She showed a mild normochromic anemi The serum cholesterol level was 180 mg. per 100 cc., and t protein-bound iodine was below a measurable amount. Th patient was considered to have acquired myxedema and w given 30 mg. of thyroid extract daily. Her most striking respon to thyroid extract was the resumption of her growth. She also ha an initial weight loss followed by a weight gain, and her skin an peripheral circulation changed to a normal state.

CASE 3.—It is the obese adolescent whom the physician most frequently asked to evaluate, and the basal metabol rates should be calculated with due regard for the effect of e cessive fat on the result. This patient had gained weight rapid during his 13th year. His mother said that for the previous months he had been overweight and that he was still gaini weight. She explained that she herself was taking thyroid e tract. She believed that her son should have a metabolism te and that he needed thyroid extract.

On his first visit the patient was 13 years and 8 months age. His height was 66.5 in. (168.9 cm.) and his weight 1 lb. (57.6 kg.). He seemed to be an alert, healthy, well-adjust young boy whose appearance was typical of a moderately f adolescent. His hair was not coarse; his eyebrows were not thi The palms were moist, and his extremities were warm. The was nothing sluggish about his behavior, and his success in bo his school work and his outside activities was good. His bas metabolic rate calculated on surface area standards was −15 but when calculated on height standards it was −2%.

The patient appeared to be a perfectly normal young ad lescent. It was suggested that he restrict himself from suc fattening foods as gravy, mayonnaise, and cream and fri foods but that he continue to eat a diet relatively high in pr tein and calories. He was told that his growth and developme were perfectly normal and that in all probability as he gre taller he would thin out, but that processes of growth and d velopment could not be predicted with absolute certainty an that it would be well for him to be seen at three-month inte vals for evaluation of his progress. It was believed that th recommendation would not only reassure the boy but also mak it less likely that the mother would take him from doctor t doctor until "hormone injections" or thyroid extract were pre scribed or until he would reach the point where he would b really convinced that he was abnormal. Twenty-four month later, when he was 15 years and 8 months of age, his heigh was 67 in. (170.2 cm.) and his weight 132 lb. (59.9 kg.). H had completely lost the chubby appearance of a boy in earl adolescence and had acquired the secondary sexual characteristics of an adult male.

CASE 4.—At age 17, a patient came into our unit because of headaches, easy fatigability, fainting episodes, and slow maturation. Six months prior to admission he had noticed that his appetite was poor, that sports fatigued him quickly, and that he required more sleep than usual. Three months previously he began to have weak spells and fainted on several occasions. The fact that his younger sister was 4 in. taller than he was irritated him. He was a very pleasant, responsive boy who was puzzled by his symptoms and disgruntled with his small stature. He was 60.75 in. (154.3 cm.) tall and weighed 100 lb. (45.4 kg.) His pulse rate was 60 and his blood pressure 120/80 mm. Hg His hair was brittle and coarse, and his skin was cool and dry.

The thyroid was not palpable. Sexual maturation had barely begun. The laboratory results confirmed the clinical impression of hypothyroidism. The bone age was two years less than his chronological age of 17 years. The serum cholesterol level was 245 mg. per 100 cc., the protein-bound iodine level was 2.4 mcg per 100 cc., and the basal metabolic rate was –33%.

Administration of desiccated thyroid extract was begun, and the amount given was gradually increased. His easy fatigability diminished, and his alertness and responsiveness and appetite increased. His growth progressed, and his skin became warm and was not dry. In our experience this form of hypothyroidism is often unrecognized. It was not clear whether this boy had acquired hypothyroidism or whether he had a transient depression of thyroid function, but it is a fact that during thyroid extract therapy his physical status made a striking improvement. It should be emphasized that very few thin, late-maturing adolescents are hypothyroid, but this possibility should be kept in mind.

Comment

The first two patients illustrate situations classically associated with hypothyroidism and without essential differences in the adolescent age group. The fact that patients presenting similar findings are occasionally seen in a practice confined to the adolescent age group indicates the need to be on the lookout for adolescents whose hypothyroidism has had inadequate treatment in earlier years or who suffer from classic myxedema.

The third and fourth case reports illustrate the situations encountered when hypothyroidism is considered in the differential diagnosis of the obese or slow-maturing adolescent. The opinion that a fat, sluggish, fatigued adolescent who has a low basal metabolic rate has hypothyroidism still persists. However, when these young people are more carefully studied, little is found to suggest that thyroid deficiency exists. The history obtained from these obese adolescents is that of gradual accumulation of subcutaneous fat. Frequently this is associated with complaints of sluggishness or fatigue. The dietary history is invariably one of a normal to prodigious appetite, never an impaired one. A normal to prodigious appetite is incompatible with the diagnosis of true thyroid deficiency. Furthermore, the growth of these young persons, as determined by history, physical examination, or bone age, is normal. This militates against thyroid deficiency, since retarded growth is one of the outstanding features of hypothyroidism in adolescence. The physical examination also fails to divulge any of the classic features of hypothyroidism. The skin is warm, the palms are moist, the complexion is ruddy, the hair is not coarse, and there is no thinning of the outer eyebrows. Pulse rate and pulse pressure are found to be in the normal range, and subcutaneous tissue is firm in contrast to the loose, thick turgid skin seen in myxedema.

Case 3 illustrates the need to keep in mind that many young people tend to put on subcutaneous fat during early adolescence and that this in itself is not suggestive of hypothyroidism. In particular, great care should be used in interpreting basal metabolic rates in these patients. Desiccated thyroid extract should never be given on the basis of a single low metabolic rate, a low determination should only provoke a more critical evaluation of the entire clinical picture. Further laboratory investigation may be indicated if reappraisal still leaves the question of hypothyroidism in doubt.

On the other hand, a thin, dry and cold skinned, irritable adolescent (case 4) is often not given the benefit of a therapeutic trial with thyroid extract because the presence of hypothyroidism is not suspected. The majority of thin, late-maturing patients will be found to represent only normal variations in growth and development, but a small percentage will be found to have such findings and signs as slow growth, poor appetite, intolerance to cold, short stature with minimal subcutaneous tissue, cold, dry skin and dry palms, retarded sexual maturation, thin eyebrows, a bone age two to three years behind chronological age, a low protein-bound iodine level, and an elevated serum cholesterol level. This form of acquired hypothyroidism is not the classic picture as described in the literature, but various authors recognize this syndrome as a stage in the development of hypothyroidism.[5]

The primary purpose in the treatment of uncomplicated hypothyroidism is to restore the adolescent to a euthyroid state as safely and rapidly as possible. The dose must be adequate to reverse the abnormal physiological functions and to assure resumption of osseous growth. Talbot and co-workers[6] recommend a dosage of 60 to 90 mg. of desiccated thyroid (U. S. P.) per square meter of body surface. Full dosage should not be given at the onset. It is well to begin with one-quarter of the calculated full daily dose and then to increase the amount at two-week intervals, provided symptoms of overdosage do not occur. In adolescence, where maintenance of growth is important, the maximum dose of thyroid that can be tolerated without symptoms of nervousness, insomnia, diarrhea, and weight loss is the correct amount for that patient. This maximum tolerated dose makes possible the resumption of growth and the full utilization of the patient's inherent growth potential.

Summary

Certain misconceptions regarding hypothyroidism in the adolescent are frequently encountered. Features of the growth and developmental history and of dietary pattern often give the physician valuable clues for an evaluation of thyroid status. Obesity and hypothyroidism in the adolescent are often mistakenly associated. The thin, late-maturing, cold-skinned adolescent, who is at times not recognized as being hypothyroid, may often be so.

300 Longwood Ave. (15) (Dr. Gallagher)

This study was supported in part by the Grant Foundation, Inc., and the Commonwealth Fund.

References

1. Keys, A., and Brozek, J. Body Fat in Adult Man, Physiol Rev 33: 245-325 (July) 1953.

2. Talbot, F. B. Basal Metabolism Standards for Children, Am J Dis Child 55: 455-459 (March) 1938.

3. Blackburn, C. M., and Power, M. Diagnostic Accuracy of Serum Protein-Bound Iodine Determination in Thyroid Disease, J Clin Endocrinol 15 1379 1392 (Nov.) 1955.

4. Greulich, W. W., and Pyle, S. I. Radiographic Atlas of Skeletal Development of Hand and Wrist Based on Brush Foundation Study of Human Growth and Development Initiated by T. Wingate Todd, Stanford University, Calif., Stanford University Press, 1950.

5. Wilkins, L. Diagnosis and Treatment of Endocrine Disorders in Childhood and Adolescence, Springfield, Ill., Charles C Thomas, Publisher, 1950, p. 100. Reilly, W. A. Hypothyroidism in Childhood *Its Genesis*, J. A. M. A. **146**: 234-236 (May 19) 1951. Harding, F. E., and Vida, A. Relationship of Blood Iodine Level to Thyroid Function, with Report of 5 Atypical Cases of Abnormal Thyroid Function, Ann West Med & Surg 4: 232-239 (May) 1950. Spankus, W. H., and Peters, B. J. Hypothyroidism With Loss of Weight and Without Myxedema Report of Case and Review of Literature, Wisconsin M J 48: 421-426 (May) *1949* Christman, *H. E.*: *Mild Hypothyroidism* Common Disease, Ohio M J 46: 965-970 (Oct.) 1950.

6. Talbot, N. B., Sobel, E. H., McArthur, J. W., and Crawford, J. D. Functional Endocrinology from Birth Through Adolescence, Cambridge, Mass., Harvard University Press, 1952, p. 25.

J.A.M.A., September 15, 1956

UROLOGIC PROBLEMS IN POSTPOLIOMYELITIC PATIENTS IN RESPIRATORS

WITH SPECIAL EMPHASIS ON MAJOR UROLOGY SURGERY

John J. O'Connor Jr., M.D.
and
Lewis Wiener, M.D., New York

• Urinary calculi occurring in postpoliomyelitic patients in respirators present important problems of prevention and treatment. No dependable methods of prevention have been developed; methods of treatment may be classified as either conservative or surgical. The possibilities of conservative treatment are illustrated in the case of a 9-year-old girl with bilateral obstruction by ureteral calculi; after cystoscopy and bilateral ureteral catheterization, the calculi passed down the ureters over a period of three weeks and were eventually passed by the urethra with minimal symptoms. Details are given of two other cases in which surgical treatment became necessary. Major urologic surgery in the renal fossa was performed successfully seven times in five patients. The lateral nephrectomy position was used; it was formerly thought that these patients would not tolerate this position. Resection of the 12th rib facilitated the approach to the kidney. Since much of the patient's muscle is replaced by fibrous tissue, dissection may be hard and hemostasis requires special attention. The use of the endotracheal tube during anesthesia, of special forms of respirators, of induction with thiopental given intravenously, of antibiotics, and of the nasogastric tube to prevent gastric dilatation, all contributed to the success of the surgery, which these patients tolerated surprisingly well.

In the past decade, the advances made in the rehabilitation of postpoliomyelitic patients in respirators have markedly changed the prognosis for such patients. Where these people were formerly confined for life in the "iron lung," today, with the advent of new knowledge concerning pulmonary physiology, respiration techniques, chest respirators, and rocking beds, many of these unfortunate victims of poliomyelitis can be returned to a more nearly normal life. In view of these advances, it is well to reconsider the urologic aspects of their disease and, if possible, to attempt to keep abreast of the ground gained in the other fields of rehabilitation.

The primary urologic problem is urinary tract calculus formation, probably secondary to hypercalciuria, which is directly proportional to the extent of residual paralysis.[1] Most calculi consist of calcium in various combinations with phosphate, ammonia, carbonate, and magnesium. It is well to note that neurogenic bladder dysfunction is not present in the type of patient under discussion, except for temporary bladder atonicity during the acute phase of the illness. The problem may be divided into two major phases: (1) the prevention of calculi by medical means, and (2) the management of calculi already present. The former has been aimed mainly at the reduction of hypercalciuria. Among the various methods may be mentioned (1) postural renal drainage,[2] (2) mobilization of the patient by rocking beds and tilt boards, (3) hormonal therapy with testosterone alone or in combination with estrogen,[3] (4) high fluid intake, (5) low-calcium diet, (6) Shorr regimen (administration of basic aluminum carbonate [Basaljel] or aluminum hydrochloride [Amphojel] to diminish intestinal absorption of phosphate), (7) parenteral administration of hyaluronidase to increase the amount of protective colloids in the urine.[4] (8) local instillation of G (Suby's) solution in an attempt to dissolve calculi,[5] (9) acidification of the urine with ammonium chloride and other acidifying drugs, (10) administration of antibiotics for control of urinary tract infection, and, most recently, (11) the use of orally given salicylates to increase urinary glucuronides.[6] To date, all of these procedures, with the exception of salicylate therapy, which as yet has not had adequate clinical trial, have proved disappointing in the prevention of new or recurrent calculus formation.

The second phase of the problem, the management of stones already present, may be further subdivided under two headings: (1) conservative therapy and (2) surgical therapy. The conservative approach to the treatment of calculi, which would include watchful waiting, cystoscopic procedures, forcing of fluids, and use of antispasmodics such as propantheline (Pro-Banthine) bromide, is obviously the treatment of choice in such cases. In considering the usual indications for cystoscopy and ureteral catheterization for drainage, one must take into account the important fact that even large ureteral calculi will pass spontaneously with unusual ease in these patients. However, as in the usual urologic practice, there are cases where conservative therapy fails and we must resort to surgery in order to preserve kidneys and even lives. In the past, any major surgical procedure, and, in particular, renal surgery, was frequently avoided because of the supposedly prohibitive operative risk and poor survival rate in patients confined to the "iron lung."[7] Recently, in view of the progress in rehabilitation of these patients and the improved techniques in anesthesiology and pulmonary physiology, it was deemed advisable to reevaluate the operative risk in patients in respirators. Employing the usual indications for operative interference and working closely with the pulmonary physiologist and anesthetist, we performed major urologic surgery seven times in five patients.

Consultant in urology (Dr. O'Connor) and resident in rehabilitation (Dr. Wiener), New York Regional Respirator and Rehabilitation Center, Goldwater Memorial Hospital.

Read before the Section on Urology at the 190th Annual Meeting of the Medical Society of New Jersey, Atlantic City, N. J., May 16, 1956. This paper has been released for publication here through the courtesy of *The Journal of the Medical Society of New Jersey*.

At the time of writing, there are 28 paralyzed postpoliomyelitic patients at the New York Regional Respirator and Rehabilitation Center at Goldwater Memorial Hospital in New York City. All were confined to respirators on admission, and nearly all had had their disease for more than one year. Involvement in all cases is high spinal; no patient has bulbar involvement. Many, through rehabilitation, are able to use rocking beds and wheel chairs. All 28 patients have hypercalciuria, with a constant 2+ to 4+ reaction to the Sulkowitch test. Ten (35%) have had urinary tract calculi, two of which were of the staghorn type. All patients with calculi had significant pyuria and varying degrees of hematuria. Five patients underwent seven major urologic procedures in the year prior to writing. Two patients had bilateral renal surgery. Two had had drainage by a ureteral catheter. The remainder had purely conservative treatment.

Report of Cases

Case 1.—A 9-year-old female developed poliomyelitis in October, 1954. On admission to the center, she had pyuria, alkaline urine with a specific gravity of 1.008, and a 2+ reaction to the Sulkowitch test. A roentgenogram of the abdomen was negative for calculi. In December, 1955, the patient developed bilateral flank pain, a temperature of 105 F (40.6 C), and shock. A blood culture was positive for Proteus vulgaris. The blood urea nitrogen level, which previously had been normal, rose to 36.5 mg. per 100 cc. A roentgenogram showed bilateral midureteral calculi, one to each side, both quite large, measuring roughly 1 by 0.5 by 0.5 cm. Cystoscopy and bilateral ureteral catheterization were done without anesthetization. A cloudy drip appeared from both sides. Catheters were left in situ for drainage. Because of shock and the grave condition of the patient, surgery was deferred. The patient was placed in a respirator tank, and antibiotics were given. In two days, the temperature was normal and the blood urea nitrogen level was down to 15 mg. per 100 cc. A roentgenogram showed catheters in situ and both stones back in the renal pelves. After two days the catheters were removed. Subsequent roentgenograms showed that the calculi passed down the ureters over a period of three weeks. They were eventually passed by the urethra, with minimal symptoms.

This case demonstrates how much can be accomplished by conservative therapy, as by simple catheter drainage of kidneys. It also demonstrates that unusually large stones can pass spontaneously in postpoliomyelitic patients. It is interesting to note that, although this patient was placed on continuous salicylate therapy immediately after the acute episode, she has since developed new caliceal calcifications bilaterally. The patient has been asymptomatic since passage of the ureteral stones.

Case 2.—A 38-year-old male developed poliomyelitis in November, 1949, with resultant quadriplegia. He has been confined to a tank respirator since onset of illness. In 1952, x-ray examination of his abdomen showed multiple bilateral renal calculi. In July, 1954, the patient developed bilateral back pain, fever, pyuria, and a blood urea nitrogen level of 28 mg. per 100 cc. He was treated successfully with oxytetracycline (Terramycin). When he was admitted to the center in January, 1955, urinalysis showed that his urine had a specific gravity of 1.002 to 1.010; he had pyuria, a 3+ reaction to the Sulkowitch test, and occasional hematuria. In July, 1955, he developed tenderness of the left costovertebral angle, oliguria, and hematuria. An intravenous urogram showed multiple calculi in an atrophic, nonfunctioning right kidney and also two large calculi in the upper ureter on the left and several smaller stones in a hydronephrotic left renal pelvis. Phenolsulfonphthalein excretion was 20% in one hour. The blood urea nitrogen level was 15 mg. per 100 cc. The white blood cell count gradually rose, and the patient began to run a low-grade fever. The blood urea nitrogen level increased to 19.5 mg. per 100 cc., and the patient began to show signs of early uremia. In October, 1955, with the patient in the lateral nephrectomy position and under endotracheal anesthesia, the left kidney was exposed through the usual loin incision after resection of the 12th rib. The ureteral stones were removed through a high ureterotomy incision. A large stone was removed from an intrarenal pelvis by the insertion of a Randall stone forceps[8] via the ureterotomy incision. Six smaller stones were recovered after forceful irrigation of the calices with an antrum-irrigating nozzle. A film taken postoperatively showed no calculi remaining in the left renal area. Immediately postoperatively, the patient was placed in a tank respirator. His postoperative course was uneventful save for acute gastric dilatation on the third day, which was easily controlled with suction via a nasogastric tube. The blood urea nitrogen level on the fifth postoperative day was 11.5 mg. per 100 cc. Extensive ecchymosis was noted in the skin, but the wound healed promptly by primary intention. The calculi consisted of calcium and magnesium phosphate. There has been no recurrence of stones on the left side up the time of writing.

This case demonstrates several important points concerning the surgical treatment of patients dependent on respirators. First, it is seen that these patients can be successfully operated on. Second, the lateral position is surprisingly well tolerated by these patients when they are under endotracheal anesthesia. Because of the paralysis of the thoracic muscles, the ribs take a more vertical direction, and in order to enter the renal fossa it was found necessary to resect the 12th rib in all patients in whom the renal fossa was entered. The complication of gastric dilatation is a very real and very frequent danger in patients confined to respirators and is, in fact, a not uncommon cause of death in these patients.[7] Fortunately, prompt recognition and treatment by nasogastric suction relieve this often distressing complication. The presence of a trained anesthetist during surgery and of a trained respirator team during the postoperative period is mandatory for successful completion of surgical treatment. This patient is now employed full time by a national foundation in his capacity as a lawyer. In short, removal of the calculi and reversal of uremia have returned him to a useful existence.

Case 3.—A 26-year-old female contracted poliomyelitis in August, 1953. Because of respiratory paralysis, tracheotomy was performed and she was then placed in a tank respirator. Studies at another hospital revealed quadriplegia and a moderate hypertension. Study of the urine showed 2+ albumin, pyuria, hematuria, and a positive culture for P. vulgaris. An intravenous pyelogram showed a nonfunctioning right kidney, two calculi in the lower right ureter, and several stones of fairly large size in the left renal pelvis. Cystoscopy was done repeatedly for removal of bladder calculi apparently passed from the left kidney. Ureteral catheters passed beyond stones in the right ureter obtained no urine. In July, 1955, the patient was transferred to this center for further rehabilitation. Her condition improved to the point where she could use the chest respirator and for short periods could be placed in the rocking bed. However, in September, 1955, the patient developed pain in the left flank, hematuria, and fever. An intravenous pyelogram showed a nonfunctioning right kidney with two lower right ureteral calculi, as noted before. On the left there were several large pelvic stones and one smaller stone in the midureter. Ureteral catheters were passed to both kidneys; no urine appeared on the right, and a clear drip was noted from the left. Within a week, the stone in the left ureter passed spontaneously. We felt that, with several calculi on the left poised as potential ureteral obstructions, every attempt should be made to restore the function of the right kidney. A trial of ureteral catheter drainage from the right kidney produced only 10 cc. in 24 hours. A retrograde pyelogram showed moderate hydronephrosis.

It was decided that, in spite of poor return of urine, the risk was justified in an attempt to restore function by removal of the calculi. It would also reveal to us whether or not a kidney totally blocked for a year could function again after removal of the obstruction. In November, 1955, therefore, a right low ureterolithotomy was done through a Gibson incision,[9] with the patient under endotracheal anesthesia. The ureter was markedly bound down with a periureteral scar, and the stones were removed after considerable and difficult dissection during which several tears were made in the peritoneum. A no. 10 red rubber catheter was passed retrograde to the kidney through the ureterotomy, and frank heavy pus was evacuated. In view of the pyonephrosis and the danger of leakage of pus into the peritoneal cavity, the decision was made at the operating table to remove the kidney. The patient was placed in the lateral nephrectomy position, and, through the usual loin incision, with resection of the 12th rib, a rather difficult subcapsular nephrectomy was performed. The patient made an uneventful surgical recovery, both wounds being healed within one week. The patient did well until April, 1956, at which time she developed costovertebral pain on the left, fever, and a rise of blood urea nitrogen level to 31 mg. per 100 cc. A roentgenogram revealed a large calculus in the upper left ureter and another in the lower calix. A no. 6 ureteral catheter passed easily into the left pelvis, from which approximately 50 cc. of very thick purulent material was aspirated. The catheter was left *in situ* and irrigated every four hours with 15 cc. of streptokinase-streptodornase solution. The urine was nearly clear within 24 hours, and the blood urea nitrogen level returned to normal. Four days later a routine high ureterolithotomy was done through a loin incision, with the patient in the lateral position. The stone in the lower calix was obtained by flushing of the lower calix with an antral irrigator inserted through the ureteral incision. The stone was dislodged into the pelvis and easily removed with a stone forceps. The patient made an uneventful recovery.

This case illustrates two important factors. If the patient had had earlier removal of the low-lying calculi in the right ureter, kidney function might well have been preserved on that side. As it was, the delay of over a year eventually led to complete loss of right kidney function. It is further demonstrated that this type of patient can be subjected to rather extensive surgery and yet do surprisingly well. The use of the antral irrigator has proved to be a great time-saving device on several occasions. By this maneuver we have dislodged many caliceal calculi without extensive probing or nephrotomy, which is not the most desirable procedure in the case of a unilateral kidney.

The remaining three patients had four major procedures; one had a pyelolithotomy and later a nephrotomy on the opposite side, and the other two each had a pyelolithotomy. All operations were done with the patient under endotracheal anesthesia and in the lateral position, with resection of the 12th rib done as a necessary adjunct to good exposure. All did well during surgery and all went on to full surgical recovery.

Comment

It is not within the scope of this paper to discuss in detail the problems involved in the medical approach to the prevention of calculus formation. Suffice it to say that, up until the present time, no really satisfactory method, chemical or physical, has yet been brought forward. Salicylate therapy is as yet too new for any definite statement to be made.

The practical problem at hand, then, remains the management of calculi already present and the prevention, as far as possible, of stone formation. Spontaneous passage of large ureteral calculi is a rather common occurrence in these patients. Many cases of temporary obstruction can be easily handled by ureteral catheter drainage for short periods of time. However, not infrequently surgical intervention may become necessary to effect relief, and, in view of the fact that pyonephrosis and cortical abscesses secondary to calculi are an important cause of death in this group of patients,[7] the problem is of the first magnitude. The only previous report of urologic surgery in patients in respirators that we could find was that of Brady and Wilson, in 1948.[2] At that time, they presented two instances of major urologic surgery. The first was a low ureterolithotomy through the Gibson incision, with mask anesthesia and manual artificial respiration; the wound healed in two months. The second was a nephrectomy through the anterior transperitoneal approach for calculi, again with mask anesthesia and manual artificial respiration. The anterior approach was used because the authors did not believe that the patient would tolerate the lateral nephrectomy position. This wound closed in six weeks. The seven operations herein presented were all done with the patient in the lateral position and under endotracheal anesthesia. All patients did well during and after surgery, with healing in each case by primary intention. The two great new advantages are, of course, endotracheal anesthesia, which permits controlled breathing, and antibiotics.

The specific problems encountered may be divided into three types: anesthetic, surgical, and postoperative.

Anesthetic Problems.—The induction of anesthesia depended upon the stage of rehabilitation. If the patient was in a respirator, an ingenious plastic bell was fitted over the head support, enclosing only the patient's head. Within this bell or dome, rhythmic increase and decrease of pressure was maintained to "breathe" the patient. In the meantime, an intravenous infusion was started and induction was done with thiopental (Pentothal) sodium. Once the patient was asleep, the bell was removed and an endotracheal tube inserted and attached to the gas machine. The patient was then moved to the operating table and positioned. If the patient was in a chest respirator, induction was instituted with thiopental, the endotracheal tube was inserted, the chestpiece was removed, and the patient was transferred to the operating table. For patients in rocking beds or wheel chairs, induction was accomplished with the chest respirator and thiopental.

Surgical Problems.—The major problem at surgery was bleeding, particularly while the muscles were being incised. It was noted that much of the muscle in these patients was replaced by fibrous tissue, so that the contraction of smaller blood vessels was prevented. Hemostasis is meticulous and time consuming. As expected, there was in all cases marked periureteral and perirenal scarring that on occasion made for difficult dissection.

Postoperative Problems.—Two major problems were present in the postoperative period. The first and most serious was tracheobronchial mucus formation, which could lead to atelectasis and bronchopneumonia, the commonest cause of death in patients in respirators.[7] This hazard was combated by several means. All patients were placed in tank respirators postoperatively; intermittent coughing was produced by means of a cough machine, deep breathing was performed by the respirator, tracheal suction was done as necessary, and humidification was accomplished if indicated. The second danger lay in acute gastric dilatation, which is a common occurrence and not infrequently fatal. Treatment was with suction via a nasogastric tube. Antibiotics were liberally given in the postoperative period. The urine output was maintained at 1.5 liters per day at least.

Summary

The primary urologic problem in postpoliomyelitic patients in respirators is urinary tract calculus formation. The problem has two phases: the prevention of calculi by medical means and the treatment of calculi already present by either conservative or surgical means. Major urologic surgery in the renal fossa has been performed seven times in five patients who were in the lateral position and under endotracheal anesthesia. All patients did well during surgery and in the postoperative period. With the proper indications, and with the urologist working in close cooperation with the anesthesiologists and pulmonary specialists, postpoliomyelitic patients in respirators can undergo major urologic surgery successfully.

2124 New York Ave., Union City, N. J. (Dr. O'Connor).

References

1. Plum, F., and Dunning, M.: Relationship Between Calciuria and Site and Degree of Paralysis in Poliomyelitis, Clin. Res. Proc. 4: 64 (Jan.) 1956.
2. Brady, L., and Wilson, W. J.: Major Urological Surgery on Poliomyelitic Patients Confined to Respirators: Discussion on Etiology, Prophylaxis Against and Treatment of Calculi in Recumbent Patients, J. Urol. 60: 381-388 (Sept.) 1948.
3. Sullivan, J.: Personal communication to the authors.
4. Taylor, J.R.; Alcock, A. J. W., and Hildes, J. A.: Hyaluronidase and Renal Calculi in Poliomyelitis, Am. J. M. Sc. 230: 536-540 (Nov.) 1955.
5. Suby, H. I., and Albright, F.: Dissolution of Phosphatic Urinary Calculi by Retrograde Injection of Citrate Solution Containing Magnesium, New England J. Med. 228: 81-91 (Jan. 21) 1943.
6. Prien, E. L., and Walker, B. S.: Salicylate Therapy of Recurrent Calcium Urolithiasis, New England J. Med., 253: 446-451 (Sept. 15) 1955.
7. Blossom, R. A., and Affeldt, J. E.: Chronic Poliomyelitic Respirator Deaths, Am. J. Med. 20: 77-87 (Jan.) 1956.
8. Dodson, A. I.: Urological Surgery, ed. 2, St. Louis, C. V. Mosby Company, 1950, p. 259.
9. Dodson,[8] p. 382.

POPULATION SCREENING FOR UTERINE CANCER BY VAGINAL CYTOLOGY

PRELIMINARY SUMMARY OF RESULTS OF FIRST EXAMINATION OF 108,000 WOMEN AND SECOND TESTING OF 33,000 WOMEN

Cyrus C. Erickson, M.D., Bennett E. Everett Jr., M.D., Lloyd M. Graves, M.D., Raymond F. Kaiser, M.D.
Richard A. Malmgren, M.D., Irma Rube, M.S., Phil C. Schreier, M.D., Sidney J. Cutler, M.A.
and
Douglas H. Sprunt, M.D., Memphis, Tenn.

• *The method of exfoliative cytology introduced by Papanicolaou and Traut was applied to material obtained by vaginal aspiration from 108,000 women in Shelby County (including Memphis), Tennessee, for the purpose of detecting various types and stages of carcinoma. The preparations for this large-scale screening program necessarily included an extensive educational campaign and required the cooperation of many organizations. Results were reported to the physician who obtained the smears; he in turn informed the woman tested. A woman whose smears showed suspicious cells was advised to have this examination repeated and to have tissue studies in addition. Of the 108,000 women, 33,000 were examined a second time and more than 8,000 a third time.*

The program so far has resulted in the finding of 393 intraepithelial carcinomas, of which 353 had not been suspected, and 373 invasive uterine cancers, of which 112 had not been suspected. The program is also expected to yield new data on etiological factors and on the relation of preinvasive to intraepithelial lesions.

Recent reports indicate that certain factors such as inflammation, endocrine disorders, and pregnancy appear to influence the frequency of uterine cancer, particularly cervical cancer.[1] However, until there is available more specific knowledge concerning the cause or causes of uterine cancer that can be applied as a means for prevention, the direction of efforts toward the early detection, diagnosis, and treatment of this disease while it is still in localized or incipient stages appears to offer the greatest hope for reducing mortality. It is well known that such cancers, when detected in early or localized stages, can be cured. Some cancers, particularly those on or near the surface of the body, are readily detected because of their mass. Others in their early development grow deep to outer cell layers and do not reveal their presence by their mass or by surface change. The latter can be recognized grossly only when they reach the stage where there are apparent surface changes or when symptoms develop. It is well known that this is especially true of cancer of the cervix uteri and that, in its early stages, cancer of this organ is not usually evidenced by gross surface change or clinical symptoms. Prior to the development of techniques of exfoliative cytology, biopsies revealed these early lesions only incidentally or occasionally when gross findings or symptoms were present that led to a suspicion of cancer.

The method of exfoliative cytology introduced by Papanicolaou and Traut[2] in 1943 offered a simple means of finding cellular evidence of cancer in the genital tract. The use of this technique also sharpened the focus on the lesion known as intraepithelial (in

---

From the University of Tennessee and the National Cancer Institute.

situ) carcinoma of the cervix by detecting this condition in many women who had no signs or symtoms of disease. This brought further attention to the possibility of finding localized disease when it was not recognizable by other procedures. The usefulness of exfoliative cytology as an aid in the diagnosis of cancer of the uterus, bronchus, and stomach has been well attested. It is clear that this method is especially adaptable for examination of the female genital tract because of the simplicity of taking specimens and the ease of follow-up study by biopsy.

It appeared to us that exfoliative cytology might be put to greater use than simply as a diagnostic aid for women with symptoms. Earlier studies of screening by this method of smaller groups of apparently unselected women have had both favorable and unfavorable results.[3] It was our belief that, if this method were applied effectively to a large, unselected group of women, it would be possible to detect cancer at the curable phase and also to learn much about the relationship of so-called intraepithelial carcinoma to cancer. If this method could be used to find preclinical, localized cancer in large groups of apparently well women, the technique could be applied as a screening procedure; the majority of women in such a population could thus be assured that there was no evidence of uterine cancer, while the small group that should be further evaluated by another smear examination and by tissue study for the purpose of definitive diagnosis could be determined. It was essential, as in any test for cancer, that the method should not miss many women with cancer. If many women were incorrectly told that they showed no evidence of cancer, the false reports and false security resulting could bring this approach into disrepute. It was not considered essential, however, for the results of such a screening procedure to be positive only when cancer is present, for women whose smears are found to be suspicious by cytological tests can be studied adequately by cervical biopsy, endocervical curettage, cold knife conization, or diagnostic endometrial curettage as indicated. The group of false-positive results, however, should be kept reasonably small.

Method of Study

With the above facts in mind, we set out to determine how the methods of exfoliative cytology could be applied to the women of Memphis and Shelby County. We had two objectives: to determine the feasibility of using exfoliative cytology as a method for the early detection of cancer and intraepithelial carcinoma and to study the natural history of cancer of the cervix. At the beginning of this study, there were 165,000 women over 20 years of age in this area. It is estimated that this number is now closer to 200,000. We proposed to examine as many of these women as possible by a single vaginal examination and to reexamine them at least three times at intervals of at least a year. In all women whose smears showed suspicious cells, tissue studies were advised as a yardstick to measure the efficiency of the cytological method and as a basis for definitive pathological diagnosis.

The project is a joint effort of the University of Tennessee and the National Cancer Institute. As the first step, the approval and cooperation of the Memphis and Shelby County Medical Society and the participation of the Memphis and Shelby County Health Department were obtained. The local units of the American Cancer Society have also been sponsors. The cooperation of these agencies and especially the increasingly enthusiastic participation of physicians of this area have been essential in carrying out the study.

The cytological laboratory was organized to process and prepare reports on approximately 1,000 to 1,800 smears per week, as described previously by Dunn and Sprunt.[4] Vaginal aspiration was chosen as the method of obtaining the smear rather than one of the cervical procedures because of the accessibility and ease of obtaining specimens, simplicity of this technique, and its applicability to mass screening. The use of scraper, aspirator, swab, or sponge for the purpose of removing cell specimens from the cervix would require insertion of a speculum. The arguments in favor of the latter approach were that this would also require and permit visualization of the cervix by the physician and that a smear made from the cervix would make a greater number of cells available for examination. It has been previously emphasized by Cuyler[5] that examination of cervical specimens has yielded a higher degree of accuracy and that vaginal pool specimens alone could fail to contain cells from a significant number of both invasive and intraepithelial carcinomas. On the other hand, Graham[6] and others have reported excellent results with use of this latter method in hospital and clinic practice.

A significant argument for the obtaining of smears by vaginal aspiration was that no instrumentation would be necessary. This in itself would, we believe, attract a larger number of women, and an essential aim of this screening program was to reach the largest number of women possible. Furthermore, the finding of a sufficient number of physicians to make the examinations in a mass survey such as this would be a prodigious problem, and use of the vaginal specimen makes it possible for trained technicians to obtain the smear in the clinics established for this purpose. Thus, as a procedure for mass screening, the examination of smears obtained by vaginal aspiration was the method of choice, and it has been used in this study. Our experience to the time of writing, reviewed in this report, confirms the advantages of this choice.

One of the major tasks in initiating this project was to inform the women of Memphis of the opportunity afforded by this program and of the significance of the cytological examination of the vaginal smear. An essential phase of this program was to stimulate essentially well women to consider the prevention of clinical uterine cancer as a personal problem. The publicity consisted of an educational campaign designed to explain the value of this examination in the detection of unsuspected early uterine cancer in the presymptomatic stage in order to prevent the development of incurable cancer. Dissemination of information concerning this cancer survey project has been continuously aided by the excellent cooperation of local newspapers and radio and television stations. An extensive program of talks, including discussions concerning uterine cancer, cytological examination, and the objectives of this program, was arranged for women's church organizations, parent-teacher groups, and women's clubs and in industries and at business sites where temporary clinics were to be set up. The plans for all public relations were considered and approved by a committee appointed by the Memphis and Shelby County Medical Society. As a result of this close liaison with the county medical society, there has been excellent cooperation by the physicians of this area.

As previously described,[4] smears have been obtained both from women visiting physicians of this area and from those attending the clinics established for this purpose. At present, approximately 50% of the smears are received from the more than 300 participating Memphis and Shelby County physicians, while 50% are sent in by the special clinics set up in hospitals, health centers, 51 city and county school clinics, and 60 industrial or business sites. The clinics in schools and business centers are temporary clinics that are opened annually wherever there are 50 or more women. Such clinics are set up for from a few hours to three days, depending on the number of women.

The results of the examination are reported to the physician who obtained the smears, who in turn informs the woman tested. Reports are under no circumstances made directly to the women. When testing is done in the special temporary clinics in schools or industrial sites, each woman examined is requested to indicate her personal physician, to whom the report is to be forwarded. If findings indicate the need for follow-up studies, women unable to assume costs are referred to the special gynecologic clinic at a Memphis hospital that is maintained by the staff of the division of obstetrics and gynecology of the University of Tennessee for this purpose.

Classification of Smears.—In our laboratory, smears are classified as follows: type 1, normal; type 2, abnormal cells present, possibly suspicious; type 3, abnormal cells present, moderately suspicious; type 3a, cells possibly indicative of intraepithelial carcinoma; type 3b, cells indicative of intraepithelial carcinoma; type 3c, very abnormal cells, possibly indicative of invasive cancer; types 4 and 5, cells indicative of cancer. Specific diagnoses are not given to the physician. Instead, four types of reports are made: 1. Satisfactory: the physician is advised that this report means the patient can be told that no evidence of cancer was found but she is to be advised to return in a year. 2. Unsatisfactory: this report means the smear was not adequate for diagnosis. 3. Advised further study: this report indicates that the smear by our classification was a type 2; that is, a few suspicious cells were seen and cervical smear studies are requested. 4. Biopsy recommended: this report means that the smear was classed as type 3, 4, or 5 and that a tissue study is needed for definitive diagnosis.

It is important to emphasize the fact that, to increase the accuracy of this screening technique, all women who had smears classified as type 2 were requested to have further cytological studies. Approximately 3% of the women examined had smears classified as type 2; hence in one sense the vaginal smear is being used to indicate the need not only for tissue study by biopsy but for further cytological study.

Reference to the above method of reporting emphasizes again the philosophy that the cytological method has its greatest value and is being used in this project as a screen for the detection of all suspicious cases that deserve further study and not just as a diagnostic procedure. While it is apparent that the majority of symptomatic invasive uterine cancers will be diagnosed by conventional methods, a significant number of unsuspected invasive cancers are detected by cytology. But it is in the group of preinvasive cervical lesions (epithelial dysplasia, atypical metaplasia of the cervix and endocervix, and especially intraepithelial carcinoma) and asymptomatic invasive cancer that the cytological method is most productive of unsuspected cases that either are cancer or bear watching. This is the reason for our plan to request supplementary cytological examination of vaginal and cervical smears in all women with type 2 smears and to advise tissue study in all those with type 3 to type 5 smears. It is also apparent, however, that it is in women with this borderline group of smears, especially, that the cytological method is not sufficiently specific to diagnose cancer definitively. We believe that tissue study is essential for definitive diagnosis.

Results in 108,000 Women Examined Once

Up to the time of writing, more than 108,000 women have been examined once, 33,000 of these same women a second time, and over 8,000 at least three times. Previous reports have summarized the progress of this study after examination of 20,000, 60,000, and 80,000 women.[7] This report is concerned with the results in the first 108,136 women tested once and the first 32,728 who returned for a second examination.

The study reported here was completed in the three and one-half years ending December, 1955. The testing of half of the female population of this metropolitan area in this period tells the story of response obtained and answers the important question of how many women can be reached. It should be emphasized that this preliminary report includes data concerning specimens sent to the project laboratory from private physicians as well as from the special clinics of this area; thus, approximately 13% of the women examined were not residents of Shelby County, the designated test area. Further analysis with reference to residence, race, age, and source of specimens is now being carried out.

In 983 of each thousand women examined on first screening, no evidence of cancer or significant abnormality was found in the screening cytological study, while 17 of each thousand were advised to have further study by biopsy. (An additional 163 women were asked to return for repeat smear examinations because of unsatisfactory smears or minimal cytological change [type 2 smears]. Approximately 50% of the 163 did not return.) In table 1 it is seen that approximately 13 (77%) of the 17 women in each thousand for whom biopsies were requested did return. Of these 13 women, 8.6 were found to have some pathological change: 7.3 had intraepithelial carcinoma or cancer, and the remaining 1.3 showed a marked degree of atypical change that was considered to be a borderline lesion or possible intraepithelial carcinoma.

Table 1.—*Pathological Findings in 1,453 of 1,842 Women for Whom Biopsies Were Recommended as a Result of Examination of Vaginal Smears of 108,136 Women*

	No.		% of 108,000 Women
Invasive uterine cancer	373		0.31
Cancer of cervix		331	0.31
Cancer of corpus		42	0.04
Other genital cancers	20		0.02
Intraepithelial carcinoma of cervix	393		0.36
Total cancer and intraepithelial carcinoma	786		0.73
Atypical metaplasia	111		0.13
Findings normal	479		0.44
Total	1,406*		1.30

*Biopsies were inadequate in 47 women.

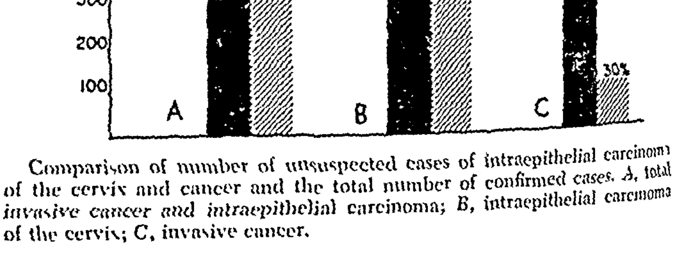
The very atypical epithelial metaplasia (which might show possible intraepithelial carcinoma) referred to in table 1, is important and significant; women with this type of lesion deserve careful follow-up study. If, as we believe, intraepithelial carcinoma is merely a stage in the sequentially developing process that, at least frequently and possibly always if left alone, leads to cancer, then its precursor, atypical epithelial metaplasia, is just as important to label, both for the prevention of uterine cancer and for study in furthering knowledge of the life history of this process. Obviously, too, because the pathological limits of intraepithelial cancer are arbitrary and cannot always be sharply defined and because interpretation is sometimes dependent on incomplete tissue samples, many of this group can be considered as merging with those lesions interpreted as intraepithelial carcinoma.

While the finding of four cases of intraepithelial cervical carcinoma per thousand women (0.36%) is believed to be an index of frequency of this lesion in the group that was screened, the rate of occurrence of invasive carcinoma as found in this survey probably does not represent an accurate index for this area. The latter data must be corrected by a morbidity survey t will be done to determine the number of women th clinically recognized cancer who did not have smears examined and thus are not included.[8]

Distribution According to Residence and Race.—The data concerning these 108,000 women are subject to review in a number of ways and, as previously indicated, will be analyzed and adjusted for age, race, and resident status and reported in detail at a later date. However, it is possible to discuss some of these factors at this time. While this survey is aimed primarily at residents of Shelby County, it would have been difficult to exclude persons not living in Memphis who come to Memphis physicians for their medical care. It is of interest to note that 134 (36%) of the 373 women with invasive uterine cancer were nonresidents, although nonresidents constituted only 13% of the women who were examined. While the figure of 239 cases of invasive cancer in residents is low and will be corrected by determining the number of additional cases of invasive cancer not seen in this study by a supplementary morbidity survey, these data give a crude rate of invasive cancer for the women of Memphis and Shelby County of 2.5 per thousand compared to 9.6 for the nonresidents. It is obvious that a significant number of the women coming to Memphis for examination had symptoms and may be said to have had their cancer diagnosed by conventional methods. This emphasizes the fact that the nonresidents were a selected group such as will be found in any hospital sampling. On the other hand, the rate of occurrence of intraepithelial carcinoma was similar for the two groups, as would be expected for this predominantly asymptomatic and unsuspected lesion.

Another important factor for analysis is the race incidence. Half of the cancers that were found were in Negroes, who constituted one-third of the surveyed population. This ratio was expected as shown by a morbidity survey for uterine cancer for this area for 1950 and 1951,[8] in which an incidence rate of 80 to 52 cases and a prevalence rate of 120 to 82 per 100,000 of Negro to white was found. Of interest is the fact that two-fifths of the intraepithelial carcinomas were found in the Negro women representing approximately one-third of those seen. These data are now being analyzed further with respect to source of specimen, i.e., whether it is from a private physician, health clinic, medical institution, industrial clinic, or city hospital clinic, to determine the comparative prevalence, especially of intraepithelial carcinoma, in these different groups.

Number of Unsuspected Cases Found.—Of particular interest in evaluation of the use of cytological screening for prevention of clinical cancer has been the question directed to the physician in each case, "Would a biopsy have been performed at this time if the smear had not been done?" It will be apparent that the number of unsuspected cases diagnosed is the most significant single criterion now available to us in assessing the value of this method in mass screening. The rates shown in the figure probably reflect a minimal figure, for it is likely that the publicity and educational program that were part of this project brought some of the patients with symptomatic cancer to their physicians at an earlier date than otherwise.



Comparison of number of unsuspected cases of intraepithelial carcinoma of the cervix and cancer and the total number of confirmed cases. *A*, total *invasive cancer and intraepithelial* carcinoma; *B*, intraepithelial carcinoma of the cervix; C, invasive cancer.

In the figure it is seen that 463 (59%) of the 786 cases of invasive cancer and intraepithelial carcinoma were unsuspected. We believe this to be a most significant and encouraging fact relating to the value of this program. Diagnosis in these women is directly attributable to detection by smear. This represents an unsuspected-case-finding rate of practically five women in a thousand. That the majority of the intraepithelial carcinomas would not otherwise have been discovered (353 of the 393 were unsuspected) was expected. It is interesting to note that the finding of unsuspected cases is not limited to this group of intraepithelial carcinomas, which are predominantly asymptomatic and not recognizable grossly. One hundred twelve (30%) of 373 cases of invasive neoplasia were labeled by the participating physicians as unsuspected (see figure).

Age Distribution.—The age distribution of women with uterine neoplasms is of special significance in indicating both the age groups that should be surveyed and how frequently testing should be done. Analysis to date indicates that the peak incidence of intraepithelial carcinoma is in women of from 30 to 34 years of age. This finding confirms the view that women 20 years of age and over should be included in any survey the purpose of which is to find this disease in its early stages. The apparent spread between the peak incidence of intraepithelial carcinoma in women from 30 to 34 years of age and that of invasive cancer in women from 50 to 54 years of age again supplements the previous evidence to the effect that, if, as is now generally accepted, intraepithelial carcinoma represents a stage in cervical carcinogenesis, it may take years to develop. It should be added that the data concerning age distribution are being analyzed with respect to the influence of the number of women in each age group as well as their race and place of residence.

Results of Reexamination of Thirty-Three Thousand Women

The second part of our plan provided for the reexamination at approximately yearly intervals for at least three years of as many as possible of those women examined once who were found to have no evidence of intraepithelial carcinoma or cancer in the first screening survey. It was our belief that this second phase of the study could contribute significant facts about the natural history of uterine cancer, with special reference to the more common squamous cell carcinoma of the cervix. When the incidence of new cases in an already screened population is known, the quantitative relation of intraepithelial carcinoma to cancer should be evident. Finally, such data concerning rescreening and a subsequent morbidity survey should indicate, by the number of preinvasive lesions and clinical cancers found as compared to the number found in the first survey, the effectiveness of this approach to control of uterine cancer in shifting the predominance from clinical to asymptomatic cancer. A brief summary of the methods, problems, and results of our efforts in the recall of the women for reexamination has been reported elsewhere.[7]

Table 2 shows the results of this second screening of 32,728 women. It is seen that, at the time of writing, only 244 (69%) of the 353 biopsies recommended had been performed. It is expected that in a few more months this percentage will have increased to at least the 79% of the first screening. In this table it is also shown that 83 intraepithelial carcinomas or cancers were found; 72 of them were intraepithelial carcinomas, 9 were invasive cancers of the cervix, and 2 were cancers of the uterine body.

It is of interest to compare the case-finding rates for the second screening with those for the first. Of each 1,000 women examined in the first screening, 3.6 were found to have intraepithelial carcinoma and 3.1 invasive cancer of the cervix. In the second screening, of each 1,000 women, 2.2 had intraepithelial carcinoma and 0.3 had invasive cancer of the cervix. It is believed that, when adjustment is made for differences with respect to race and age distribution between the women in the first and second screenings, the reduction in case-finding rates will be increased.

Reliability of Vaginal Smear as Screening Procedure

One of the more important problems in this study is how many cancers are missed by this screening procedure. A precise figure cannot be given until a sizable group of women has been examined three times. Our first precaution against error is through close contact with the physicians and hospitals. All cases of cancer of the reproductive tract are called to our attention. Since the onset of this survey there have been, among the women whose smears were classed as type 1, 13 intraepithelial carcinomas of the cervix, 11 squamous-cell carcinomas of the cervix (invasive), 6 adenocarcinomas of the uterus (corpus), and 8 cancers of other parts of the reproductive system. When the smears from these 38 women were reexamined, 19 were again classed as normal. The reason for this is not clear, but we consider it a sampling error; that is, there were too few suspicious cells in the vaginal pool for one to show up in the sample placed on the slide. Of the remaining 19 smears, 4 should have been classed as unsatisfactory; 6 were definitely errors, as suspicious cells were seen when these slides were reexamined, and biopsies should have been requested; and the remaining 9 in retrospect were classified as type 2—in other words, a few abnormal cells were seen.

Our second approach to the problem of error is through the reexamination of the smear made at the first screening of all those who had cancer or intraepithelial carcinoma at the time of the second examination. In table 2 it is seen that there were 72 women

TABLE 2.—*Pathological Findings in 244 of 353 Women for Whom Biopsies Were Recommended as a Result of Second Annual Examination of Vaginal Smears of 32,728 Women*

	No.		% of 33,000 Women
Invasive uterine cancer	11		0.033
Cancer of cervix		9	0.030
Cancer of corpus		2	0.003
Intraepithelial carcinoma of cervix	72		0.218
Total cancer and intraepithelial carcinoma	83		0.254
Atypical metaplasia	45		0.136
Findings normal	109		0.330
Total	237*		0.700

*Biopsies were inadequate in 7 women.

with intraepithelial carcinoma of the cervix. Of these 72 women, 26 had smears that had been read as normal on the first survey and were normal when reexamined. Twenty-one of these had an intraepithelial lesion and five had cancer. Thus, this group would appear to include the patients who had developed cancer since the first smear was taken. However, the possibility exists that the lesion was present and the vaginal sample failed to include cells representative of a lesion. Of the remaining 46 smears, 6 that were originally called normal should have been classified as suspicious (type 3 or 3a), and a biopsy should have been recommended. In another six women the original smear was type 2, and further cytological study was recommended but not done. Thirteen were called normal by the screening technicians and on review were reclassified as type 2, and these should have been studied further. Fifteen were originally called cytological types 3, 4, or 5, and biopsies were recommended, but seven of these women failed to have biopsies done; of the other eight, six had a tissue diagnosis of atypical metaplasia, in one the biopsy showed no abnormal change, and in the other biopsy was inadequate. Lastly, there were six smears that, it is now thought, should have been called unsatisfactory for adequate evaluation.

Thirdly, and perhaps most important, the *esprit de corps* of all workers in the cytology laboratory is kept high by keeping them informed of all phases of the study, so that they realize the results of a failure to mark a suspicious cell.

Comment

In this report, the term intraepithelial carcinoma has been used as synonymous with "in situ" as used by many. The histological and cytological features of this controversial lesion have been repeatedly discussed by many authors.[9] We agree that the essential features are that it is predominantly a lesion of the squamocolumnar junction or the endocervix and that cytologically it mimics cancer to greater or lesser degree and histologically involves and is limited to the epithelial surface or endocervical glands without invasion of underlying stroma. It is but one segment of the dynamic biological process of cervical carcinogenesis. We believe that its borders cannot always be sharply defined, and it must be recognized that the limits of pathological definition are dependent on personal experience and correlative study.

No attempt will be made to discuss the arguments for or against the current trend to accept this lesion as a preinvasive stage of cervical cancer. Suffice it to say that the experience of any critical observer reveals that this lesion is frequently associated with invasive cervical carcinoma and that the available evidence indicates that intraepithelial carcinoma may often be preinvasive cancer. Thus, intraepithelial carcinoma is now generally accepted as significant in relation to cancer of the cervix whether or not it is a potential or a preinvasive stage of the common squamous cell carcinoma of the cervix. Yet it is equally clear that the exact biological story is not known, and there are still insufficient data to indicate how often this sequential progression takes place or what percentage of cancers develop from reserve cell hyperplasia of endocervical or junctional areas to atypical metaplasia of varying degrees to intraepithelial carcinoma; that is, from surface, preinvasive carcinoma to invasive cancer.[10] The removal of these intraepithelial carcinomas and cervical cancers from a population to be examined annually has provided this investigation with the experimental stage to test the thesis that the lesion known as intraepithelial carcinoma of the cervix is the preinvasive stage of invasive cervical carcinoma.

We believe that further investigation, analysis of the data concerning the rescreening to determine the age-specific incidence of development, and the follow-up of the significant number of patients with what may be cancer in its early stages should contribute evidence to indicate more exactly the relationship of the cervical epithelial changes that lead to invasive cancer and enlighten this hazy but important controversial question. Though the biological story of this relation or its frequency is not yet fully elucidated, the available evidence clearly justifies and dictates judicious application of this knowledge to efforts directed toward prevention of or decreasing the morbidity and mortality of uterine cancer as in this project. Thus we have proceeded with the plan of this project on the thesis that the developmental stages of atypical metaplasia, dysplasia, and intraepithelial carcinoma were significant in relation to uterine cancer.

It is obvious (see figure) that the value of this or similar screening efforts is economically dependent on this relation, for the preponderance of unsuspected cases (77%) are of intraepithelial carcinoma. If intraepithelial carcinoma is not the forerunner of cancer in a significant percentage of cases, the cost would undoubtedly prohibit widespread use of cytological examination of vaginal smears as a screening procedure, for it would not pay the community to find only the smaller number of unsuspected invasive cancers, even though it would be advantageous to the individual involved.

It is of interest to compare the number of intraepithelial carcinomas diagnosed in residents of Shelby County in 1950 and 1951[8] to the number (465) found in the 108,000 women during the three and a half years of this project. Diagnoses during both periods were made by the same pathologists. More than a fourfold increase resulted from this large-scale application of cytological methods. A similar comparison cannot be made with invasive uterine cancer until another morbidity survey is completed to furnish data concerning cancers detected by means other than cytological screening.

Efforts were directed in our program to guard against false security as well as misunderstanding of the scope of the test. Each woman having the test has received a memorandum including the following statement: "Remember that this test detects cancer in the uterus (womb) only; it is not a test for cancer in other parts of the body. All women over 20 should have this test once a year as a health safeguard, like a chest x-ray. If symptoms should develop before your next test, see your doctor—don't wait." However, this effort in no way decreases the importance of the study of incidence of false-negative tests as a significant factor in evaluating the reliability of this approach. As previously discussed, supplementary information will be obtained from the repeat annual studies, so that restudy of at least three annual tests will be available for an accurate measure of reliability. Data now available not only indicate that the false-negative error is low for the first examination but suggest that the possible error disappears for all practical purposes if women are examined at yearly intervals.

The great advantage of the plan used in the Memphis project for this community is that, even though this is a mass project, the close doctor-patient relationship has been maintained throughout for follow-up diagnostic studies or treatment as indicated. Every effort has been made to maintain and foster this relationship between the women examined, their doctors, and the pathologists interpreting the cytological tests and tissue studies.

Until further knowledge permits efforts directed at prevention of cancer, this and similar investigations in cancer research are aimed at decreasing the incidence of incurable malignancy and at the prevention of deaths from cancer. Here attention has been directed at prevention of incurable disease by careful cytological examination, early diagnosis while the disease is still in a curable stage, and, thus, early treatment.

This program tests the thesis that, by detection and removal of intraepithelial and incipient cancer of the uterus, the situation can become one where cancers are found predominantly in the preinvasive and preclinical stage rather than in the symptomatic and frankly invasive stage. The trend indicated by the case rate for the 33,000 women (table 2) suggests that this approach to control of uterine cancer can be successful, but final conclusions cannot yet be drawn.

The trend indicated in this preliminary report offers evidence that suggests that this approach can be successful and that the present situation, where most cases are discovered at the symptomatic stage, which is usually too late for successful treatment, can be changed to one where the majority are found at the presymptomatic or localized stage, a stage at which available evidence indicates the cure rate can be very high. The final answer and measure of success of this approach will be determined by continuation of this study to determine changes in morbidity and mortality from this disease in this area.

Summary

A plan was devised for the screening of a whole population for the early detection of cancer of the uterus. Among the 108,000 women examined for the first time there were 393 intraepithelial carcinomas; of these, 353 (90%) had not been suspected. There were also 373 invasive cancers of the uterus, of which 112 (30%) were unsuspected. This shows clearly the value of this procedure as a method for the early detection of cancer. On the second examination of 33,000 women, 2.2 with intraepithelial carcinomas were found per thousand, as compared with 3.6 on the first examination, while the rate for invasive cancer was reduced from 3.4 to 0.3 cases per thousand women. These changes are related to the natural history of cancer.

858 Madison Ave. (3) (Dr. Sprunt).

References

1. Williams, W. L., and Erickson, C. C.: Review of Experimental Studies upon Etiology of Carcinoma of Cervix in Humans and Animals, South. M. J. **49**: 101-109 (Feb.) 1956.

2. Papanicolaou, G. N., and Traut, H. F.: Diagnosis of Uterine Cancer by Vaginal Smear, New York, the Commonwealth Fund, 1943.

3. Day, E.: Cytological Techniques in Screening Uterine and Lung Cancer, CA—Bulletin of Cancer Progress **2**: 57-62 (March) 1952. Jones, H. W.: Cytologic Diagnosis of Carcinoma of the Uterus, in Proceedings of Symposium on Exfoliative Cytology, New York, Oct. 23-24, 1951, New York, American Cancer Society, 1953. Kraushaar, O. F.; Bradbury, J. T., and Brown, W. E.: Vaginal Smear in Population Screening for Uterine Carcinoma, Am. J. Obst. & Gynec. **58**: 447-456 (Sept.) 1949. Strang Cancer Prevention Clinics: Symposium, J. Am. M. Women's A. **3**: 113-146 (April) 1948. Scheffey, L. C., and Rakoff, A. E.: Evaluation of Cytology Test for Uterine Cancer, M. Clin. North America **32**: 1563-1572 (Nov.) 1948. Lombard, H. L.; Middleton, M.; Warren, S., and Gates, O.: Use of Vaginal Smear as Screening Test, New England J. Med. **246**: 523-528 (April 3) 1952.

4. Dunn, J. E., Jr., and Sprunt, D. H.: Uterine Cancer Case Finding by Vaginal Cytology: Memphis and Shelby County, Tennessee, Pub. Health Rep. **70**: 341-346 (April) 1955.

5. Cuyler, W. K.; Kaufmann, L. A.; Palumbo, L., and Parker, R. T.: Problems Associated with Interpretation of Intraepithelial Carcinoma of Cervix from Genital Smears, South. M. J. **45**: 1151-1158 (Dec.) 1952.

6. Graham, R. M.: Value of Vaginal Smear to Gynaecologist (John Shields Fairbairn Lecture), J. Obst. & Gynaec. Brit. Emp. **60**: 483-491 (Aug.) 1953.

7. Erickson, C. C., and others: Preliminary Report of 20,000 Women Studied by Vaginal Smear Technic in General Population Cancer Screening Project, Proc. Am. Assoc. Cancer Res. **1**: 14-15 (April) 1953. Erickson, C. C., and Dunn, J. E., Jr.: Cytologic Technique in Memphis, Shelby County (Tennessee) Population Uterine Cancer Screening Project: Report on First 60,000 Women Examined, Acta Unio. internat. contra cancrum **12**: 65-73, 1956. Erickson, C. C.: Early Uterine Cancer Detection by Cytologic Screening, Ann. New York Acad. Sc., **63**: 1054-1065 (March 30) 1956.

8. Dunn, J. E., Jr.; Rowan, J. C.; Erickson, C. C., and Seigler, E. E.: Uterine Cancer Morbidity Data: Memphis and Shelby County, Tenn., 1950-1951, Pub. Health Rep. **69**: 269-274 (March) 1954.

9. Stoddard, L.: Problem of Carcinoma in Situ with Reference to Human Cervix Uteri, in Progress in Fundamental Medicine, edited by J. F. A. McManus, Philadelphia, Lea & Febiger, 1952, chap. 8, pp. 203-260.

10. Carmichael, R., and Jeaffreson, B. L.: Squamous Metaplasia of Columnar Epithelium in Human Cervix, J. Path. & Bact. **52**: 173-186 (March) 1941. Howard, L., Jr.; Erickson, C. C., and Stoddard, L. D.: Study of Incidence and Histogenesis of Endocervical Metaplasia and Intraepithelial Carcinoma: Observations on 400 Uteri Removed for Noncervical Disease, Cancer **4**: 1210-1223 (Nov.) 1951.

Growth Retardation in Renal Disease.—In an effort to determine a common denominator for the growth failure of renal disease, the clinical and laboratory observations on 41 children with chronic renal disorders have been surveyed. Twenty-one of the patients had growth retardation. Of the manifestations investigated, none met the criterion of being universally present in the stunted patients and absent in children growing normally. Failure of renal concentrating ability was present in all children with growth failure, but failure of concentration was also observed in a few children growing normally. On the other hand, chronic acidosis was never observed in children growing normally but was present in only 76% of the retarded children. There was no evidence that mild azotemia, albuminuria, or chronic urinary tract infection significantly affected growth. The advent of chronic acidosis in a patient with renal disease appeared to cause stunting by producing temporary growth arrest. After stature had become subnormal, growth was resumed at a slow rate, although acidosis continued to be present. The role of low caloric intake resulting from anorexia as a cause of growth retardation in renal disease can only be assessed roughly in the present study by the weight-for-height index. According to this assessment only eight of the retarded children fall into the category of hypocaloric dwarfs. Two other children demonstrated a growth spurt after establishment of adequate urinary drainage by surgery, indicating that their dwarfism might also have been a result of low caloric intake. It was found that between the two factors of low caloric intake, as assessed by the above methods, and chronic acidosis, the growth retardation of nearly all the patients in the present series could be accounted for.—C. D. West, M. D. and W. C. Smith, M. D., An Attempt to Elucidate the Cause of Growth Retardation in Renal Disease, *A.M.A. Journal of Diseases of Children*, May, 1956.

J.A.M.A., September 15, 1956

CHLORPROMAZINE IN THE TREATMENT OF PORPHYRIA

James C. Melby, M.D., John P. Street, M.D.
and
C. J. Watson, M.D., Minneapolis

• *Chlorpromazine was administered by mouth, generally in doses of 25 mg. three or four times daily, in nine cases of intermittent acute porphyria with pain and other serious symptoms. This dosage sufficed to control the symptoms in most cases, although it did not cure established paralyses. In three of the patients a single dose of 100 mg. of chlorpromazine was followed by complete clinical remission. The first effect was a relief of the nervous symptoms, including the pain; this improvement was not correlated with any significant changes in excretion of porphyrin or porphobilinogen during the period of study. The drug appeared to interrupt a vicious cycle, after which the patient was able to regain a state of remission spontaneously. Chlorpromazine has been the most consistently effective remedy thus far available for the pain and nervous manifestations of porphyria.*

To date, no agent has been found that will correct the metabolic defect of porphyria. Certain ganglioplegics, corticotropin, and hydrocortisone or its analogues have been thought, in some cases, to interfere with the progress of acute attacks of porphyria. However, the response is extremely variable, and, because of the occurrence of spontaneous remissions, conclusions have not been possible. An important factor in the evaluation of any agent in the treatment of porphyria is the possible aggravation of the disease by the chemical. Thus, it is well known that barbiturates and certain other chemicals can precipitate attacks of acute porphyria in individuals with latent disease.[1] This fact indeed has made one especially conservative about a trial of new agents. Our own experience with the use of tranquilizing agents has undoubtedly been retarded because of concern at the outset that we might do more harm than good. However, the great difficulty encountered in treating cases of porphyria induced us to make trials of some of the newer agents. Our actual point of departure was the idea of enhancing the effect of meperidine (Demerol) hydrochloride or of diminishing the required amount.

The purpose of the present report is to describe experience during the past year with the use of chlorpromazine and, to a lesser extent, the Rauwolfia alkaloids in cases of intermittent acute porphyria. Nine cases are included in this report. Six of these were studied at the University of Minnesota and Minneapolis Veterans hospitals. The clinical protocols and results of chlorpromazine therapy in three cases have been made available to us by physicians in other cities.

Report of Cases

Case 1.—A 36-year-old female was admitted to the University of Minnesota Hospitals on Feb. 5, 1956, complaining of severe, crampy abdominal pain. She had been in good health until Jan. 7, 1956, when she had begun to have attacks of vomiting abdominal pain and passed dark urine. The patient was italized elsewhere and received parenterally given fluids, tics, and barbiturates. Because of persistent abdominal ain, an exploratory laparotomy was performed on Jan. 22, 1956, at which time a normal appendix was removed. Her symptoms continued, and on Feb. 4, 1956, the urine was first found to be positive for porphobilinogen. The diagnosis of porphyria was made by Dr. D. S. Morris, Winston-Salem, N. C., who referred the patient to us.

Physical examination revealed abdominal tenderness without rigidity or distention and diminished posture sense of the lower extremities. Four days later the left biceps reflex was absent, and there was transient mild weakness of the left arm. The amounts of urinary porphyrin excreted daily are shown in figure 1. On Feb. 6, 1956, the patient's abdominal pain promptly abated after the intramuscular administration of 50 mg. of chlorpromazine. At the same time she began to eat and said she felt well for the first time since the onset of her illness. Because of recurrence of abdominal pain, chlorpromazine was given orally in gradually decreasing amounts, as noted in figure 1. Therapy was discontinued on Feb. 18, 1956, and the patient was discharged two days later without symptoms.

The patient has remained in good health up to the present time. Recently urinary porphyrin and porphobilinogen excretion studies were made. The porphobilinogen excreted in the urine was 28 units in 24 hours; the coproporphyrin excreted was 370 mcg. in 24 hours, and uroporphyrin excreted was 1,560 mcg. in 24 hours. A comparison of these values with the final daily excretions represented in figure 1 shows little change except that the excretion of coproporphyrin has diminished.

Case 2.—A 69-year-old female who was known to have had hypertension for three years was admitted to the University of Minnesota Hospitals on Sept. 27, 1955. Four weeks prior to admission, she had developed tremor and agitation and had been placed on mephobarbital (Mebaral) therapy. Shortly after this she began to have abdominal pain, nausea, and vomiting episodes and passed port-wine-colored urine, which was found to be positive for porphobilinogen by Dr. H. A. Christianson, Jackson, Minn. Physical examination on admission revealed grade-2 hypertensive retinopathy, cardiac enlargement, and a tender, distended abdomen. The blood pressure was 190/120 mm. Hg. One freshly voided specimen of urine was positive for porphobilinogen, and all subsequent specimens were negative. Data on the urinary porphyrin excreted daily are given in figure 2. Chlorpromazine was administered in amounts of 25 mg. four times daily for four days, during which time the abdominal pain gradually subsided. On the fourth hospital day the patient had one brief recurrence of abdominal pain, which quickly disappeared and did not recur. Chlorpromazine was withdrawn on Oct. 24, 1955, and the patient was discharged asymptomatic on Oct. 28, 1955.

Case 3.—A 66-year-old male was first admitted to the Minneapolis Veterans Hospital in 1951. Intermittently for 11 years he had had abdominal pain and hypertension and passed dark urine and had experienced a change in personality. At that time the diagnosis of intermittent acute porphyria was first established. He had had remissions while on corticotropin therapy on two occasions. In the fall of 1955, he had received prednisone without benefit but had had fleeting relief of abdominal pain on pentolinium therapy. At that time meperidine hydrochloride was withdrawn (the patient was strongly addicted). After a period of delirium, for which he was given large doses of reserpine (1 to 2 mg.), he became more lucid and tractable. Reserpine was withdrawn, and within a short time the patient

---

From the Department of Medicine, University of Minnesota Hospitals and Minneapolis Veterans Hospital.

experienced a severe exacerbation of generalized aching and abdominal pain associated with dark urine and anasarca. Pleural effusions were present, the blood pressure was 240/120 mm. Hg. and ileus with abdominal distention was noted. The patient was placed on a combined chlorpromazine (50 mg. four times a day) and reserpine (0.25 mg. four times a day) regimen with apparent marked relief of abdominal symptoms, tremulousness, and agitation. The edema abated. He then had an attack of abdominal pain and generalized aching in December, 1955. Chlorpromazine (50 mg. four times a day) and reserpine (0.25 mg. four times a day) were again given with sustained relief of symptoms. The patient has been relatively asymptomatic without medication up to the present.

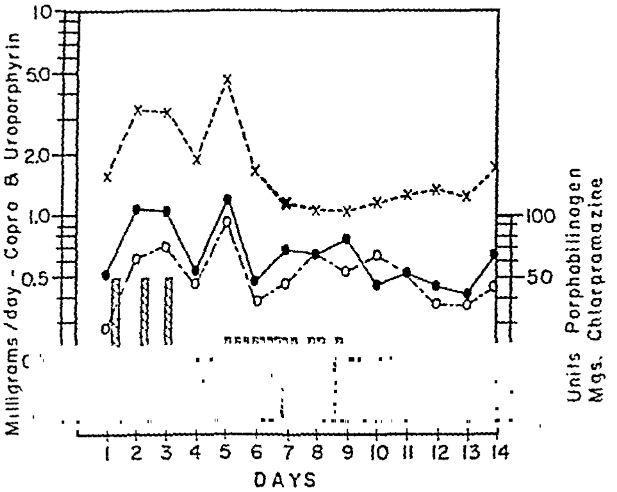


Fig. 1.—Daily excretion of urinary porphyrin and porphobilinogen plotted on a semilogarithmic scale during administration of chlorpromazine. Dosage is shown as divided through 24-hour periods. Levels of uroporphyrin are indicated by X's connected by broken lines, of porphobilinogen by O's connected by long and short lines; of coproporphyrin by black dots connected by unbroken lines.

This man had been difficult to manage on previous hospitalizations because of his psychotic behavior and extreme agitation during acute episodes of abdominal pain. The tranquilizing effects of chlorpromazine and reserpine were decisive in altering the patient's course and in avoiding the use of narcotics.

Case 4.—A 24-year-old male was admitted to the Minneapolis Veterans Hospital on Aug. 9, 1955, following transfer from another hospital, where he had developed a flaccid quadriparesis. Four months earlier the patient experienced crampy abdominal pain, nausea, vomiting, and constipation, which increased in severity until the onset of quadriparesis. Four years previously he had had an episode of abdominal pain, and his urine had been red intermittently since then. Physical examination on admission revealed flaccid quadriparesis. The excretion of uroporphyrin and coproporphyrin in the urine was markedly increased. The test for urinary porphobilinogen was strongly positive. The paralysis largely abated within a week, with a residual bilateral palsy of the radial nerve. While in the hospital, on Nov. 10, 1955, the patient developed severe abdominal pain, vomiting, and agitation. Corticotropin, prednisone, pentolinium, intravenously given procaine, and tetraethylammonium chloride (Etamon) were all administered individually without benefit. The patient required large doses of meperidine hydrochloride for control of pain. Chlorpromazine in 25-mg. amounts was given intramuscularly at six-to-eight-hour intervals. The meperidine requirement dropped but pain persisted, and on Dec. 8, 1956, the patient was given 100 mg. of chlorpromazine intramuscularly. He became completely asymptomatic within one hour. He was discharged two days later, having required no further medication. He was readmitted on Feb. 9, 1956, with severe abdominal pain and was promptly given 100 mg. of chlorpromazine intramuscularly with immediate and complete subsidence of the attack. At the present time the patient is symptom-free except for the persistence of bilateral wrist drop. In this case, it was evident that the optimal response to chlorpromazine was obtained only after the administration of a large single dose, smaller doses given intermittently being much less effective.

Case 5.—A 23-year-old male admitted in May, 1955, had had crampy abdominal pain, attacks of vomiting, and constipation and had passed dark-red urine for 10 days. He had noted red urine intermittently for one year prior to admission. The blood pressure was 170/110 mm. Hg. The urine was positive for porphobilinogen, and the daily excretion of coproporphyrin and uroporphyrin was markedly elevated. Relief from abdominal symptoms occurred after the administration of pentolinium and corticotropin therapy. Because of severe apprehension and anxiety, he was placed on reserpine therapy (0.25 mg. twice a day) and attained complete relief. On three subsequent occasions the patient stopped taking the medicament, and there was recurrence of extreme nervousness and mild abdominal pain on each occasion. Each time the symptoms abated after the reinstitution of reserpine therapy. On March 19, 1956, he was readmitted to the hospital and given meprobamate (400 mg. three times a day). Within 9 days he experienced moderate abdominal distress and in 18 days developed a full-blown attack of porphyria with severe abdominal pain, vomiting, constipation, and hypertension. Use of meprobamate was discontinued. Chlorpromazine was given (25 mg. three times a day intramuscularly) with moderate relief in two days, and the attack subsided 36 hours after four spaced doses of 100 mg. of chlorpromazine were given intramuscularly.

Daily amounts of urinary porphyrin excreted during therapy with chlorpromazine are shown in figure 3. It is not clear why there should be such an abrupt rise in the excretion of uroporphyrin. A part of this may be artefact on the basis of conversion of porphobilinogen to uroporphyrin after the urine was passed.

The patient's history suggests that use of reserpine may have aborted full-blown porphyric symptoms, in that mild symptoms occurred upon withdrawal of the drug and disappeared on readministration of reserpine. Use of meprobamate did not modify the acute attack, and the drug may even be suspect in its precipitation. Chlorpromazine relieved symptoms when given in relatively large amounts (100 mg.) intramuscularly. The patient is asymptomatic at the present time.

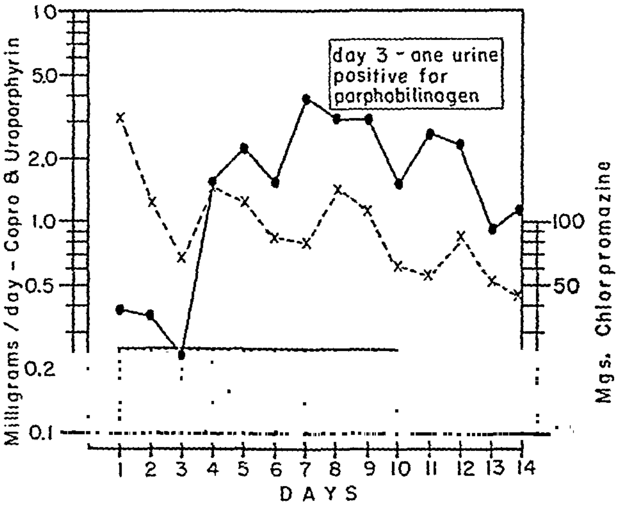


Fig. 2.—Daily excretion of urinary porphyrin plotted on a semilogarithmic scale during administration of chlorpromazine. One freshly voided urine specimen on the third day gave a positive reaction for porphobilinogen. Porphobilinogen was not detectable in the urine after the third day. Dosage is shown as divided through 24-hour periods. Levels of uroporphyrin are indicated by X's connected by broken lines and of coproporphyrin by black dots connected by unbroken lines.

Case 6.—In 1952 a 26-year-old female noted abdominal pain and dark urine. It is of possible interest that the patient had been exposed in her work to the fumes of molten lead for a period of two years before and up to this first outspoken attack of porphyria. An appendectomy was performed in 1952. In June, 1954, the diagnosis of porphyria was established during an episode of abdominal pain, vomiting, and delirium. She was first admitted to Barnes Hospital in St. Louis, on

Nov. 30, 1954, with recurrence of porphyric symptoms, for which she was given small doses of chlorpromazine. A remission occurred. During a second admission on Feb. 23, 1955, a remission was again observed after cortisone therapy. The patient then had severe headaches that disappeared when small doses of chlorpromazine were given. A third admission on Aug. 24, 1955, was occasioned by a recurrence of generalized aching and abdominal cramps, which did not respond to cortisone or prednisone but promptly abated on chlorpromazine therapy. On two subsequent occasions abdominal pain rapidly disappeared after use of chlorpromazine (10 mg. four times a day). A recent recurrence of porphyric symptoms on March 7, 1956, was again treated with chlorpromazine therapy (25 mg. four times a day). Within 24 hours of the increase in dosage she was greatly improved, and within 48 hours she was entirely free from pain. A definite correlation between the exacerbation of porphyric symptoms and psychological stresses was noted. At the present time the patient is feeling well on chlorpromazine therapy (25 mg. four times a day).

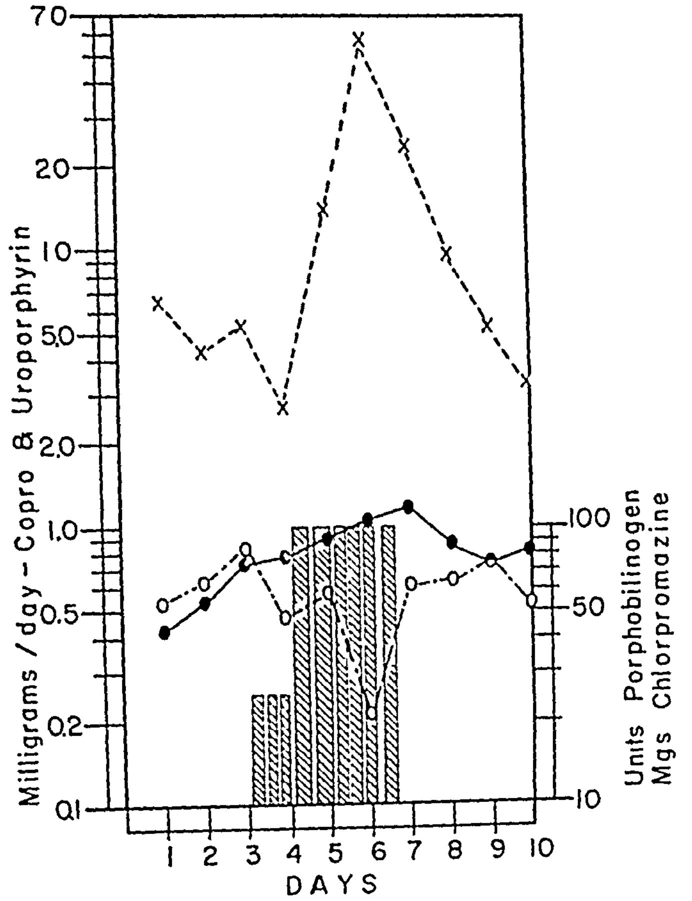


Fig. 3.—Daily excretion of urinary porphyrin and porphobilinogen plotted on a semilogarithmic scale during administration of chlorpromazine. Dosage is shown as divided through 24-hour periods. Levels of uroporphyrin are indicated by X's connected by broken lines, of porphobilinogen by O's connected by long and short lines, of coproporphyrin by black dots connected by unbroken lines.

Case 7.—A 35-year-old female had nausea, attacks of vomiting, and crampy abdominal pain in November, 1955. She was hospitalized elsewhere for a short time and was discharged unimproved. The patient was examined by another physician the day of her discharge and was rehospitalized one week, after which she developed a flaccid quadriparesis that was diagnosed as conversion hysteria. She was sent to a state psychiatric institution, where she was said to have diabetes and a gastric ulcer. The patient received isophane (NPH) insulin, 40 units every day, and propantheline (Pro-Banthine) bromide and was on a full ulcer regimen. Her abdominal symptoms improved, and the quadriparesis abated. A few days after her discharge from the state hospital, she came under the care of her present physician and complained of epigastric distress and weakness of the wrists and feet. Physical examination revealed abdominal tenderness and hypertension. The blood pressure was 160/110 mm. Hg. She was given phenobarbital (30 mg. four times daily) and continued on insulin therapy. In one week she returned to her physician complaining of nausea, vomiting, and severe, diffuse, crampy abdominal pain. On physical examination there was abdominal tenderness and bilateral wrist and foot drop. The urine was noted to be port-wine in color. A 24-hour urine specimen was sent to our laboratory. Porphobilinogen was present (54 units). Levels of porphyrins were markedly elevated, with a uroporphyrin concentration of 3,281 mcg. and a coproporphyrin concentration of 306 mcg.

Two weeks after the patient entered the hospital she was placed on chlorpromazine therapy (25 mg. three times a day intramuscularly). Her symptoms completely abated within five days. She was discharged while on chlorpromazine therapy (25 mg. twice daily). She had intermittent leg pain and was referred to us by Dr. R. L. Coultrip, Cooperstown, N. D., and she was admitted on May 29, 1956. The patient continued to have intermittent leg pain, which appears to be related mainly to passive or active exercise associated with physiotherapy. She had had no further abdominal pain while receiving chlorpromazine. In order to determine more exactly the effect of chlorpromazine, it was withdrawn temporarily. Two days later she had severe abdominal pain for the first time in months. It should be noted that she had been receiving ethinamate (Valmid) for a number of days to induce sleep. She had abdominal pain on two successive days relieved temporarily by meperidine. On the third day, because of severe abdominal pain she was given 100 mg. of chlorpromazine intramuscularly, with prompt and complete relief that lasted four hours. The pain then recurred, and 100 mg. of chlorpromazine was again given, with complete relief for six hours. This pattern has been observed on a number of occasions subsequently up to the present writing, and the patient is still under observation. It is at least evident that the relief of pain following chlorpromazine in this case, although prompt and complete, was not as enduring as in the other cases of the series. At present the possibility that other chemicals such as ethinamate may have tended to aggravate the porphyria is being investigated.

Case 8.—A 35-year-old female had had symptoms of insomnia, irritability, headaches, and severe leg pains since December, 1955. Two first cousins were known to have porphyria (confirmed in this laboratory). The patient's symptoms are greatly increased at the time of her menstrual period, and the urine usually becomes quite dark during menses. At one time the patient was placed on ethchlorvynol (Placidyl) therapy, after which dark urine and porphyric symptoms appeared. She required meperidine hydrochloride and alkaloids of opium (Pantopon) for relief of pain much of the time. Recently the patient was given chlorpromazine, 20 mg. every six hours, and has shown marked improvement, which has been sustained. She no longer requires narcotics or sedatives. A 24-hour urine specimen was collected on May 19, 1956, shortly after the commencement of chlorpromazine therapy. Urinary porphobilinogen and porphyrins were measured in our laboratory. The value for porphobilinogen was 79 units, for coproporphyrin 1,454 mcg., and for uroporphyrin 11,095 mcg. per day. After an interim without further symptoms, an additional 24-hour sample, collected from May 31 to June 1, 1956, contained 1,180 mcg. of coproporphyrin, 8,700 mcg. of uroporphyrin, and 56 units of porphobilinogen.

Case 9.—A 28-year-old male had what was thought to be a "nervous breakdown" with severe generalized and abdominal pain and intermittent episodes of abdominal pain three years prior to hospitalization on Aug. 20, 1955. Six months prior to this, the patient had had severe constipation that required administration of large amounts of laxative. Physical examination on admission was negative except for the presence of diffuse abdominal tenderness. The urine was noted to be dark red. Because of concomitant pyuria, the patient was thought to have a severe urinary tract infection, and he was then treated with sulfisoxazole (Gantrisin), meperidine, and phenobarbital until Aug. 24, 1955. The first urine sample examined for porphobilinogen was negative, but later specimens were positive. An aliquot of a 24-hour urine specimen was studied in our laboratory. The specimen was collected on Aug. 27, 1955. The porphobilinogen concentration was 24 units, that of coproporphyrin 338 mcg., and that of uroporphyrin 86 mcg. per 24 hours. All these values are only moderately elevated and would accord well with the diagnosis of intermittent acute porphyria in remission. Chlorpromazine (50-75 mg.) was given on Aug. 24, 1955, and at irregular intervals until Aug. 27, 1955, when it was given orally (50 mg. four times a day). By Aug. 27, 1955, the abdominal pain, constipation, and nervousness had largely abated. The symptoms were controlled while on chlorpromazine therapy, and remission was obtained. In the past nine months the patient has had three attacks of abdominal pain, which have not been treated with chlorpromazine.

Comment

The precise action of chlorpromazine in diminishing or abolishing the clinical manifestations of acute porphyria is unknown. It has been asserted repeatedly that chlorpromazine inhibits the sympathetic diencephalic centers and has certain direct adrenolytic actions.[2] Control of anxiety, hyperkinesis, and reversal of the action of certain psychotomimetic drugs (mescaline and lysergic acid diethylamide) are established effects.[2c] The use of chlorpromazine in intractable pain of malignancy,[3] chronic pancreatitis, causalgia,[4] and many types of pain of visceral origin is accompanied by diminished requirement of narcotics, which Rome believes is not unlike the response to prefrontal lobotomy,[5] in which apparently pain is not abolished, but the patient becomes much less aware of its presence. This does not appear to be the case in those patients with intermittent acute porphyria who have responded favorably to chlorpromazine, as they disclaim any perception of abdominal pain. The striking abolition of the apprehension and agitation of the porphyric state, which often results, is apparently independent of the slow recovery from the disorder of the nervous system that results in paralysis.

There are a few references in the literature to the use of chlorpromazine and the Rauwolfia alkaloids in porphyria. Coulonjou, Pouderoux, and Derouet[6] describe one patient with intermittent acute porphyria with severe abdominal pain, vomiting, and neurological deficit who responded within a few hours, with subsidence of the abdominal manifestations after one dose of chlorpromazine given parenterally. Weakness of muscles also improved. A subsequent attack of abdominal pain, vomiting, and apprehension terminated one-half hour after the administration of chlorpromazine. They concluded that chlorpromazine reduced the duration of attack. Durst and Krembs[7] mention the case of a gravid female who experienced severe hyperemesis and abdominal distress after attempting abortion with intravaginal use of potassium permanganate and whose urine was positive for porphobilinogen. This patient obtained relief following parenteral use of chlorpromazine. Martin and Heck[8] in their review of the cases of porphyria seen at the Mayo Clinic state simply that chlorpromazine had been used with "good results" in some patients with abdominal pain. Muller[9] reported a case of intermittent acute porphyria in a young woman in whom intense abdominal pain, unceasing vomiting, high fever, and severe prostration rapidly resulted in a moribund state. The so-called lytic cocktail, consisting of intravenously given chlorpromazine, meperidine (Pethidine) hydrochloride, and promethazine hydrochloride, was administered for six days, with refrigeration of the patient for the first 36 hours. A complete remission was obtained, and the patient remained well during a three-month follow-up period. Although chlorpromazine was not used as the sole therapeutic agent in this case, our own experience would suggest that artificial hibernation with the production of hypothermia was an unnecessary adjunct. Kark[10] used Rauwolfia serpentina in two cases of intermittent acute porphyria and observed beneficial tranquilizing effects in both instances.

No data have been given as to the alterations in excretion of porphyrin or porphyrin precursor in the urine of any of the patients described in the literature who have been treated with chlorpromazine or the Rauwolfia alkaloids. Our own results bearing on this point are inconclusive. In general, it appears that the beneficial effects of chlorpromazine that we have noted are not correlated with changes in excretion of urinary porphyrin or porphobilinogen. Thus, in case 1, despite subsidence of symptoms shortly after the first dose of chlorpromazine, there was actually a considerable increase in excretion of porphyrin and porphobilinogen, which lasted through the fifth day, and at no time did this excretion fall below the initial level. In case 2 it was of interest that the uroporphyrin-coproporphyrin ratio became sharply reversed soon after chlorpromazine therapy was begun. This reversal has often been noted in the past in remissions of acute porphyria. In case 5 (fig. 3) there was a transitory sharp increase of excretion of uroporphyrin. But, as already noted, this may be due in part, at least, to conversion of porphobilinogen to uroporphyrin after the urine was passed. It is evident that there was no change in the excretion of porphyrin or of porphobilinogen that could be correlated with the patient's improved status. Since it is quite clear from previous studies that in well-established remissions the amounts of porphyrin and porphobilinogen excreted are on the average much less than those during the acute relapse,[1] one must consider that the effect of chlorpromazine therapy is indirect in abolishing the pain and nervousness. It may be that the effect is akin to interrupting a vicious cycle. Once it is interrupted, the patient can regain a state of remission spontaneously. Such a theory would necessarily assume that nervous factors in themselves are significant in precipitating relapse. General experience dating from the early work of Günther[11] tends to support such a concept. Günther emphasized the nervous background of the person with acute porphyria and gave it the name "phorphyrismus," by which he meant a peculiar constitutional instability of the nervous system.

Meprobamate is thought to produce selective blocking of transmission of impulses to internuncial neurons, muscle relaxation, and mild central depression.[12] Although our experience is too limited to make any definite conclusions, the one patient given the drug because of apprehension experienced increased nervousness and anxiety and developed severe abdominal pain, vomiting, and a striking rise in excretion of porphyrin and porphyrin precursor in the urine while on therapy with the drug.

Summary and Conclusions

In nine cases of intermittent acute porphyria, administration of chlorpromazine has been followed promptly by disappearance of pain and nervous symptoms. Established paralyses have been unaffected. In the majority of patients, 25 mg. given three or four times daily appeared to be sufficient to control symptoms, but in three patients a single 100-mg. dose was first followed by complete clinical remission. In one of the three, the effect of chlorpromazine during a subsequent mild relapse of pain was of relatively short duration. No definite evidence has been obtained that a reduced excretion of porphyrins or porphobilinogen is an early effect of chlorpromazine therapy. It is possible that the drug interrupts a vicious cycle, permitting a spontaneous remission to occur.

In two cases Rauwolfia alkaloid has been of value in maintenance therapy. In both instances there was absence of nervous symptoms when the patients were receiving the drug, and there was recurrence when the drug was withdrawn. The present experience indicates that chlorpromazine, in relation to other chemicals, is at least reasonably safe in cases of acute porphyria. There has been no suggestion that its use precipitates a relapse of the disease. It is the most consistently effective remedy thus far available for the pain and nervous manifestations.

Drs. Edward H. Reinhard and Samuel Goldfein, Washington University School of Medicine, St. Louis; Dr. Estle P. Muncy, Jefferson City, Tenn.; and Dr. Thomas D. Johnson, Albany, Ga., gave permission to report cases 6, 8, and 9 respectively.

This study was aided by a grant from the John and Mary Briggs Fund for Research on Porphyria.

References

1. Watson, C. J.: Porphyria, in Advances in Internal Medicine, vol. 6, edited by I. Snapper and W. Dock, Chicago, Year Book Publishers, Inc., 1954, pp. 235-299.

2. (*a*) Holzbauer, M., and Vogt, M.: Action of Chlorpromazine on Diencephalic Sympathetic Activity and on Release of Adrenocorticotrophic Hormone, Brit. J. Pharmacol. **9**:402-407 (Dec.) 1954. (*b*) Longo, V. G.; Von Berger, G. P., and Bovet, D.: Action of Nicotine and of "Ganglioplegiques Centraux" on Electrical Activity of Brain, J. Pharmacol. & Exper. Therap. **111**:349-359 (July) 1954. (*c*) Schwarz, B. E.; Bickford, R. G., and Rome, H. P.: Reversability of Induced Psychosis with Chlorpromazine, Proc. Staff Meet. Mayo Clin. **30**:407-417 (Sept. 21) 1955.

3. Sadove, M. S., and others: Chlorpromazine and Narcotics in Management of Pain of Malignant Lesions, J. A. M. A. **155**:626-628 (June 12) 1954.

4. Dabbs, C. H., and Peirce, E. C., II: Causalgia Treated with Chlorpromazine Hydrochloride, J. A. M. A. **159**:1626-1628 (Dec. 24) 1955.

5. Rome, H. P.: Problem of Pain, Proc. Staff Meet. Mayo Clin. **31**:221-226 (April 4) 1956.

6. Coulonjou, R.; Pouderoux, J., and Derouet, E.: Porphyrie aiguë intermittente grave avec sequelles neurologiques: action favorable du 4560 RP, Rev. neurol. **88**:122-125, 1953.

7. Durst, J. B., and Krembs, M. A.: Porphyria and Pregnancy, J. A. M. A. **160**:165-168 (Jan. 21) 1956.

8. Martin, W. J., and Heck, F. J.: Porphyrins and Porphyria: Review of 81 Cases, Am. J. Med. **20**:239-250 (Feb.) 1956.

9. Muller, C.-A.: Porphyrie aiguë intermittente grave traitée par hibernation, Presse med. **63**:1711-1712 (Dec. 10) 1955.

10. Kark, R. M.: Clinical Aspects of Major Porphyrinopathies, Med. Clin. North America **39**:11-30 (Jan.) 1955.

11. Günther, H.: Hamatoporphyrie, in Handbuch der Krankheiten des Blutes und der blutbilden Organe, edited by A. Schittenhelm, Berlin, Julius Springer, 1925, p. 622.

12. Selling, L. S.: Clinical Study of New Tranquilizing Drug: Use of Miltown (2-Methyl-2-*n*-Propyl-1,3-Propanediol Dicarbamate), J. A. M. A. **157**:1594-1596 (April 30) 1955.

CHLORAMBUCIL IN TREATMENT OF CHRONIC LYMPHOCYTIC LEUKEMIA AND CERTAIN LYMPHOMAS

John E. Ultmann, M.D., George A. Hyman, M.D.
and
Alfred Gellhorn, M.D., New York

• *Chlorambucil was administered by mouth in doses ranging from 5 to 30 mg. daily for five to seven weeks, so than an average course amounted to 350 mg. Thirty patients were thus treated for lymphocytic leukemias and various lymphomas. In the largest group, namely, 18 patients with chronic lymphocytic leukemia, 3 patients obtained excellent results, in that the hemoglobin level and white blood cell count returned to normal, the differential count was significantly improved, and hepatosplenomegaly and lymph node enlargement disappeared. Eight other patients of this group obtained good results in that the white blood cell count fell, the hemoglobin level rose, the differential count improved, and the liver, spleen, and lymph nodes decreased in size. Results in cases of lymphocytic lymphosarcoma and Hodgkin's disease were less encouraging. In the dosages used, chlorambucil was practically without side-effects.*

In their systematic investigation of the carcinogenic and chemotherapeutic properties of the alkylating agents, Haddow and his associates of the Chester Beatty Research Institute in England [1] examined a variety of aliphatic and aromatic nitrogen mustards. In the course of their study, they found that certain aliphatic alkylating agents particularly depressed myelopoiesis. This lead to the development of busulfan (Myleran), which has been discussed extensively in recent articles.[2] Administration of certain aromatic alkylating agents, on the other hand, led to a specific decrease in circulating lymphocytes. One of these aromatic nitrogen mustards is chlorambucil [*p*-(di-2-chloroethyl) aminophenylbutyric acid], also called CB 1348. The relationship of chlorambucil to other alkylating agents is shown in the figure. The physical and chemical properties of this agent have been described.[3] Haddow found that in rats chlorambucil inhibited Walker carcinoma 256 in doses that had only slight effect on the white blood cell count of normal rats.[4] Elson [1a] as well as Bollag [5] demonstrated that large doses had a profound effect on the lymphocytes of the rat, causing a rapid fall without substantial influence on the granulocytes. This apparent "specificity" prompted investigation of the use of this drug in those conditions in man in which an abnormal proliferation of lymphocytes is found.

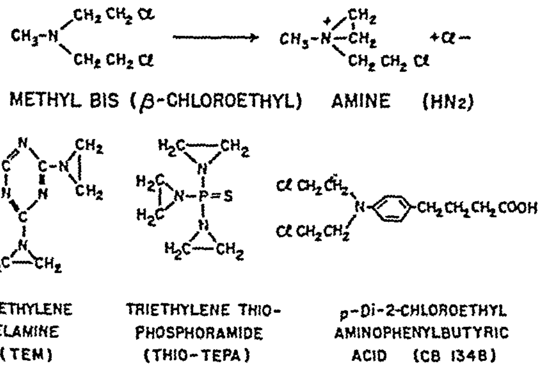
From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the medical services of the Francis Delafield Hospital and the Presbyterian Hospital, Dr. Ultmann is a Clinical Fellow (Hematology) of the American Cancer Society.

Material and Results

Thirty patients have been treated with chlorambucil at the Francis Delafield Hospital and Presbyterian Hospital since August, 1954. Eighteen patients had chronic lymphocytic leukemia, one giant follicular lymphoma, five lymphocytic lymphosarcoma, and six Hodgkin's disease. The diagnosis in each patient was established by history, physical examination, and hematological studies, usually including bone marrow aspiration. Surgical biopsies of lymph nodes were performed in all patients with lymphomas. Complete blood cell counts and platelet counts were made right before the start of therapy and three times weekly for hospitalized patients and less often for clinic patients. Only in rare instances were bone marrow aspirations repeated. Radiological and other laboratory studies, including hepatic and renal function studies, were performed at appropriate intervals. Following completion of a course of therapy, patients were seen regularly in the outpatient clinic.

Chlorambucil was available in 2 and 10-mg. tablets, which were stored in tightly stoppered brown bottles in a dark, cool place because of chemical instability. Administration was by mouth in all cases. With a standard daily dose of about 0.1 to 0.2 mg. per kilogram of body weight, an average course in most cases consisted of 6 mg. per kilogram. We have usually employed single daily doses of 6 to 10 mg.; however, individual doses ranged from 5 to 30 mg., depending on the weight of the patient, diagnosis, hematological picture, and previous therapy. A course of therapy usually lasted five to seven weeks; however, three patients were treated for 14 or more consecutive weeks. The average total dose was 350 mg.; the total effective dose varied widely in different patients, one receiving as little as 50 mg., while some received over 900 mg. The results of therapy in the four groups of patients are summarized in table 1.

Chronic Lymphocytic Leukemia.—Eighteen patients with chronic lymphocytic leukemia were treated with 20 courses of chlorambucil. All patients except one (case 18, table 2) were treated because of symptomatic conditions. Table 2 gives sex and age of patients and duration of disease prior to commencement of the experimental therapy, previous treatment and its effect, pertinent details of chlorambucil dosage with results, and the present status of patients. Objective improvement was rated as "excellent" when the hemoglobin level and white blood cell count returned to normal and when there were significant improvement of the differential count and disappearance of hepatosplenomegaly and lymph node enlargement; as "good" when there were a significant fall in white blood cell count, a slight change in differential count and rise in hemoglobin level, and a decrease in the size of the liver, spleen, and lymph nodes; as "slight" when the white blood cell count fell significantly, there was little improvement in differential count and hemoglobin level, and there was a slight decrease in size of liver, spleen, and lymph nodes; and as "none" when there was no effect. *Subjective improvement was rated as* "marked" when patients no longer had complaints that they had had on admission and were able to return to their activities with a sustained period of well-being; as "moderate" when they no longer had the complaints and returned to limited activities; and as "none" when there was no effect on their complaints and they were unable to resume activities.


METHYL BIS (β-CHLOROETHYL) AMINE (HN2)

TRIETHYLENE MELAMINE (TEM)

TRIETHYLENE THIO-PHOSPHORAMIDE (THIO-TEPA)

p-DI-2-CHLOROETHYL AMINOPHENYLBUTYRIC ACID (CB 1348)

Structural formulas of the nitrogen mustard methyl-bis (β-chloroethyl)-amine and related compounds, including chlorambucil.

TABLE 1.—*Results of Therapy with Chlorambucil in Thirty Patients*

		Objective Improvement			Subjective Improvement
Diagnosis	Patients, No.	Excellent	Good	Slight None	Marked or Moderate
Chronic Lymphocytic leukemia	18*	3	8	9	8
Giant follicular lymphoma	1	..	..	1	0
Lymphocytic lymphosarcoma	5	..	2	3	0
Hodgkin's disease	6	..	1	5	1

* 20 courses.

A significant fall in the white blood cell count to less than 30% of initial values was observed in 14 instances. In one patient (case 15), although the white blood cell count fell from 280,000 to 78,000 per cubic millimeter, the blasts, which had at first been 5%, actually increased to 75% on smear. Of the patients in whom there was a fall in white blood cell count, the percentage of lymphocytes was decreased by 25% or more in six instances (cases 2, 4B, 5, 7, 14, and 18). A decrease in hepatosplenomegaly and lymph node enlargement was observed in eight patients. Excellent objective improvement was observed in three instances (cases 4B, 12, and 14), good objective improvement in eight (cases 2, 4A, 5, 6, 7, 8B, 11, and 18), and slight or no objective improvement in the remaining nine cases. Subjective improvement was less regular than objective improvement. More than half the patients who showed objective improvement reported an increase in general well-being and appetite and a decrease in fatigue and ability to return to some normal activities. In 3 instances (cases 7, 12, and 14) marked subjective improvement was reported, while in 5 instances (cases 4A, 4B, 5, 6, and 11) moderate subjective improvement was reported and there was none in 12. The average duration of remission in eight cases (cases 4A, 4B, 5, 7, 8B, 11, 12, and 14) in which the patient responded to therapy and lived more than two months was about five months.

toms. Established paralyses have been unaffected. In the majority of patients, 25 mg. given three or four times daily appeared to be sufficient to control symptoms, but in three patients a single 100-mg. dose was first followed by complete clinical remission. In one of the three, the effect of chlorpromazine during a subsequent mild relapse of pain was of relatively short duration. No definite evidence has been obtained that a reduced excretion of porphyrins or porphobilinogen is an early effect of chlorpromazine therapy. It is possible that the drug interrupts a vicious cycle, permitting a spontaneous remission to occur.

In two cases Rauwolfia alkaloid has been of value in maintenance therapy. In both instances there was absence of nervous symptoms when the patients were receiving the drug, and there was recurrence when the drug was withdrawn. The present experience indicates that chlorpromazine, in relation to other chemicals, is at least reasonably safe in cases of acute porphyria. There has been no suggestion that its use precipitates a relapse of the disease. It is the most consistently effective remedy thus far available for the pain and nervous manifestations.

Drs. Edward H. Reinhard and Samuel Goldfein, Washington University School of Medicine, St. Louis; Dr. Estle P. Muncy, Jefferson City, Tenn.; and Dr. Thomas D. Johnson, Albany, Ga., gave permission to report cases 6, 8, and 9 respectively.

This study was aided by a grant from the John and Mary Briggs Fund for Research on Porphyria.

References

1. Watson, C. J.: *Porphyria, in Advances in Internal Medicine*, vol. 6, edited by *I. Snapper and W. Dock*, Chicago, Year Book Publishers, Inc., 1954, pp. 235-299.

2. (*a*) Holzbauer, M., and Vogt, M.: Action of Chlorpromazine on *Diencephalic Sympathetic Activity* and on Release of Adrenocorticotrophic Hormone, Brit. J. Pharmacol. **9**:402-407 (Dec.) 1954. (*b*) Longo, V. G.; Von Berger, G. P., and Bovet, D.: Action of Nicotine and of "Ganglioplegiques Centraux" on Electrical Activity of Brain, J. Pharmacol. & Exper. Therap. **111**:349-359 (*July*) 1954. (*c*) Schwarz, B. E.; Bickford, R. G., and Rome, H. P.: *Reversability of Induced Psychosis* with Chlorpromazine, Proc. *Staff Meet. Mayo Clin.* **30**:407-417 (*Sept.* 21) 1955.

3. Sadove, M. S., and others: Chlorpromazine and Narcotics in Management of Pain of Malignant Lesions, J. A. M. A. **155**:626-628 (June 12) 1954.

4. Dabbs, C. H., and Peirce, E. C., II: Causalgia Treated with Chlorpromazine Hydrochloride, J. A. M. A. **159**:1626-1628 (Dec. 24) *1955*.

5. Rome, H. P.: *Problem of Pain, Proc. Staff Meet.* Mayo Clin. **31**:221-226 (April 4) 1956.

6. Coulonjou, R.; Pouderoux, J., and Derouet, E.: Porphyrie aiguë intermittente grave avec sequelles neurologiques: action favorable du 4560 RP, Rev. neurol. **88**:122-125, 1953.

7. Durst, J. B., and Krembs, M. A.: Porphyria and Pregnancy, J. A. M. A. **160**:165-168 (Jan. 21) 1956.

8. Martin, W. J., and Heck, F. J.: *Porphyrins* and *Porphyria*: Review of 81 Cases, *Am.* J. Med. **20**:239-250 (Feb.) 1956.

9. Muller, C.-A.: Porphyrie aiguë intermittente grave traitée par hibernation, Presse med. **63**:1711-1712 (Dec. 10) 1955.

10. Kark, R. M.: Clinical Aspects of Major Porphyrinopathies, Med. Clin. North America **39**:11-30 (Jan.) 1955.

11. Günther, H.: Hamatoporphyrie, *in* Handbuch der Krankheiten des Blutes und der blutbilden Organe, edited by A. Schittenhelm, Berlin, Julius Springer, 1925, p. 622.

12. *Selling*, L. S.: Clinical Study of *New* Tranquilizing Drug: Use of Miltown (2-Methyl-2-n-Propyl-1,3-Propanediol Dicarbamate), J. A. M. A. **157**:1594-1596 (April 30) 1955.

CHLORAMBUCIL IN TREATMENT OF CHRONIC LYMPHOCYTIC LEUKEMIA AND CERTAIN LYMPHOMAS

John E. Ultmann, M.D., George A. Hyman, M.D.
and
Alfred Gellhorn, M.D., New York

• *Chlorambucil was administered by mouth in doses ranging from 5 to 30 mg. daily for five to seven weeks, so than an average course amounted to 350 mg. Thirty patients were thus treated for lymphocytic leukemias and various lymphomas. In the largest group, namely, 18 patients with chronic lymphocytic leukemia, 3 patients obtained excellent results, in that the hemoglobin level and white blood cell count returned to normal, the differential count was significantly improved, and hepatosplenomegaly and lymph node enlargement disappeared. Eight other patients of this group obtained good results in that the white blood cell count fell, the hemoglobin level rose, the differential count improved, and the liver, spleen, and lymph nodes decreased in size. Results in cases of lymphocytic lymphosarcoma and Hodgkin's disease were less encouraging. In the dosages used, chlorambucil was practically without side-effects.*

In their systematic investigation of the carcinogenic and chemotherapeutic properties of the alkylating agents, Haddow and his associates of the Chester Beatty Research Institute in England[1] examined a variety of aliphatic and aromatic nitrogen mustards. In the course of their study, they found that certain aliphatic alkylating agents particularly depressed myelopoiesis. This lead to the development of busulfan (Myleran), which has been discussed extensively in recent articles.[2] Administration of certain aromatic alkylating agents, on the other hand, led to a specific decrease in circulating lymphocytes. One of these aromatic nitrogen mustards is chlorambucil [*p*-(di-2-chloroethyl) aminophenylbutyric acid], also called CB 1348. The *relationship* of chlorambucil to other alkylating agents is shown in the figure. The physical and chemical properties of this agent have been described.[3] Haddow found that in rats chlorambucil inhibited Walker carcinoma 256 in doses that had only slight effect on the white blood cell count of normal rats.[4] Elson[1a] as well as Bollag[5] demonstrated that large doses had a profound effect on the lymphocytes of the rat, causing a rapid fall without substantial influence on the granulocytes. This apparent "specificity" prompted investigation of the use of this drug in those conditions in man in which an abnormal proliferation of lymphocytes is found.

From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the medical services of the Francis Delafield Hospital and the Presbyterian Hospital. Dr. Ultmann is a Clinical Fellow (Hematology) of the American Cancer Society.

therapy. On the other hand, severe leukopenia and thrombocytopenia did occur in one patient who had giant follicular lymphoma and who had been treated with radiotherapy, even though she received a relatively small dose of chlorambucil (case 1, table 3). In another patient, a man with chronic lymphocytic leukemia (case 8B, table 2), administration of chlorambucil brought about such a rapid decrease in the number of lymphocytes that hyperuricemia resulted. The patient drank an insufficient amount of water during hard manual labor on a very hot day, which resulted in dehydration, oliguria, and, subsequently, transient anuria that was shown to be due to formation of uric acid crystals. The patient recovered after a stormy course and his condition is now in remission.

Autopsies.—Of the 30 patients treated, 10 have died and autopsies have been performed on 5 (cases 1 and 15, table 2; cases 2, 4, and 10, table 3). In findings of all autopsies, there was evidence of active disease with involvement of lymph nodes, viscera, and other organs. On microscopic examination, characteristic neoplastic cells were easily recognized and no evidence of cytotoxicity was described. Gross examination as well as microscopic study showed no evidence of hepatic or renal disease that could be attributed to drug toxicity. Hypoplastic marrow was described in three instances, but in two cases there was diffuse replacement by tumor tissue.

TABLE 3.—*Effect of Oral Administration of Chlorambucil on Lymphomas*

						Data Before/After Therapy					
Case	Patient's Sex Age	Duration Disease Before Chlorambucil Therapy, Yr	Previous Therapy and Results	Dosage Range Mg × Days/Total Dose	Dose in Mg/Kg	White Blood Cell and/or Platelet Count Lowered by Therapy	Hemoglobin Level Gm/100 Cc	Liver, Size, Cm	Spleen, Size, Cm	Nodes 0-4+	Duration of Remission and Present Status
Giant Follicular Lymphoma with Marked Lymphocytosis											
1	F 47	8	X ray—good	10×14/140	2.3	Yes*	8.5/8.0†	8/3	10/2	4+/1+	Chlorambucil-induced remission Alive after 16 mo
Lymphocytic Lymphosarcoma											
2	F 64	1	Triethylene melamine—good	6-30×46/728	14.5	Yes	8.0/10.3	3/3	0/2	3+/2+	None Dead after 1½ mo
3	M [illegible]	1½	Triethylene melamine—good	6×17/102	1.6	?	?	?	?	?	Dead after 3 mo
4	M 55		X ray—good	6-10×51/435	7.4	Yes	12.6/10.0 White blood cells 6,000 ⟶ 3,200 Lymphocytes 96% ⟶ 22%	2/0	0/0	3+/—	Partial Alive after 2 mo
5	M 53	2	X ray—fair	24×11/264	4.0	Yes	13.1/10.7	../..	../..	../.	None Died after 8 mo (improved temporarily on prednisone therapy)
6	M 42	8 wk	None	10×88/880	13.0	Yes (temporarily)	10.2/12.4	4/3	3/1	4+ large abdominal mass 2+ smaller abdominal mass	Partial Alive after 4 mo
Hodgkin's Disease											
7	F 26	2	HN2 and x ray—good Corticotropin cortisone—poor	6×64/384	6.3	Yes	11.5/11.5	0/0	0/0	3+/3+	None Died after 3 mo
8	F 40	3	X ray—fair	10-20×42/420	9.0	Yes	8.8/9.0	0/0	0/0	Mediastinal/No change	None Alive after 6 mo (slight improvement on triethylenethiophosphoramide therapy)
9	F 23	4	HN2—fair Steroids—none	10×41/410	7.0	Yes	9.9/11.9†	0/0	1/1	0/0	None Alive after 6 mo
10	M 34	5	X ray—good HN2—poor	10-30×21/420	6.2	Yes	11.2/12.4	2/2	1/1	4+/4+	None Dead after 1½ mo
11	F 23	6	X ray—good HN2 and triethylene melamine—fair	10×6/60	1.7	Yes	6.7/11.5†	0/0	5/5	0/0	None Dead after 5 mo
12A	F 27	6	X ray—good HN2 triethylene melamine steroid—fair	6-10×48/490	8.9	Yes	12.1/12.0	0/0	0/0	4+/±	2 mo See 12B
B		..	Chlorambucil—good	10×50/500	10.0	Yes	10.6/10.5	0/0	0/0	3+/3+	None Alive after 8 mo

* Severe agranulocytosis and thrombocytopenia with pneumonia and purpura followed by complete recovery
† Transfusions required to maintain hemoglobin level

Comment

Galton and others[6] reported recently on their experience with chlorambucil. They treated 62 patients suffering from malignant lymphomas with a dosage schedule similar to that used in our study. They obtained excellent remissions in 4 of 23 patients with Hodgkin's disease, in 7 of 12 patients with lymphocytic lymphoma, in 4 of 8 with chronic lymphocytic leukemia, and 5 of 6 with follicular lymphoma. They noted that side-effects were fewer than those noted in therapy with nitrogen mustard or triethylene melamine (TEM), and they felt that profound marrow depression was directly related to the dosage and was therefore avoidable. Prossor and co-workers [7] of the Westminster Hospital in London employed chlorambucil in a total of 39 cases, including 24 of Hodgkin's disease, 2 of lymphosarcoma, 3 of lymphocytic leukemia, 2 of granulocytic leukemia, 4 of plasma cell myeloma, and 3 of generalized carcinomatosis. It was the feeling of the authors that "good temporary palliation" was achieved in a good proportion of patients, particularly those with lymphoma. No further details are given in this preliminary report.

It is our impression that chlorambucil is of beneficial effect in certain patients with chronic lymphocytic leukemia. Decreases in the white blood cell count, some reversal of the differential count, improvement of hemoglobin level, and some decrease in hepatosplenomegaly and lymph node enlargement can be expected in about two-thirds of the cases. This coincides with improvement in the well-being of the patient in about one-half of the cases.

A comparison of results in this series with those obtained by other modes of therapy is difficult. It has been stated repeatedly that radiotherapy decreases morbidity in chronic lymphocytic leukemia with no effect on survival time. Most statistical analyses, however, do not deal with remission rate and duration of remissions. An analysis of the duration of remission with techniques of titrated total body radiation by external x-ray [8] or radiophosphorus (P^{32}) [8b] is impossible, because repeated small doses are administered to keep the patient in constant remission. In chronic lymphocytic leukemia, use of urethan reduces the abnormal blood cell count, but maintenance therapy is necessary, and when administration is discontinued the count rises promptly.[9] In some cases, remissions of three and one-half to six months have been observed.[10]

Triethylene melamine is useful in chronic lymphocytic leukemia since small doses produce improvement lasting three to five months,[11] but rarely longer.[12] Triethylene melamine therapy may, however, be hazardous, particularly in patients with low platelet counts.[11] With chlorambucil therapy, remissions of three to six months may occur in the conditions of those patients who respond.

In those patients in whom thrombocytopenia is an initial finding, chlorambucil appears to be of particular usefulness. Galton [6] has pointed out that depression in platelet level is rarely serious. In the present series of patients with chronic lymphocytic leukemia, half had initial platelet counts below 100,000 per cubic millimeter, although none had overt hemorrhagic phenomena. With effective courses of chlorambucil therapy, the platelet levels did not fall significantly in any of these patients.

The wide range of doses required by different patients is of interest. Of the nine patients who had chronic lymphocytic leukemia and who did not respond, two patients showed no significant response after the administration of 12 and 13 mg. per kilogram of body weight of chlorambucil given over 65 and 45 days respectively. On the other hand, in certain patients a marked fall in white blood cell counts occurred with doses of as little as 0.7 and 1 mg. per kilogram of body weight given over 6 and 10 days respectively. The cause for this variability in response to therapy is not clear. It may be due to differences in gastric acidity, absorption, or utilization. The two patients showing no response to large doses of chlorambucil had moderately low gastric acidity. The period of therapy required with chlorambucil is considerably longer than with triethylene melamine. Thus, in one patient, the administration of single doses of triethylene melamine resulted in remissions of one year on two occasions. In contrast, therapy with chlorambucil required nearly two months to induce a similar response in the same patient.

Our experience with chlorambucil therapy in the other lymphomas has not been extensive. Patients with lymphocytic lymphosarcoma appear to respond less well than those with chronic lymphocytic leukemia. The response to this therapy in patients with Hodgkin's disease is not as good as to therapy with methyl-bis (β-chloroethyl)-amine or triethylene melamine, although we have observed one patient in whom significant improvement occurred with chlorambucil therapy after resistance to other nitrogen mustards had developed. These results are similar to those reported in the larger series of Galton.[6]

Summary

Thirty patients were treated with chlorambucil [*p*-(di-2-chloroethyl)aminophenylbutyric acid] (CB 1348), an aromatic nitrogen mustard. Satisfactory responses were obtained in patients with chronic lymphocytic leukemia; the drug appears to be of particular usefulness when patients with this disease also have moderate thrombocytopenia. Chlorambucil was found to be of less value in lymphocytic lymphosarcoma and Hodgkin's disease. We have found the drug to be relatively free of side-effects when administered orally. Effective therapeutic doses cause bone marrow damage only rarely.

630 W. 168th St. (32) (Dr. Ultmann).

This work was supported in part by grants from the National Cancer Institute of the U. S. Public Health Service and in part by the Hyman Goldburg Fund.

The chlorambucil used in this study was supplied in part by Dr. Alexander Haddow and Dr. D. A. G. Galton and in part by Dr. Donald Searle of Burroughs Wellcome & Company, Inc., Tuckahoe, N. Y.

Jane E. Harvey and Ana Tiburcio gave technical assistance.

References

1. (*a*) Elson, L. A., in Ann. Rep. Brit. Empire Cancer Campaign 30: 351-354, 1952. (*b*) Elson, L. A.: Comparison of Effects of Radiation and Radiomimetic Chemicals on Blood, Brit. J. Haemat. **1**: 104-116, 1955. (*c*) Haddow, A.: Mode of Action of Carcinogenic Agents on Cells, Acta

Unio internat contra cancrum 9: 675-680, 1953 (*d*) Haddow, A.: Chemical and Genetic Mechanisms of Carcinogens, in Homburger, F., and Fishman, W. H: Physiopathology of Cancer. Treatise for Investigators, Physicians, and Students, New York, Paul B Hoeber, Inc, 1953, chap. 16 and 17. (*c*) Ross, W. C. J · Correlation of Chemical Structure with Cytotoxic Activity in Nitrogen Mustards, Acta Unio internat. contra cancrum (no 2) **10**: 159-160, 1954.

2. Galton, D A G., and Till, M. Myleran in Chronic Myeloid Leukaemia, Lancet **1**: 425-430 (Feb 26) 1955. Hyman, G. A, and Gellhorn, A Myleran Therapy in Malignant Neoplastic Disease Use of 1,4-Dimethanesulfonyloxybutane with *Emphasis on Chronic Granulocytic Leukemia*, J. A M A. **161**: 844-849 (June 30) 1956

3 Footnote 1*a*, *d*, and *c*

4 Haddow, A, cited by Elson [1a]

5 Bollag, W.· Tierexperimentelle Untersuchungen uber die Wirkung einiger Cystostatica auf das Blutbild, Schweiz med Wchnsch **83**: 1027-1029 (Oct. 24) 1953

6 Galton, D. A. G, Israels, L G., Nabarro, J. D. N, and Till, M: Clinical Trials of p-(Di-2-Chloroethylamino)-Phenylbutyric Acid (CB 1348) in Malignant Lymphoma, Brit. M. J. **2**: 1172-1176 (Nov. 12) 1955

7. Prossor, T. M., Newton, K. A, and MacLaren, R. G, in Ann Rep. Brit Empire Cancer Campaign **32**: 157-158, 1954

8 (*a*) Medinger, F. G., and Craver, L F.· Total Body Irradiation, with Review of Cases, Am. J Roentgenol. **48**: 651-671 (Nov.) 1942. (*b*) Osgood, E. E, and Seaman, A. J.· Treatment of Chronic Leukemias. Results of Therapy by Titrated, Regularly Spaced Total Body Radioactive Phosphorus, or Roentgen Irradiation, J. A. M. A. **150**: 1372-1379 (Dec. 6) 1952.

9. (*a*) Berman, L, and Axelrod, A. R.: Effect of Urethane on Malignant Diseases: Clinical, Hematologic and Histologic Observations on Patients with Carcinoma, Leukemia and Related Diseases, Am. J. Clin Path. **18**: 104-129 (Feb.) 1948 (*b*) Hall, B. E. Symposium on Clinical Medicine: Chemotherapy of Leukemia and Allied Disorders, M. Clin. North America **37**: 1755-1767 (Nov.) 1953

10. Paterson, E, Haddow, A., Ap Thomas, I., and Watkinson, J. M: Leukaemia Treated with Urethane Compared with Deep X-Ray Therapy, Lancet **1**: 677-682 (May 11) 1946.

11. Karnofsky, D. A. Symposium on Efficacy of New Drugs Triethylene Melamine in Treatment of Lymphomas and Leukemias, M Clin. North America **38**: 541-554 (March) 1954.

12 Axelrod, A. R, Berman, L, and Murphy, R. V. Clinical and Hematologic Effects of Triethylene Melamine, Am. J. Med. **15**: 684-694 (Nov.) 1953. Footnote 9*b*

HIATAL HERNIA COMPLEX

HIATAL HERNIA, PEPTIC ESOPHAGITIS, MALLORY-WEISS SYNDROME, HEMORRHAGE AND ANEMIA, AND MARGINAL ESOPHAGOGASTRIC ULCER

Felix G. Fleischner, M.D., Boston

• *The junction of the esophagus and stomach is normally closed except during deglutition, but the structures and mechanics involved in the closure are poorly understood. Roentgenologic observations indicate that the lowermost segment of the esophagus, over a length of 2 to 4 cm., constitutes a functional internal sphincter and that the muscle bundles about the hiatus of the diaphragm constitute an external sphincter*

Dislocation of these sphincters in the presence of a hiatal hernia may disturb the closing mechanism at the cardia and permit reflux of gastric juice into the esophagus. The ensuing peptic esophagitis causes most of the symptoms usually ascribed to the hiatal hernia. Further complications are acute lacerations at the esophagogastric junction with severe hemorrhage following vomiting, the peptic marginal ulcer sometimes converted from these lacerations by chronic peptic irritation, and slowly developing anemia. The close interrelation of these conditions to each other and to the disturbed sphincteric closure in the presence of a hiatal hernia is illustrated by roentgen observations, diagrams, and a report on a patient with fatal Mallory-Weiss lacerations.

Although large hiatal hernias had been observed earlier, small and medium-sized hiatal hernias became recognized with increasing frequency in the 1920's. To Carman and Fineman[1] in the United States and to Akerlund[2] in Stockholm goes the credit for having brought the hiatal hernia to our clinical awareness. Harrington,[3] Reich,[4] Anders,[5] and others have contributed much to our knowledge of anatomy and physiology of the cardia. The "epiphrenal syndrome" was described by von Bergmann, and the association of hiatal hernia and anemia was also early pointed out by Öhnell. "Peptic esophagitis" was another new concept. Earlier observations in the esophagus, made at autopsy, had been interpreted as postmortem digestion by regurgitated gastric juice. Hamperl[5] described the gross and microscopic pathological features of peptic esophagitis as recently as 1934, and Winkelstein[6] in 1935 independently reported "Peptic Esophagitis: A New Clinical Entity." Subsequent contributions have come from Allison, Johnstone,[7] and Barrett,[8] in England. Mallory and Weiss[9] observed longitudinal lacerations at the cardia in patients who died of upper gastrointestinal hemorrhage. Gastric resection may control massive upper gastrointestinal bleeding of unknown origin.

Most of these observations are rather new, and some of them seem quite unrelated. An attempt will be made here to correlate them and to establish their clinical significance. It appears advisable to commence with a brief discussion of the anatomy and physiology of the cardia as I see them, since there is no full agreement on this subject. The difficulties are increased by a confusing nomenclature. My concept is based on the literature, my own observations, and joint observations with colleagues in pathology and surgery.

Location of the Cardia

The tubular gullet enters the bag-like stomach at a point that is marked, at the greater curvature, by a fairly constant indentation, the incisura cardiaca. There is no corresponding landmark at the lesser curvature or the inner mucosal surface. The opening

---

From the departments of radiology, Beth Israel Hospital and Harvard Medical School.

Read before the Ninth Clinical Meeting of the American Medical Association, Boston, Nov. 29, 1955 of the funneling lower end of the tube is called the cardiac opening or anatomic cardia. The funnel-shaped structure extending from the diaphragm to the cardiac opening has always been called the abdominal portion of the esophagus, and the functional separation of esophagus and stomach has been placed at the cardiac opening. Many observations of the past 30 years, however, make this concept untenable. No intrinsic occlusive mechanism has ever been observed at the anatomic cardia. Some authors believe that the oblique implantation of the tubular structure into the stomach provides a flap with a valve-like action. The roentgenologic morphology of this "cardiac valve" has been thoroughly explored by Jutras, Levrier, and Longtin. Neither roentgenologic nor esophagoscopic observation has demonstrated any occluding mechanism at this level. The great variability in the mode of formation and depth of the incisura cardiaca also militates against this hypothesis.

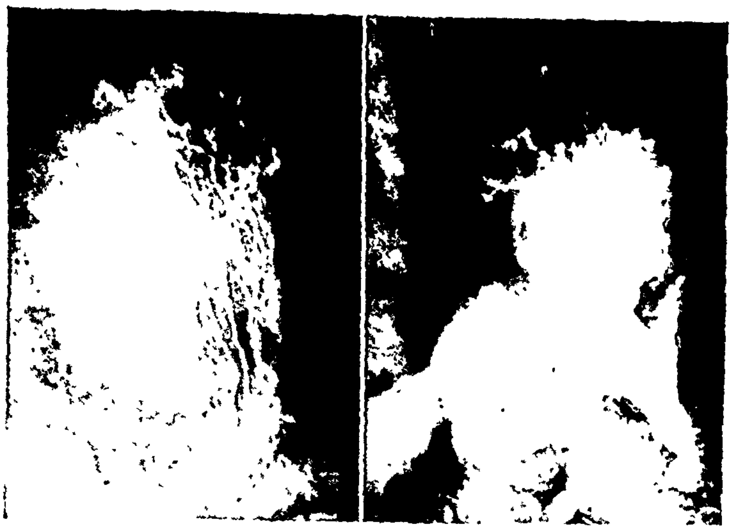


Fig. 1.—"Cardiac antrum of stomach." Two examples of stomachs (roentgenograms taken with patients in prone position but turned so that reader faces patient) in which barium-air contrast offers clear view of "abdominal portion of esophagus." In these instances this tubular or conical portion is lined by mucosa presenting the convoluted gastric rugal pattern, and the *visible occlusion is at the level of the diaphragm rather than at the* anatomic cardia, identified by the incisura cardiaca.

Reich's[4] work in 1927 with use of wax casts of the stomach provided one of the earliest hints that the physiological cardia, the functional occlusion between esophagus and stomach, might lie at the level of the diaphragm. Many other data point in this direction. Only the simplest roentgenologic observations shall be mentioned here. If we observe the swallowing act, with the subject in recumbent position, we may see the bolus pass down and come to a temporary stop just above the diaphragm. Then something opens and the barium slides down into the stomach. If we make the patient take a deep breath while the barium is just passing through, the barium column is broken by a wide band-like interruption that keeps the upper segment arrested for the time the inspiratory standstill is maintained. As soon as the diaphragm is relaxed, the barium resumes its flow in full width through the reopened straits. The level of this complete closure on deep inspiration is the same as that of the temporary stop or the slight narrowing of the barium shadow observed during quiet respiration. In addition to the known relation of onset of the swallowing act and respiration, there is also a well-harmonized interplay of the normal respiratory movement of the diaphragm and the activity of the lower portion of the esophagus and functional cardia. Of several related facts in the area of pathology, only the case of cardiospasm or achalasia of the esophagus may be mentioned here. The obstructing narrowing in this condition is always seen at the level of the esophageal hiatus of the diaphragm or above it, but never at the anatomic cardia.

Abdominal Portion of the Esophagus

The transition from the stratified squamous epithelium of the esophagus to the columnar gastric epithelium has been thought to occur at the anatomic cardia. In reality it is found somewhere between the level of the diaphragm and the cardiac opening. Furthermore, instead of a smooth circumferential line, this transition often consists of finger-like extensions of both mucosal structures interlacing with each other for a considerable distance. The funnel-shaped dilatation of the "esophagus" after its passage through the diaphragm may be lined wholly or in large part by gastric epithelium with cardiac glands. With the occluding mechanism between esophagus and stomach established at the level of the diaphragm, it seems reasonable to call the subdiaphragmatic part the cardiac antrum of the stomach, rather than the abdominal portion of the esophagus. Embryologic data also support this view.

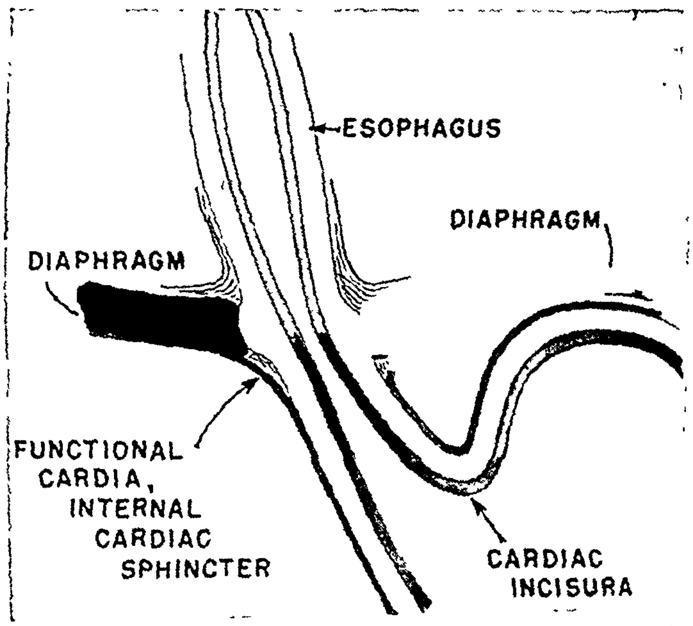


Fig. 2.—Diagram of normal cardiac region. Esophagus is anchored to rim of esophageal hiatus of diaphragm by fibers of phrenoesophageal ligament. Incisura cardiaca (*right lower arrow*) indicates site of "anatomic cardia." Diaphragm forms external sphincter of "functional cardia" (*left lower arrow*). Internal cardiac sphincter (see text) is indicated by the diagrammatically exaggerated swelling of muscularis propria of esophagus. Variable zone of transition from esophageal to gastric mucosa is kept black.

Roentgenologic observations conform with this new concept much better than with the traditional one.

Whenever a subdiaphragmatic funnel-shaped structure can be visualized—this is rarely possible with a completely distended fundus—the lining mucosa usually presents a rugal pattern similar to that of the stomach rather than to that of the esophagus (fig. 1). The incisura cardiaca, marking the cardiac opening, is formed by the oblique fibers separated from the circular fibers in the muscular coat of the stomach. The depth of the incisura cardiaca varies from subject to subject and undergoes functional changes in a single individual. If the stomach is dilated, the incisura is blunted and may completely disappear, and the so-called abdominal portion of the esophagus becomes absorbed by the stomach (Palmer[10]). This brief discussion may be concluded with Allison's statement based on esophagoscopic observation that there is in the normal subject "in life no such thing as the abdominal esophagus" (fig. 2).

Functional (or Physiological) Cardia

I recommend application of the term functional cardia as opposed to the "anatomic cardia" of old tradition. One may use the term esophagogastric mucosal junction for the transition of the two types of epithelium. Unfortunately, the abbreviated term esophagogastric junction has been used alternately for both the epithelial transition and the closing mechanism, without any explanation or definition, as if the epithelial transition was necessarily located at, or had anything to do with, the functional closure.

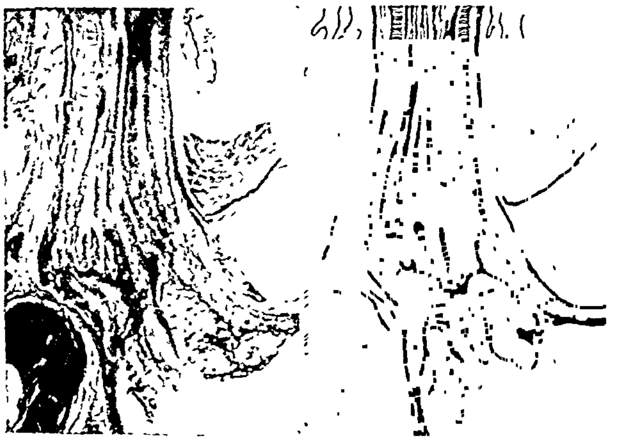


Fig. 3.—Coronal, longitudinal section through lower portion of esophagus, cardia, and diaphragm with explanatory diagram (from holoptic section). Stumps of diaphragm embrace intestine on either side. Transition from slender longitudinal mucosal folds of esophagus to thicker convoluted gastric folds at hiatal level is clearly seen. Circular and longitudinal layers of muscularis propria of esophagus are becoming slightly thicker at and below hiatus (from Reich, L.: Antrum Cardiacum, Incisura Cardiaca und Gasblase des Magens, *Fortschr. a. d. Geb. d. Rontgenstrahlen [Tagungshft.]* 56:37, 1937).

The circular layer of the muscularis propria of the esophagus is rather strong in the lowermost portion. Most anatomists do not find a morphologically identifiable ring-shaped sphincter (some mammals, e. g., the porpoise, have a quick-acting cardiac sphincter); Laimer and Lerche are exceptions. There is general agreement, however, that the lowermost portion of the esophagus, called vestibule by some, has a sphincteric capacity over a length of 2 to 4 cm., and it is practical to call this the "internal sphincter" of the physiological cardia. Very little has been written in regard to the longitudinal muscle, although it plays an integral part in the transport of ingesta in any hollow viscus. In particular, contraction of the longitudinal muscle acts to pull up the cardiac end of the stomach. There is good reason to assume that the mucous membrane also plays a part, both passively, by heaping up during narrowing of the lumen, and actively, by the controlling muscularis mucosae. Hardly any controversy exists about the "external sphincter" provided by the diaphragmatic muscle bundles that form the hiatus, the "pinchcock action" of the diaphragm (Jackson; Reich[4]) (fig. 3).

Esophageal Hiatus

The esophageal hiatus of the diaphragm is formed in man by fasciculi of the right crus; only rarely do bundles of the left crus cross to take part in it. Fibers of the fascia from the undersurface of the diaphragm and probably also some muscular fibers of the diaphragm merge with the muscular tube of the esophagus in a funnel-like fashion to form the phrenoesophageal ligament, which anchors the esophagus to the rim of the hiatus. The suspension of the esophagus within the hiatal ring of the diaphragm provides for rather wide lengthwise movements of the esophagus. We make ample use of this movability during breathing, during filling and emptying of the stomach, and in changing from supine to erect position. This flexibility is the main reason why it is so difficult to establish the topographic relations at the esophageal hiatus by the routine method of postmortem dissection and why it is often difficult or impossible at death to establish the antemortem presence of a small or medium-sized nonincarcerated hiatal hernia. Excursions of the esophagus may become excessive in abnormal conditions: severe cicatricial esophagitis or a posterior mediastinal tumor may pull the functional cardia and a portion of the stomach upward; pneumoperitoneum in the erect position allows liver, spleen, and stomach to fall away from the diaphragm, pulling a sizable portion of the esophagus down into the abdomen, to slip back when the subject lies down.

In addition to the up and down movement of the esophagus as a whole, in relation to the diaphragm, or of the diaphragm in relation to the esophagus, the mucosal tube moves within the muscular tube of the esophagus. This motion was suggested early by fluoroscopic observations (Reich[4]) and has been confirmed and amplified by Allison's roentgenologic observations of silver clips implanted through the esophagoscope in the mucous membrane at the esophagogastric epithelial transition. Additional information has been obtained in the experimental animal by observing metal balls attached to the outside of the esophagus (Nauta[11]) and by endoscopy through a gastrostomy.

The loose submucosa permits considerable up and down movement of the mucous membrane within the muscular tube of the esophagus. *Spontaneous up and* down migration of limited amplitude occurs in the resting organ, presumably controlled by longitudinal contractions of the muscularis mucosae. During deglutition the mucosa moves upward to meet the bolus, receives it, carries it down, and while ejecting it everts into the stomach, forming a rosette-like protrusion (comparable with visible movements of the anus of a defecating horse) (Nauta [11]). This is sometimes seen as a lobulated soft tissue mass protruding into the right upper corner of the gas-filled fundus. A small pocket of gastric mucosa quite commonly appears above the diaphragm while the bolus passes, to disappear immediately afterward (Palmer [10]).

With this wide range of normal change in position, it would be arbitrary and probably incorrect to state that a certain level of the esophagus or mucous membrane is normally situated at the level of the diaphragm. Furthermore, the transition from the normal condition to a hiatal hernia is obviously gradual. With such fluctuations in function and time, the extreme reluctance of some to diagnose a small hiatal hernia and the criticism of others that hernias are diagnosed too often lose their meaning. A small hiatal hernia is frequently a physiological borderline situation without clinical significance; it may, however, have the inherent potentiality of becoming larger and significant.

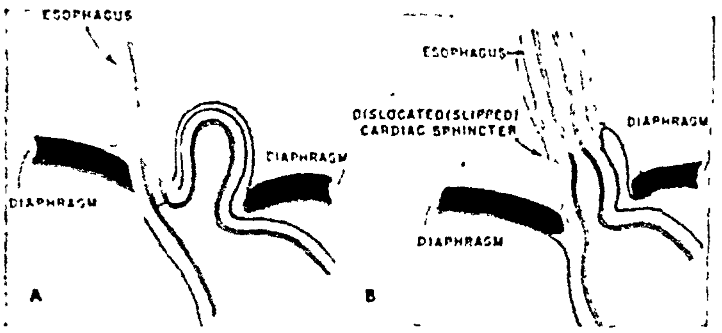


Fig. 4.—*A*, paraesophageal, or rolling hiatal, hernia. Esophagus is assumed to be fixed at right (posterior) portion of hiatus, while fundus of stomach has herniated along it through widened hiatus. *B*, axial, concentric, or sliding hiatal hernia. Esophageal hiatus is usually widened. Esophagus and adjacent portion of stomach have slipped upward, resulting in local dissociation of the internal (esophageal) and external (diaphragmatic) cardiac sphincter. Esophagus usually is shortened and contracted, but sometimes is of normal length and tortuous. A peritoneal hernial sack sur*rounds herniated stomach only partially*, according to most authors—therefore, sliding hiatal hernia. Dislocated internal cardiac sphincter *(arrow)* deprived of support by its external partner, the diaphragm, often becomes incompetent.

Hiatal Hernia

Among the factors responsible for the formation of a hiatal hernia, only those that bear on the problems under discussion here will be briefly listed. The width of the esophageal hiatus varies greatly in normal conditions. Harrington examined the hiatus during 1,000 consecutive laparotomies. In 55% the hiatal rim surrounded the esophagus tightly; in 35% one finger could be inserted between the esophagus and the margin of the hiatus; and in 10% two or three fingers could be inserted. The hiatus seems to become wider with increasing age. As at any other site of abdominal hernias, an increased width of the opening is not in itself pathological; however, it favors herniation. The hiatal opening is always found wider than normal when hiatal hernias have formed.

Individual variations in strength and tightness of the phrenoesophageal ligament may well be assumed. The suspensory apparatus loosens in the course of debilitating disease and advancing age. Increased abdominal pressure plays a role as in other hernias. Transient or persisting hiatal hernia occurs in the presence of ascites, large abdominal tumors, late pregnancy, and experimentally increased intra-abdominal pressure. *Vomiting and abdominal injury* with bracing of the trunk may induce hiatal hernia by sudden increase of the intra-abdominal pressure in predisposed subjects.

If one omits, for the purposes of this discussion, large hernias where the greater part of the stomach lies in the chest and considers only small and medium-sized hernias, one usually distinguishes two types: (1) those in which the esophagus and stomach have slipped through the hiatus as a whole in an axial fashion, therefore axial or concentric hernia or, because of the incomplete peritoneal investment, sliding hernia, and (2) those in which the fundus of the stomach seems to have slipped upward along the esophagus, therefore paraesophageal or rolling hernia (parahiatal hernia [Sweet]). *The slipping up and down, however, with change of position or degree of filling, is not designated by the term sliding hernia referred to in the first type.* The surgical term, sliding hernia, generally indicates a hernia where the herniated viscus is invested by peritoneum only for a portion of its circumference This is the case in many axial hernias; it is not clear however, whether this is the rule in all cases (Allison Harrington). *While this feature is important for the* surgical handling of a given case, it cannot be predicted in detail. It is, therefore, preferable to designate these hernias with the unassuming descriptive term "axial or concentric hernia" in logical antithesis to the paraesophageal type. In both types one can usually recognize the dislocated internal cardiac sphincter (fig. 4). Both types may be spontaneously reducible or permanently incarcerated. A small or medium-sized hernia visible in recumbent position may change its size considerably or disappear in the erect position.

In the paraesophageal hernia the anchorage of the esophagus to the right and posterior portion of the hiatal ring appears to be more secure in many individuals than at the remainder of its circumference. An outpouching of the diaphragmatic peritoneum between esophagus and hiatal rim is believed to precede the prolapse of a portion of the gastric fundus. Vestigial peritoneal clefts may play a role in certain instances. These hernias, except for their esophageal part, are usually completely covered by peritoneum.

The characteristic indentation between esophagus and herniated gastric pouch, in my opinion, represents the persistent incisura cardiaca, a structural feature of the stomach, not a fasciculus of diaphragmatic muscle (Sweet). In the paraesophageal hernia the incisura cardiaca is preserved; in the axial type it is effaced. Occasionally the same small hernia may seem axial in type with a low esophageal ring when filled, distended, and spot-filmed during inspiration, while it appears paraesophageal with marked indentation when roentgenographed fairly empty, collapsed, during expiration.

In both types of hernias a circular narrowing 2 cm. or more above the diaphragm is usually seen. This irregular narrowing changes in width and may disappear when the esophagus widens during the passage of barium, to reappear at the same place when the bolus has passed. The mucosa below this narrowing usually has the pattern of gastric folds. On roentgenologic and gastroscopic evidence this circular narrowing represents the dislocated internal sphincter of the functional cardia. This slipped cardiac sphincter is often continent under otherwise normal conditions. This weak sphincter, however, deprived by its dislocation of the support of the external sphincter, easily becomes incompetent, permitting reflux of gastric content into the esophagus. In rare instances the slipped sphincter becomes spastic and causes dysphagia. The "lower esophageal ring" of Schatzki and Gary,[12] and Ingelfinger and Kramer,[13] is caused, in my opinion, by sphincteric action of the muscularis mucosae at the level of the slipped internal sphincter in response to superficial ulceration there, thus elevating and molding this diaphragm-like mucosal fold. In the irreversible case it soon develops into submucosal inflammation and a submucosal fibrotic ring, resembling the fixed diaphragm-like mucosal fold encountered with peptic ulcers in the gastric antrum.

Peptic Esophagitis

The discussion of peptic esophagitis in this context, as well as the discussion on marginal ulcer in a later section, is necessarily aphoristically brief. The reader is referred for comprehensive information to Palmer, Schmidt, and Barrett.

Heartburn has been believed for a long time to be caused by reflux of acid gastric contents into the esophagus. However, this was considered rather a layman's interpretation, and scientific medicine expressed itself very cautiously on this subject. The clinical symptoms of hiatal hernia have been explained, until very recently, in various ways, often without proper consideration of reflux of gastric juice and peptic esophagitis. While Robins and Jankelson observed gastroesophageal reflux first in 1926, Winkelstein,[6] Allison and Johnstone, and Barrett have established the fact of rather frequent reflux of gastric content into the esophagus in the presence of a hiatal hernia and have convincingly demonstrated that the consequent peptic esophagitis is the source of most clinical symptoms. Guided independently by similar considerations for many years, I have been carefully watching the presence or absence of gastric reflux in every instance of hiatal hernia and am convinced of the overwhelming role of peptic irritation of the esophageal mucosa. It must be noted, however, that some authors do not accept this view.

Our knowledge of peptic esophagitis is a recent acquisition. The pathologists, overcautiously, had interpreted the changes found in the esophagus as postmortem digestion caused by regurgitant gastric juice. Though the chronic peptic ulcer of the lower portion of the esophagus had been recognized for a long time, the first modern pathological description of peptic (erosive) esophagitis was published by Hamperl[5] in 1934. The welling up of gastric juice above the slipped cardiac sphincter can be readily seen by esophagoscopy; general inflammation and longitudinal superficial ulcerations are regular findings in instances of symptomatic hiatal hernia (Schmidt; Barrett; Benedict). The roentgenologic observations closely parallel this experience. With small and medium-sized hernias (while examining the subject in recumbent position, the best position being prone with the left side elevated or supine with the right side elevated) we may observe that barium flows back from the stomach into the esophagus. Filling of a herniated pouch in itself does not constitute abnormal reflux. Only backflow into the esophagus reveals incompetence of the sphincter and abnormal reflux. With marked incompetency of the slipped internal sphincter, this reflux can be observed quite regularly. In other cases one may observe it only once or twice during an examination. Competency and incompetency of the sphincter are functional conditions that may change in degree from time to time.

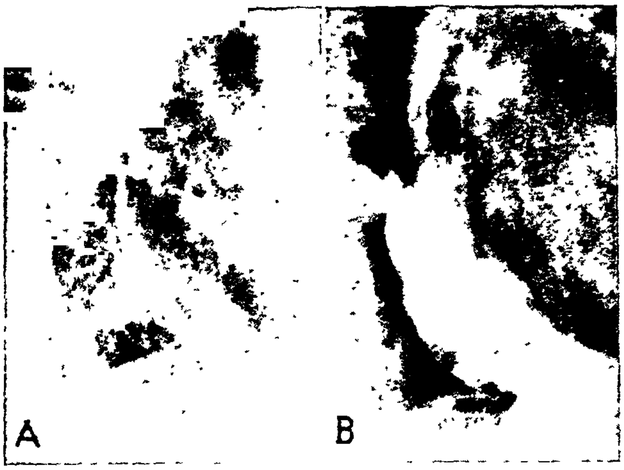


Fig. 5.—Roentgenograms of woman, aged 69, with clinical evidence of rather severe peptic esophagitis. Small, axial hiatal hernia with reflux of gastric content into esophagus, in recumbent position. *A*, small hernia, partially filled with barium. At upper end of this gastric pouch is site of slipped internal cardiac sphincter; above this is slightly irregular mucosal relief of lower portion of esophagus—esophagitis. *B*, spontaneous reflux of gastric content (barium) into esophagus.

The fact that regurgitation of gastric juice is not necessarily a constant phenomenon is best illustrated by an observation of Johnstone. A woman of middle age had a classic history of peptic esophagitis. At the first roentgenologic examination, a hiatal hernia with reflux was found. At a second and third examination they could not be seen. When the patient reported that symptoms were worst when she was tired, another examination was carried out in the evening, after a full day's work. This conclusively showed a small hiatal hernia and free reflux, which finding was confirmed at operation a few days later. The explanation apparently lies in disturbed coordination and in muscular fatigue.

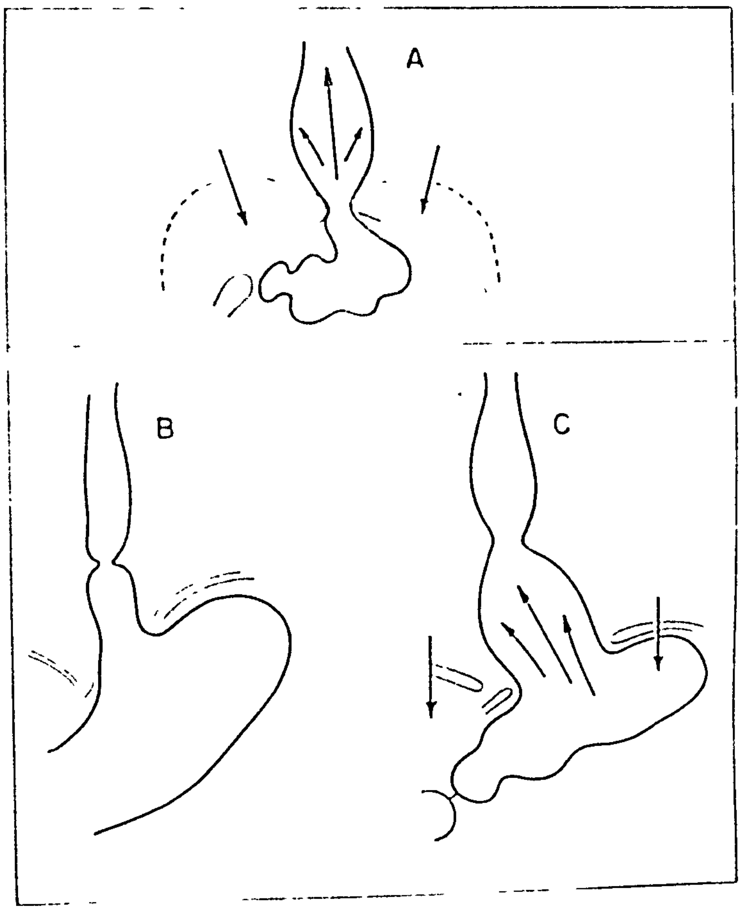


Fig. 6.—A, diagram to explain interaction of forces leading to spontaneous rupture of esophagus by vehement vomiting (after S. A. Mackler[16]). B, tracing of roentgenogram of an axial hernia. C, my concept of how, in the presence of such a hernia, interaction of anatomic conditions and forces during vomiting may cause mucosal laceration or complete rupture of esophageal wall (see text).

While gastric reflux usually occurs when the patient is in the recumbent position or stooping over and is of moderate degree, there are a few instances where the patient reports a sudden choking sensation. Here one may observe that, with a sudden inspiratory or expiratory movement of the diaphragm, a large amount of fluid is ejected into the widening esophagus. These patients have completely lost the sphincteric control at the esophagogastric junction.

As with peptic ulceration in general, the severity of peptic esophagitis in a given case is not solely dictated by the strength of the gastric juice and the frequency of its backflow but is also determined by the protective mechanisms of the body, the lack of which is usually described as "ulcer diathesis." In this connection, it may be noted that many instances of peptic esophagitis are associated with duodenal ulcer, suggesting that, with the accompanying hyperacidity, the regurgitant gastric juice becomes more injurious to the esophageal mucosa or that both the duodenal ulcer and peptic esophagitis are coordinated manifestations of an ulcer diathesis. Every bearer of a hiatal hernia is a potential candidate for gastric reflux and peptic esophagitis. I have observed gross reflux only rarely in the absence of a hiatal hernia.

In the newborn infant, incompetence of the physiological cardia is not uncommon; it is known as chalasia of the cardia (Neuhauser and Berenberg[14]). Apparently not all children are born with full mastery of the complicated coordination that makes for control of the cardia. Hiatal hernias, even of considerable size, have been observed in infants (Neuhauser; Silverman[15]). It seems to me that the persistence of these long tubular hernias, acquired in infancy, is the substratum of the baffling condition called by some "esophagus lined by gastric mucosa" (Allison).

The roentgenologic observation of gastric reflux reveals incompetence of the cardiac sphincter mechanism and potential irritation of the esophageal mucosa (fig. 5). Superficial irritation of the esophageal mucosa usually does not manifest itself roentgenologically. In more advanced instances of esophagitis, however, mucosal swelling and ulcerations become obvious. Minor and major irregularities, widening of folds and irregular contours, are seen instead of the perfectly parallel longitudinal folds of the normal esophagus. Only in very rare instances have I found it difficult to distinguish these irregularities of severe esophagitis from the pattern of esophageal varices.

Severe esophagitis with extensive ulceration, deep fibrosis, and muscular hypertrophy leads to extensive stricture and lengthwise shrinking of the esophagus. Etiological factors other than hiatal hernia may contribute, i. e., operations under general anesthesia, debilitating disease, extended forced bed rest, the extended use of a gastric tube, chronic severe vomiting, the early and late stages of pregnancy, and delivery.

It appears that fair agreement has been reached in the last few years concerning the features and theories of the hiatal hernia complex discussed so far. The situation, however, becomes more controversial and even enigmatic when we approach the chronic peptic ulcer or marginal ulcer of the esophagus, hemorrhage and anemia associated with hiatal hernia, and the Mallory-Weiss syndrome.

Mallory-Weiss Syndrome

Mallory and Weiss[9] observed longitudinal mucosal lacerations in the cardiac portion of the stomach at autopsy in patients with fatal hemorrhage and incriminated the preceding retching and vomiting as the main causative factor. Among the first reported cases, alcoholism was prevalent; in a later series, however, this was not the case, and the authors considered alcoholism merely as a factor initiating gastritis and vomiting. In three of the four cases of the first series, the mucosal tears were limited to the gastric side, extending close to the border of the esophagus; only in the fourth instance did the upper quarter of the tear extend into the esophagus. In the later series the tears appear to straddle the esophagogastric mucosal junction fairly evenly. Mallory and Weiss concluded from the large number of patients with the identical clinical syndrome who recovered spontaneously that some of these lesions must have a strong tendency to heal. However, they also considered the possibility that the lacerations might lead to chronic peptic ulcers in some instances.

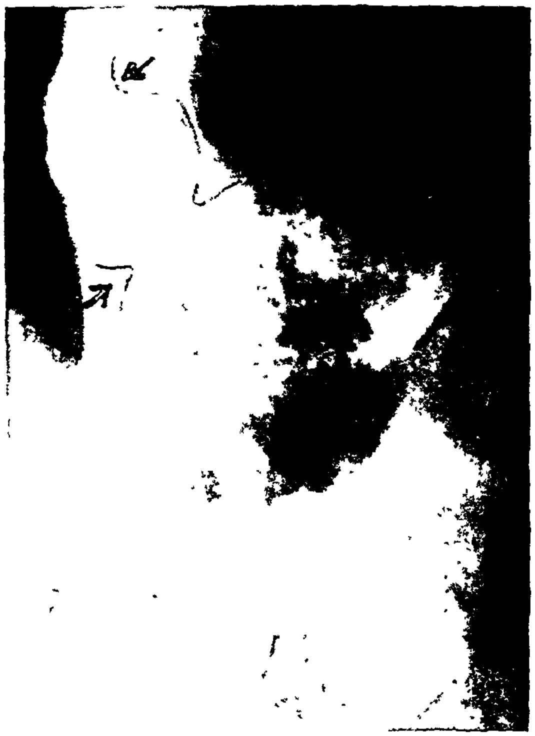


Fig. 7.—Emergency examination of esophagus and stomach of severely bleeding patient in supine position (case report). Medium-sized hiatal hernia, wide esophageal hiatus, and massive flow of barium from esophagus to stomach and from stomach to esophagus were observed. Lower arrow points to widened esophageal hiatus of diaphragm, upper arrow, to patulous slipped internal cardiac sphincter in a moment of massive gastroesophageal reflux.

While the pathological findings and clinical coordination with vomiting in this syndrome are well understood, difficulties still exist in visualizing the pathomechanics of the process. These difficulties are analogous to those encountered with the explanation of spontaneous rupture of the esophagus. In order to explain the situation, a diagram adapted from Mackler's[16] study of spontaneous rupture of the esophagus may be used (fig. 6).

Vomiting is understood to consist of a succession of coordinated events: inspiratory standstill, contraction of the gastric antrum forcing its contents toward the fundus, contraction of the abdominal muscles and diaphragm, and ejection of gastric content through the relaxed cardiac sphincter. From fluoroscopy and cineroentgenographic recordings, we are familiar with the ballooning of the lowermost portion of the esophagus during the act of vomiting. One may wonder, however, how a sufficient pressure can be built up to tear the lower portion of the esophagus in the absence of an additional obstruction in the upper portion. The esophagus is filled during the act of vomiting through the relatively narrow cardia, and the tear of spontaneous rupture is always found in the lowermost portion of the esophagus, sometimes extending below the hiatal ring. In complete ruptures the gross distortion of the tissues found at operation or autopsy interferes with detailed study of mode and site of origin. It is reasonable to consider Mallory-Weiss lacerations as incomplete ruptures of the esophageal wall, extending through mucosa and submucosa. If one applies Mackler's diagram to Mallory-Weiss lacerations, it is difficult to understand why a tear should occur in the cardiac portion of the stomach while the stomach is protected against overdistention by the elevated surrounding abdominal pressure. These difficulties, however, may be resolved if we follow the events during vomiting in the presence of a hiatal hernia.

First, the esophageal hiatus is usually wide whenever a hernia exists. Thus, the force of the jet of the ejected gastric contents would not be broken at the hiatal level, as it would in the presence of a competent hiatal ring. Second, the herniated gastric pouch is surrounded by the low thoracic pressure. Against this, the combined pressures of the gastric convulsion and the forceful contractions of the diaphragm and abdominal muscles operate from the inside. Third, the slipped internal cardiac sphincter forms a strait above the hernia, thus adding to the building up of pressure within the hernia. Fourth, the slipped internal sphincter is a natural narrowing of the tube, and [illegible] ved from its normally protecting hiatal ring [illegible] able to vehement, sudden distentio

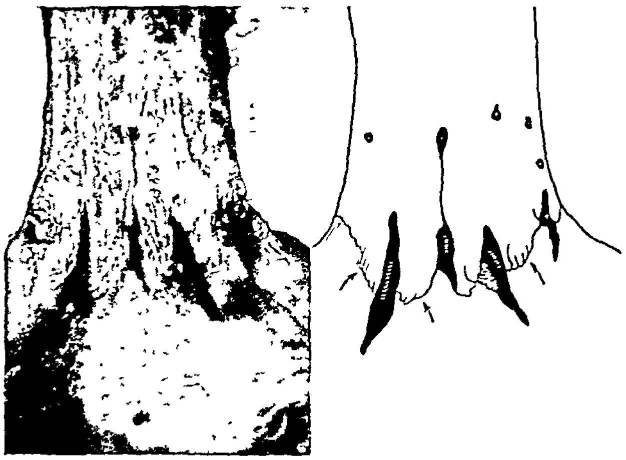


Fig. 8.—Postmortem specimen of the esophagogastric junction and explanatory diagram (patient in case report). There are four deep longitudinal lacerations of mucosa. Counting from left, (1) and (3) are very recent (microscopically) and (2) and (4) slightly older. From (2) a longitudinal recent scar extends into esophagus for about 2 cm., ending in a shallow ulcer. Four other small round ulcers are at about the same level in esophagus. Arrows indicate esophagogastric mucosal junction.

CLINICAL NOTES

DIATRIZOATE SODIUM, A NEW UROGRAPHIC CONTRAST MEDIUM

Everett E. Seedorf, M.D.
and
Eldon O. Bradfield, M.D., Temple, Texas

The history of excretory urography has been reviewed by Braasch and Emmett.[1] Sodium iodomethamate (Neo-Iopax) and iodopyracet injection (Diodrast) were the excretory urographic mediums used for many years in the United States, but these were replaced by sodium acetrizoate injection (Urokon) because of its capacity to produce urograms of better quality. In August, 1954, we were invited to assist in the investigation of a new urographic contrast medium, diatrizoate sodium (Hypaque). This medium is a highly water-soluble white crystalline solid that contains iodine (59.87%). The preparation is dispensed in ampuls containing 30 cc. of a 50% solution. In our initial investigation, we gave intravenous injections using these ampuls to 200 patients. Experience demonstrated that an injection time of three to five minutes was desirable. For each patient, the temperature, pulse rate, respiration rate, and blood pressure were recorded before and 15 minutes after an injection. In no instance was there an appreciable variation that could be attributed to the effect of the drug. In a small number of patients, however, a few reactions were observed. These symptoms were of about the same frequency and mild nature that we previously had observed from the routine use of sodium acetrizoate, using 20 to 25 cc. of a 30% concentration.

In our investigation of diatrizoate sodium, we immediately and consistently observed marked improvement in the quality of excretory urograms. Films exposed 5, 10, and 15 minutes after injection of the medium were graded as poor, fair, good, or excellent. Urograms were rated poor when there was no visualization or there were only faint shadows and fair when visualization of segments of the urinary system was unsatisfactory for diagnostic purposes. If there were faint but distinct outlines of the urinary organs or if sufficient segments were visualized so that a positive diagnosis could be made, the quality was considered good. When there were exceptionally bold outlines of the ureters as well as of the pelvis and calices of the kidneys and the urograms were equal to or superior to retrograde pyelograms, they were rated excellent.

Of urograms produced with sodium acetrizoate, using the 30% solution, only 38% were considered good or excellent; whereas 94% of the urograms produced with diatrizoate sodium, using ampuls containing 30 cc. of the 50% solution, were of good or excellent quality. Bold shadows were produced on the films exposed five minutes after injection of diatrizoate sodium. This medium appears to be excreted from the kidneys and ureters more slowly than sodium acetrizoate and, therefore, outlines the urinary excretory system more consistently and completely even on the films exposed 10 and 15 minutes after injection. This seems to be an important factor contributing to the higher percentage of good and excellent diagnostic urograms produced with diatrizoate sodium.

It was presumed that the superior quality of urograms produced by diatrizoate sodium probably was due to the *increased iodine content in the* dosage. By calculation, it is shown that approximately 6 gm. of iodine is contained in a 20-cc. dose of a 50% solution of diatrizoate sodium or a 30-cc. dose of a 30% solution of sodium acetrizoate. Accordingly, a group of 50 patients was given the reduced dosage of diatrizoate sodium (20 cc. of a 50% solution) and a second group of 50 patients was given the increased dosage of sodium acetrizoate (30 cc. of the 30% solution). In the first group, 84% of the urograms were graded good or excellent; in the second group, 86% of the urograms were of good or excellent quality.

TABLE 1.—*Incidence of Good and Excellent Urograms with Urographic Mediums*

	Sodium Acetrizoate	Diatrizoate Sodium	Diatrizoate Sodium	Sodium Acetrizoate	Sodium Acetrizoate
No. of patients	100	200	50	50	50
Dosage, cc.	20-25	30	20	30	25
Concentration, %	30	50	50	30	50
Amount of iodine, gm.	5	9	6	6	8.25
Good and excellent urograms, %	38	94	84	86	74

Shortly after we completed this comparative study, sodium acetrizoate became available in 25-cc. ampuls of the 50% concentration. We investigated this dosage in a series of 50 patients. By calculation, this dosage contains more iodine than the previously studied ampuls of sodium acetrizoate, but, upon grading of the urograms, only 74% produced by the newer concentration were classified within the good and excellent group. Table 1 illustrates the percentage of good and excellent urograms produced by the varying dosages and concentrations of sodium acetrizoate and of diatrizoate sodium.

Reactions were recorded after the injection of sodium acetrizoate (20 to 25 cc. of the 30% solution) and diatrizoate sodium (30 cc. of the 50% solution). As additional variations in dosage and concentration of these mediums were studied, observation of the side-effects was continued (table 2).

Occasionally, momentary nausea was observed after all dosages and concentrations of both drugs, but, if injection of the medium was interrupted for a short interval, the nausea soon abated. Vomiting seldom occurred. Of far greater significance was the occurrence of vein-cramping observed in 22% of the patients given sodium acetrizoate (25 cc. of the 50% solution). This symptom occurred more often with the 50% solution than with the 30% solution of this drug, probably because there was a greater concentration of the medium

---

From the Department of Radiology (Dr. Seedorf) and the Department of Urology (Dr. Bradfield) of the Scott and White Clinic. Dr. Seedorf is now in practice in Peoria, Ill.

Read before the Section on Radiology, Texas State Medical Association, Fort Worth, April 26, 1955.

within the fluid. Diatrizoate sodium was less prone to produce cramping of the veins. Itching sensations and urticaria were more common with sodium acetrizoate, but in most instances these symptoms disappeared within a few minutes after injection of the medium was completed. One patient experienced a short episode of sneezing after the administration of diatrizoate sodium.

TABLE 2.—*Incidence of Symptoms from Urographic Mediums*

	Sodium Acetrizoate	Diatrizoate Sodium	Diatrizoate Sodium	Sodium Acetrizoate	Sodium Acetrizoate
No. of patients	100	200	50	50	50
Dosage, cc.	25-30	30	20	30	25
Concentration, %	30	50	50	30	50
Side-effects, %					
Vein cramp	4	1	2	4	22
Nausea	4	6	8	4	18
Urticaria	2			4	10
Itching sensation	2	1	2	4	8
Flushing of skin		2	2	2	
Extreme pallor					2
Choking sensation				2	2
Sneezing		1			

Summary

From our study of urographic contrast mediums, we concluded that 30 cc. of a 50% solution of diatrizoate sodium (Hypaque) produces urograms of superior quality in a greater percentage of patients than can be obtained with 20 to 25 cc. of a 30% solution of sodium acetrizoate (Urokon) and slightly better urograms than were obtained with 25 cc. of a 50% solution of sodium acetrizoate. Probably because the medium is eliminated more slowly, the ureters are vizualized more clearly when diatrizoate sodium is used. There are few side-effects from diatrizoate sodium, particularly when the solution is not injected too rapidly. Objectionable reactions to sodium acetrizoate in doses of 25 cc. of the 50% concentration included a higher incidence of vein-cramping, nausea, and urticaria.

405 Main St., Peoria, Ill. (Dr. Seedorf).

The sodium acetrizoate used in this study was supplied as Urokon sodium, 50% solution, by Mallinckrodt Chemical Works, St. Louis, and the diatrizoate sodium was supplied as Hypaque by Winthrop-Stearns, Inc., New York.

References

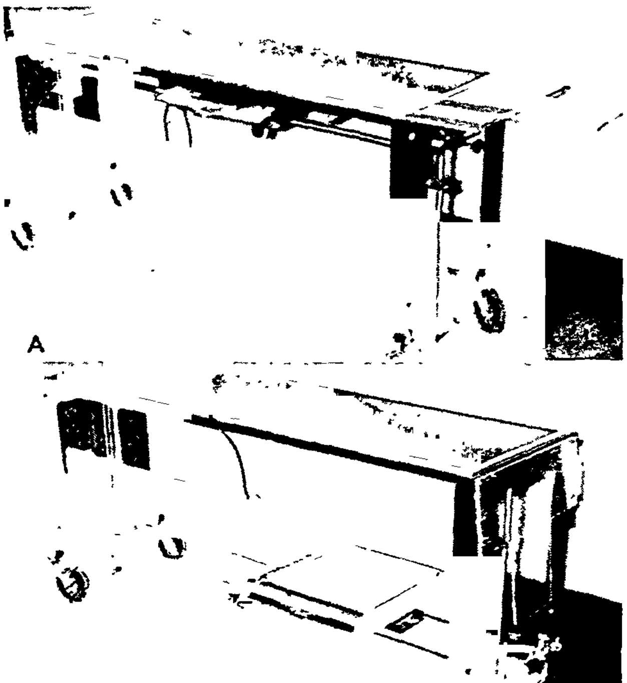
1. Braasch, W. F., and Emmett, J. L.: Clinical Urography: Atlas and Textbook of Roentgenologic Diagnosis, Philadelphia, W. B. Saunders Company, 1951.

MOBILE RADIOTRANSLUCENT LITTER-TABLE WITH BUCKY DIAPHRAGM

Joseph Stein, M.D.
Ruth Hammerschlag, R.T.
and
Maxwell H. Poppel, M.D., New York

A mobile radiotranslucent litter-table with a Bucky diaphragm was constructed in our department as a result of a continually growing need for better radiographic procedures for bedside use and adaptable to the limitation of motion in seriously ill patients needing radiographic studies. Our table is also adapted for magnification techniques. We had investigated commercially available tables and had found nothing meeting our requirements. Several radiotranslucent tables obtainable on the market were of the type with supports under the table preventing use with an adjustable Bucky diaphragm stand. Our basic table is sufficiently strong to be safe for use with a mobile Bucky diaphragm stand, and it may be equipped with an attached Bucky diaphragm as we have done.

The table is constructed with a radiotranslucent top mounted on solid legs at the extreme ends and is equipped with lock wheels. For the comfort of some patients with back injuries, a radiotranslucent foam rubber pad covering the length of the table has been provided. At one end there is an extension for head radiography that allows for placement of a cassette for lateral skull projections without turning the patient. The metal trim around the table top permits mounting of magnetic cassette holders that aid in obtaining difficult views. Two vertical rods are located below the table top, one at each end; running between these is a horizontal unit with two rods supporting the Bucky diaphragm, which can be moved on these rods and travel the table length. This entire horizontal assembly can be raised and lowered on the vertical rods and can be locked in position directly below the table top for conventional work or at varied distances for magnification studies.



Litter-table, *A*, with Bucky diaphragm in conventional position and the head support extended and, *B*, with diaphragm in position for magnification studies and head support dropped.

From the Radiology Service, Veterans Administration Hospital, Bronx (Drs. Stein and Poppel and Miss Hammerschlag), and New York University College of Medicine (Drs. Stein and Poppel).

This table may be used at the bedside with any mobile radiographic machine. Any regular 110-volt wall outlet or adapter plug in a lighting fixture can be utilized. A hand switch from an old x-ray machine used on an extension cord enables us to operate the diaphragm away from the table and near the x-ray control. Poor radiographs resulting from body pressures against mattresses and pillows and inaccurate direction of rays due to uncontrollable angulation are eliminated by use of this solid-surface table. Cassettes are easily placed without disturbing the patient.

Seriously ill patients need not be moved from bed to litter, from litter to x-ray table, from table back to litter, and from litter back to bed. Patients are moved only from bed to new radiotranslucent litter table and back to bed. Those who are very seriously or critically ill can be satisfactorily radiographed without removal from the ward; others are brought to the x-ray department on the litter table. This mobile radiotranslucent litter table has been used in many unanticipated ways. It has been substituted for conventional equipment during temporary breakdown, has simplified the radiography of difficult cases, and often has been used in conjunction with any regular tilt table for special decubitus views of the recumbent abdomen such as are obtained in gallbladder studies with the Kirklin position during cholecystography.

Summary

A mobile litter-table utilizing the Bucky diaphragm has been constructed primarily for bedside use when a minimum of movement of the patient is desired. Conventional and magnification studies can be made, as the diaphragm can be locked in various positions. Cassettes can be easily placed in position. Magnetic cassette holders can be placed along the rim of the table. An extension of the table permits radiographic studies of the skull.

130 W. Kingsbridge Rd., Bronx 68 (Dr. Stein).

Mr. James Douglas, Technical Supervisor, assisted in this project; representatives of the Sommerville Veterans Administration Depot aided in the fabrication and installation of the Bucky diaphragm assembly; and the Picker X-Ray Corporation assisted in the construction of the basic table.

OBSTRUCTED ENDOTRACHEAL TUBE DEMONSTRATED BY ROENTGENOGRAM

Richard C. Thompson, M.D., San Mateo, Calif.

The vexing problem of a partially obstructed endotracheal tube has been encountered twice recently during the course of administration of anesthetics. Roentgenograms were helpful in demonstrating exactly why the tube was obstructed and what happened when the position of the tube was changed to correct the obstruction. In each case the bevel of the endotracheal tube rested against the anterior wall of the trachea. I have found only two references [1] to this problem.

Report of Cases

CASE 1.—A very ill 84-year-old male had a marked kyphosis and a rigid, extended cervical spine. Two large pillows were required to support his head. He was anesthetized and intubated in preparation for a laparotomy. The airway was clear until the metal elbow was disconnected from the curved plastic endotracheal tube to perform endotracheal suction. I assume that the unnatural position of the head caused this curved tube to rotate unnoticed. Soon after the angle piece was reconnected with the tube, the partial obstruction of the airway was recognized; the reason was not apparent. The lungs could be inflated easily, but much of the exhaled gas escaped around the tube, necessitating an increase in flow from the machine. If respirations were not assisted, the patient became cyanosed. Roentgenograms were taken (fig. 1), and the tube was withdrawn and rotated until a clear airway was established (fig. 2).

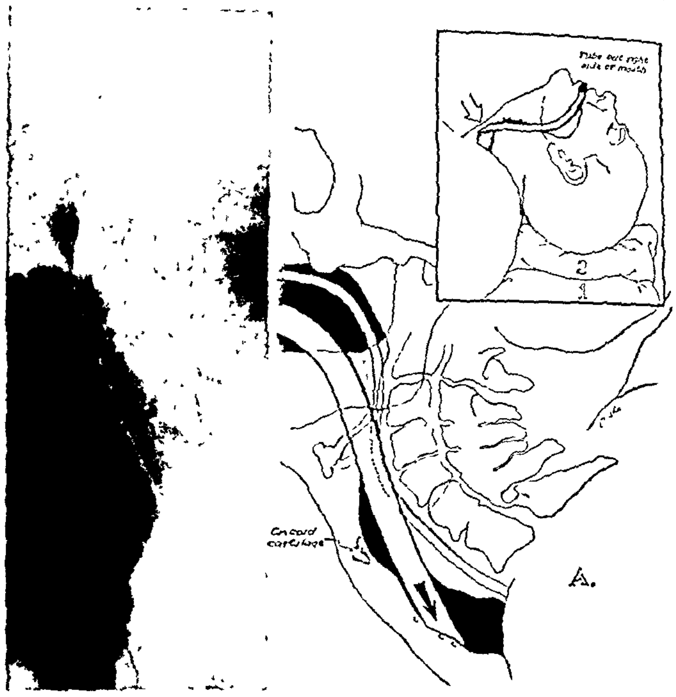


Fig. 1.—During administration of anesthesia in patient in case 1, the bevel of the endotracheal tube has inadvertently rotated anteriorly and has been obstructed by the anterior wall of the trachea.

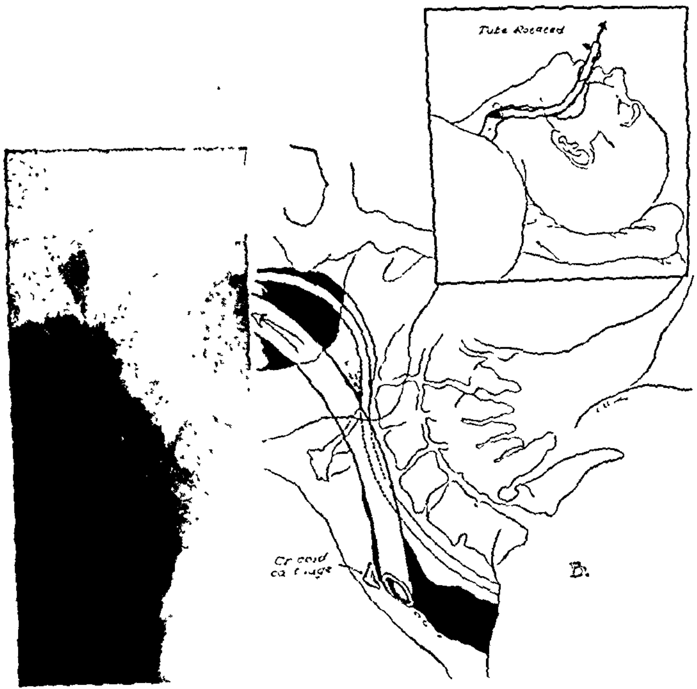


Fig. 2.—The endotracheal tube (case 1) has been withdrawn and rotated to establish a clear airway.

CASE 2.—A husky 42-year-old male was anesthetized for a disk exploration and spinal fusion. The plastic endotracheal airway was perfectly free until he was turned to the prone position. Partial obstruction of the endotracheal tube soon became apparent. The lungs could be readily inflated, but exhalation occurred, chiefly around the tube. Both inhalation and exhalation were noisy, and exhalation was retarded and incomplete Cyanosis became apparent, and a mixture enriched in oxygen was given until after x-rays were taken (fig 3) and the position of the tube changed. In this case, to effect the proper change in position of the tube, the head was rotated to the opposite side and the tube was withdrawn approximately 2 cm (fig 4).

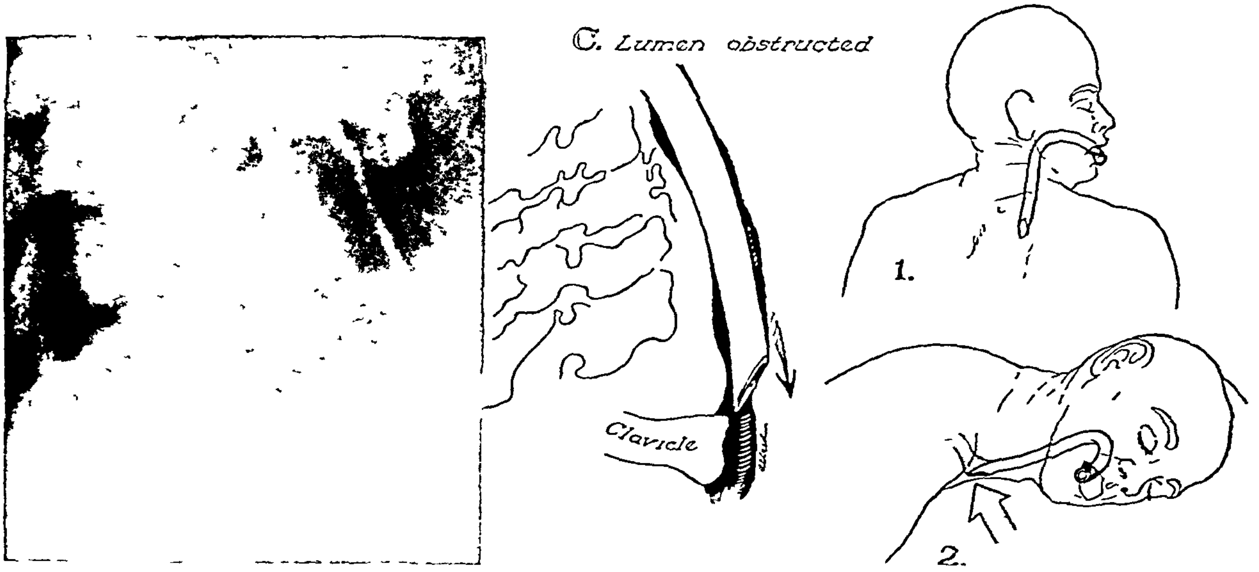


Fig 3 —The patient in case 2 has been placed in the prone position with his head turned to the side The rotation of the head was followed by obstruction of the endotracheal tube as the bevel came to rest against the anterior tracheal wall

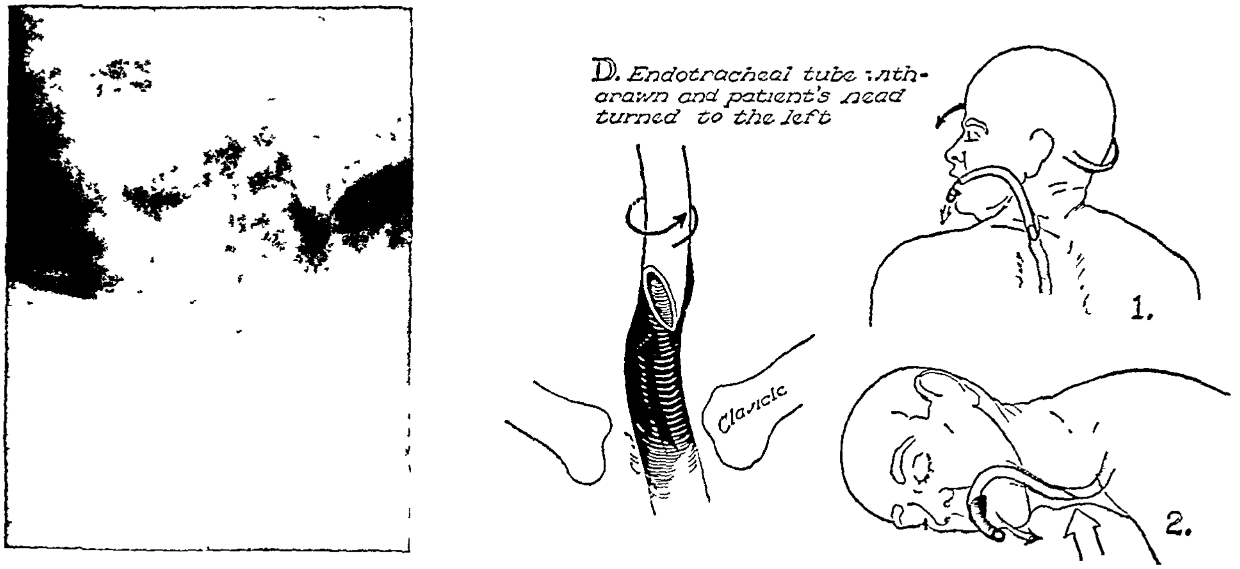

D. Endotracheal tube withdrawn and patient's head turned to the left
Clavicle
1.
2.

Fig 4 —A clear airway has been established (case 2) by turning the head to the opposite side The bevel then faced posteriorly.

Comment

Insert A in figure 1 shows the exaggerated posterior curve in the trachea of the elderly edentulous man with extreme kyphosis; it is not surprising that the tube rotated to the position shown. This is clearly an unusual situation. Case 2 presented a situation that might occur more commonly than is generally recognized. In either the dorsal or prone position, when the head is turned sharply to the side as in certain orthopedic, intracranial, or otological operations, the hazard of obstruction due to apposition of the bevel of the tube to the anterior tracheal wall may occur. Moreover, if the neck is markedly extended, the trachea will curve posteriorly and a slight rotation of the tube may result in obstruction at the bevel. However, the routine use of fenestrated tubes[2] will make endotracheal *anesthesia* a safer procedure.

Summary and Conclusions

In the administration of anesthetics, the bevel of the endotracheal tube may lie against the anterior tracheal mucosa and cause obstruction when the patient's head is turned to the side or unusual circumstances cause rotation of the tube. A fenestrated tube should be selected that will ensure that the bevel faces posteriorly when the head is sharply rotated and extended in an unusual position. The outer end of the endotracheal tube should be marked or notched on the side of the bevel so that the relative position of the bevel will be apparent at all times. When the flow of gases through the tube is impeded, the possibility of apposition of the bevel against the tracheal mucosa should be considered and some suitable manipulation employed to alter such a situation. Roentgenograms were helpful in these cases in demonstrating the cause of endotracheal obstruction.

545 Fairfax Ave.

References

1. Pender, J. W., and Lundy, J. S.: General Anesthesia, in Lewis, D.: Practice of Surgery, Hagerstown, Md., W. F. Prior Company, Inc., 1955, vol. 1, chap. 3, p. 41. Dwyer, C. S.; Kronenberg, S., and Sakland, M.: Endotracheal Tube: Consideration of Its Traumatic Effects with Suggestion for the Modification Thereof, Anesthiology **10:** 714-728 (Nov.) 1949.

2. Murphy, F. J.: Two Improved Intratracheal Catheters, Anesth. & Analg. **20:** 102-105 (March-April) 1941.

SIGNIFICANCE OF JAUNDICE FOLLOWING PANCREATODUODENAL RESECTION

George L. Jordan Jr., M.D.
and
Elvin L. Shelton Jr., M.D., Houston, Texas

The value of radical pancreatoduodenal resection for malignant lesions causing obstructive jaundice has been a subject of some debate for many years. Recently there has been a revival of interest in this procedure following encouraging reports that indicate its use may result in a five-year survival rate of 38% for carcinoma of the ampulla of Vater and a five-year survival rate of 15% for carcinoma of the pancreas.[1] Even in the hands of those enthusiastic about the procedure, the recurrence of intra-abdominal symptoms following operation, particularly jaundice, has been taken as evidence of recurrence of disease. Whereas this will be the usual cause, such patients may develop jaundice on any etiological basis. The present case report is that of a patient who developed jaundice due to benign stricture of the common duct one year following pancreatoduodenal resection of a carcinoma of the ampulla of Vater and who is now alive and well five years following his initial surgery and three and one-half years following repair of the stricture.

Report of a Case

A 55-year-old white male was admitted to the Veterans Administration Hospital, Houston, Texas, on Oct. 11, 1950. His history revealed that he had been in good health until six weeks prior to admission, when he noted fever and general weakness. Temperature elevations occurred daily and at times were associated with frank chills. Approximately three weeks prior to admission the patient noted pruritus and jaundice of the scleras; subsequently he noticed that his urine was dark and his stools were light in color. There had been a 12-lb. (5.4 kg.) weight loss. Physical examination was noncontributory, except that the liver was palpated 4 cm. below the costal border and was slightly tender. Laboratory examinations revealed: hemoglobin level, 9 gm. per 100 cc.; serum amylase level, 26 units per 100 cc.; fecal urobilinogen, 21 Erhlich units per 100 gm.; serum bilirubin level, 12.8 mg. per 100 cc.; alkaline phosphatase level, 19.3 Bodansky units per 100 cc.; thymol turbidity, 2 units; and cephalin flocculation test, negative.

The anemia was corrected by blood transfusions. While the patient was being observed in the hospital, the serum bilirubin level decreased to 5.6 mg. per 100 cc. and then increased to 11 mg. per 100 cc. A clinical diagnosis of obstructive jaundice secondary to carcinoma of the duodenum or ampulla of Vater was made, and on Nov. 3, 1950, the abdomen was explored. The gallbladder was distended, as was the common bile duct. The pancreas appeared to be normal, but there was a 3-cm. crater-like lesion at the ampulla of Vater. No metastatic lesions were found. The head, neck, and portion of the body of the pancreas, 30% of the stomach, 2 cm. of common bile duct, and the first, second, and third portions of the duodenum were removed en bloc. The duodenal stump was closed, and a loop of jejunum was brought anterior to the colon for construction of an end-to-side choledochojejunostomy, an end-to-side pancreatojejunostomy, and an end-to-side gastrojejunostomy, with the latter anastomosis being approximately 35 cm. distal to the pancreatojejunostomy. The pathological diagnosis was columnar cell carcinoma of the ampulla of Vater. A biopsy specimen of the liver taken at the time of surgery revealed acute hepatitis with focal abscesses. Postoperatively the patient did well. All laboratory findings returned to normal levels, and within three months the patient gained 20 lb. (10.8 kg.).

In July, 1951, the patient returned to the hospital, complaining of chills, fever, and pruritus, having noted their onset two months before admission. At the time of admission he was asymptomatic and a thorough examination revealed no objective findings. He returned again in January, 1952, with similar complaints. A thorough reevaluation again revealed no abnormality. Scabies was thought to be the cause of the pruritus. However, when he was admitted for the third time on April 22, 1952, physical examination revealed icteric scleras. The serum bilirubin level was 2.7 mg. per 100 cc., and the serum alkaline phosphatase level was 32 Bodansky units per 100 cc. Other laboratory examinations were within normal limits. Surgical exploration was performed on May 9, 1952. Marked scarring at the site of the choledochojejunostomy, with a definite stricture of the common bile duct, was found. The area of stenosis was resected, and a reanastomosis of the common bile duct to the jejunum was performed. He was discharged from the hospital 15 days postoperatively after an uneventful convalescence.

This patient has been seen periodically since the last procedure and has remained in good health. There has been no recurrence of the jaundice or pruritus. He eats without difficulty, he has maintained his weight, and physical examination has remained within normal limits. He was known to be alive and well on Jan. 29, 1956, five years after his initial surgery.

Comment

Most surgeons treating intra-abdominal carcinoma limit their efforts at curative surgery to wide extirpation during the original procedure. Thereafter, if symptoms or signs suggesting recurrent intra-abdominal malignant lesions appear, the situation is considered hopeless. Although this conclusion is justified in most instances, an occasional patient who dies with a clinical diagnosis of recurrent carcinoma will be found to have a benign disease as the cause of death when an autopsy is performed, without evidence of recurrent malignant lesions. Consequently, a thorough evaluation of each patient should be made when new symptoms arise or old symptoms return.

The recurrence of jaundice following pancreaticoduodenal resection for carcinoma of the pancreas or carcinoma of the ampulla of Vater often denotes recurrence of the disease, but the patient we are re-

---

From the Cora and Webb Mading Department of Surgery, Baylor University College of Medicine, and the Veterans Administration Hospital (Dr. Jordan).

porting presents an example of a benign complication that may produce symptoms and signs suggesting recurrent malignant lesions. The development of a benign stricture is only one of the causes for the occurrence of jaundice after an operation. In the early postoperative period jaundice may be secondary to transfusion reaction, to improper construction of a choledochojejunostomy, or, more rarely, to transient postoperative edema of the stoma. Homologous serum jaundice and infectious hepatitis have produced the same alarming symptoms several weeks or even several months postoperatively. Ascending cholangitis may also occur. This will usually be accompanied by chills and fever. One rarely encounters obstruction of the external biliary tree resulting from a common duct stone. In recent years chlorpromazine (Thorazine)-induced hepatitis has complicated the problem, for the changes in liver function tests that occur are those commonly thought to be typical of an obstructive jaundice.

Furthermore, one occasionally encounters two independent primary carcinomas in the abdomen. One such case was reported by Brunschwig,[2] wherein a radical resection for carcinoma of the ampulla of Vater with lymph node metastases was performed in 1943. Two years later a palpable abdominal mass developed that, upon clinical examination, was thought to be a metastasis from the original lesion. However, a laparotomy was performed, and a second primary carcinoma was found in the ascending colon with nodal metastasis. A right hemicolectomy and node dissection was performed. The patient was alive and well eight years following the original pancreatoduodenectomy and six years following the hemicolectomy.

In many instances, exploratory laparotomy may be the only means of positively establishing a diagnosis, and our experience leads us to advocate reoperation, unless there are proved distant metastases or unless other definite contraindications to operative intervention exist. Cases such as these reported are uncommon, and no one physician is likely to see many. However, such patients will be saved only if a positive diagnosis is established and proper treatment is instituted.

Summary

A patient with obstructive jaundice resulting from carcinoma of the ampulla and treated by pancreatoduodenal resection developed recurrent obstructive jaundice approximately one year following surgery. He was found to have a benign stricture of the common duct, which was successfully treated, and he is alive and well five years following his initial surgery. This case demonstrates the necessity of careful evaluation and treatment of patients with symptoms suggesting recurrent malignant lesions.

References

1. Hallenbeck, G. A., and others: Report on Surgery of Biliary System and Pancreas for 1954, Proc. Staff Meet. Mayo Clin. 30: 640-646 (Dec. 28) 1955

2. Brunschwig, A.: Pancreatoduodenectomy: "Curative" Operation for Malignant Neoplasms in Pancreatoduodenal Region, Ann. Surg. 136: 610-617 (Oct.) 1952.

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following paper was presented at the symposium, "Some Inorganic Elements in Human Nutrition," in Nashville, Tenn., April 4, 1955. This symposium was sponsored jointly by the Nashville Academy of Medicine, the Vanderbilt University School of Medicine, and the Council on Foods and Nutrition. This report is the third of the series, others of which appeared in THE JOURNAL *April 21 and June 9, 1956.*

EUGENE H. STEVENSON, M.S.
Acting Secretary.

METABOLISM AND REQUIREMENTS OF IRON IN THE HUMAN

Carl V. Moore, M.D.
and
Reubenia Dubach, Ph.D., St. Louis

Disturbances of iron metabolism may lead to the development of either iron deficiency or iron excess in the body. The latter state, although comparatively rare, is of increasing clinical importance. It occurs in hemochromatosis, in transfusion hemosiderosis as a result of prolonged excessive iron therapy, and as a part of cytosiderosis, an interesting nutritional abnormality found among the Bantus in Africa. Iron deficiency anemia is one of the most common nutritional deficiencies and one of the most prevalent anemias the world over. In order to understand the pathogenesis and treatment of these disorders, one must know the dietary requirements for iron, how the body uses iron, and how the body normally maintains a positive balance while providing safeguards against excessive accumulations of the metal.

An Outline of Iron Metabolism

Iron, as an essential component of hemoglobin, myohemoglobin, the cytochromes, and other enzyme systems, is required for the important physiological functions of transport of oxygen and cellular respiration. The body of a normal, adult human contains approximately 3 to 5 gm. of iron. Roughly 55% of this total is present in the circulating hemoglobin, about 10 to 20% in myohemoglobin, and a small amount in cells in the form of respiratory enzymes. The remainder is stored chiefly in the liver, spleen, kidney, and bone marrow.

The human absorbs iron mostly, if not entirely, in its ferrous form.[1] Reduction of food iron from the

---

From the Department of Medicine, Washington [illegible]sity School of Medicine.

ferric to the ferrous state begins in the stomach and continues in the intestine. The actual amount of iron absorbed from the stomach is unknown; absorption is probably greatest in the upper portion of the small intestine and progressively smaller in the more distal segments of the gastrointestinal tract. The reason for this diminishing gradient has never been adequately defined. It may be that the ileum, for instance, is not so efficient as the duodenum in absorbing iron, but the difference may be due solely to the fact that insoluble, complex iron salts are formed by the time the iron reaches the ileum.

Patients with iron deficiency or hypochromic anemia absorb inorganic iron more efficiently than do normal persons.[2] The intestinal mucosa serves to some extent as a regulator of iron balance, but the mechanism by which the intestinal mucosa absorbs iron is incompletely understood. The most likely theory is that iron enters the mucosal cells by combining with a protein, apoferritin, to form ferritin, a compound in which colloidal iron hydroxide-iron phosphate micelles are bound to the protein in amounts up to 23% by weight.[3] It is suggested that apoferritin is constantly being formed and broken down; according to this hypothesis, its degradation stops when it combines with iron to form ferritin. The presence of ferritin is thought to cause a block of further absorption of iron until the ferritin can give up its iron to the blood stream, a process that presumably occurs with greater rapidity when iron deficiency exists. This regulatory mechanism seems selective enough to be more efficient when the body requires larger amounts of the metal. That it is only a partial control, however, is indicated by numerous instances in which absorption is relatively great even though the stores of iron are adequate or even large. One must be careful to guard against the erroneous idea that normal persons absorb no iron at all.

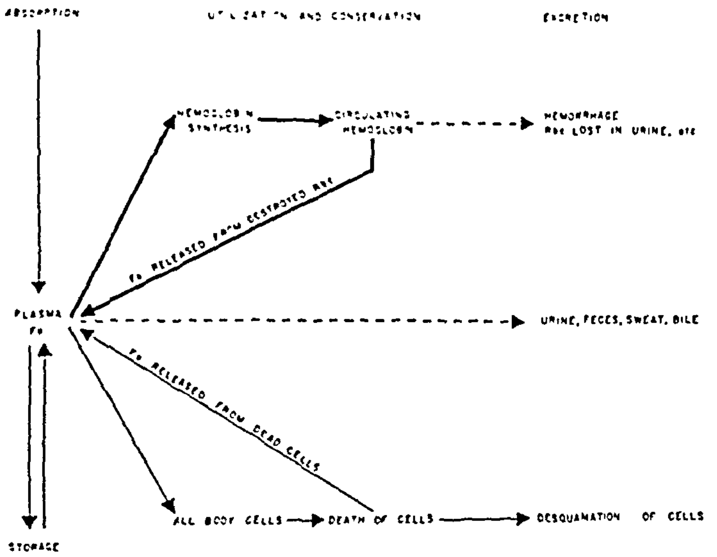

ABSORPTION
UTILIZATION AND CONSERVATION
EXCRETION
HEMOGLOBIN SYNTHESIS
CIRCULATING HEMOGLOBIN
HEMORRHAGE RBC LOST IN URINE, ETC
Fe RELEASED FROM DESTROYED RBC
PLASMA Fe
URINE, FECES, SWEAT, BILE
Fe RELEASED FROM DEAD CELLS
ALL BODY CELLS
DEATH OF CELLS
DESQUAMATION OF CELLS
STORAGE

Fig. 1.—Schematic outline of iron metabolism.

Iron is absorbed directly into the blood stream rather than through the lymphatic channels (fig. 1). When it passes into the blood plasma, it is oxidized to the ferric state and combined with a specific iron-binding protein, a beta-1 globulin that has been called transferrin, siderophilin, or simply "the iron-binding protein." Each molecule of this specific plasma protein can combine with two atoms of iron; there is enough of it in 100 cc. of plasma to bind from 300 to about 420 mcg. of iron. The amount of iron in plasma, however, normally varies from 50 to 180 mcg. per 100 cc.; only a portion of the beta-1 globulin, therefore, is bound.

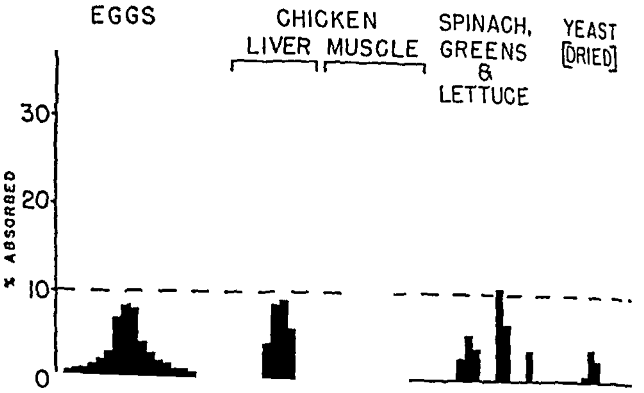


Fig. 2.—Absorption of radioactive iron (Fe^{59}) from food by normal persons. (Reproduced by permission of the *American Journal of Clinical Nutrition.*)

The iron in plasma is transport iron, the hub of iron metabolism. From the plasma, iron can go to organs of storage; it can be utilized, or it can be excreted. A relatively large percentage of the iron goes to the bone marrow where it is used for hemoglobin synthesis, but some is taken up by other cells of the body for the formation of cellular enzymes. The amount of iron in plasma is small, but the turnover rate is rapid, averaging about 0.56 mg. per kilogram of body weight per day.[4] This quantity in a man who weighs 70 kg (154 lb.) would be 39 mg. per day. Since a normal man uses from 20 to 25 mg. of iron per day to make hemoglobin, it is evident that the plasma iron can easily supply the bone marrow's need.

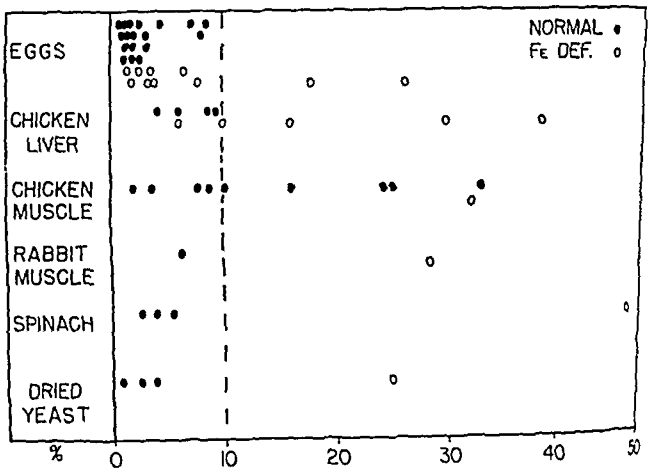


Fig. 3.—Absorption of radioactive iron (Fe^{59}) from foods by normal persons and persons deficient in iron.

One very important characteristic of iron metabolism is the high degree to which the body conserves the metal. When red blood cells are destroyed, almost all the iron released from hemoglobin is reutilized.

Iron released from other cells that die is similarly conserved. Small but significant amounts are excreted from the body. Whenever red blood cells are lost, as in urine or by hemorrhage, or whenever cells are desquamated from the surface of the body or from the gastrointestinal tract, the iron that they contain must be considered to have been excreted.

It has been demonstrated that (1) the amount of iron stored in the tissues of a healthy adult is approximately 1 gm.; (2) the liver and spleen constitute the chief storage sites; (3) storage iron is found intracellularly in a protein complex as ferritin and as hemosiderin.[5] The chemical identity of hemosiderin has not been established, but the suggestion has been made that it may be merely a condensation or clustering of ferritin molecules. In the liver and spleen of normal animals, there is a slight preponderance of ferritin over hemosiderin iron.[5] With larger concentrations of iron in the tissues, this ratio is reversed, and at high levels the additional storage iron is deposited as hemosiderin. Of great physiological importance is the fact that both compounds are capable of being mobilized by the body for hemoglobin synthesis when the need for iron exists.

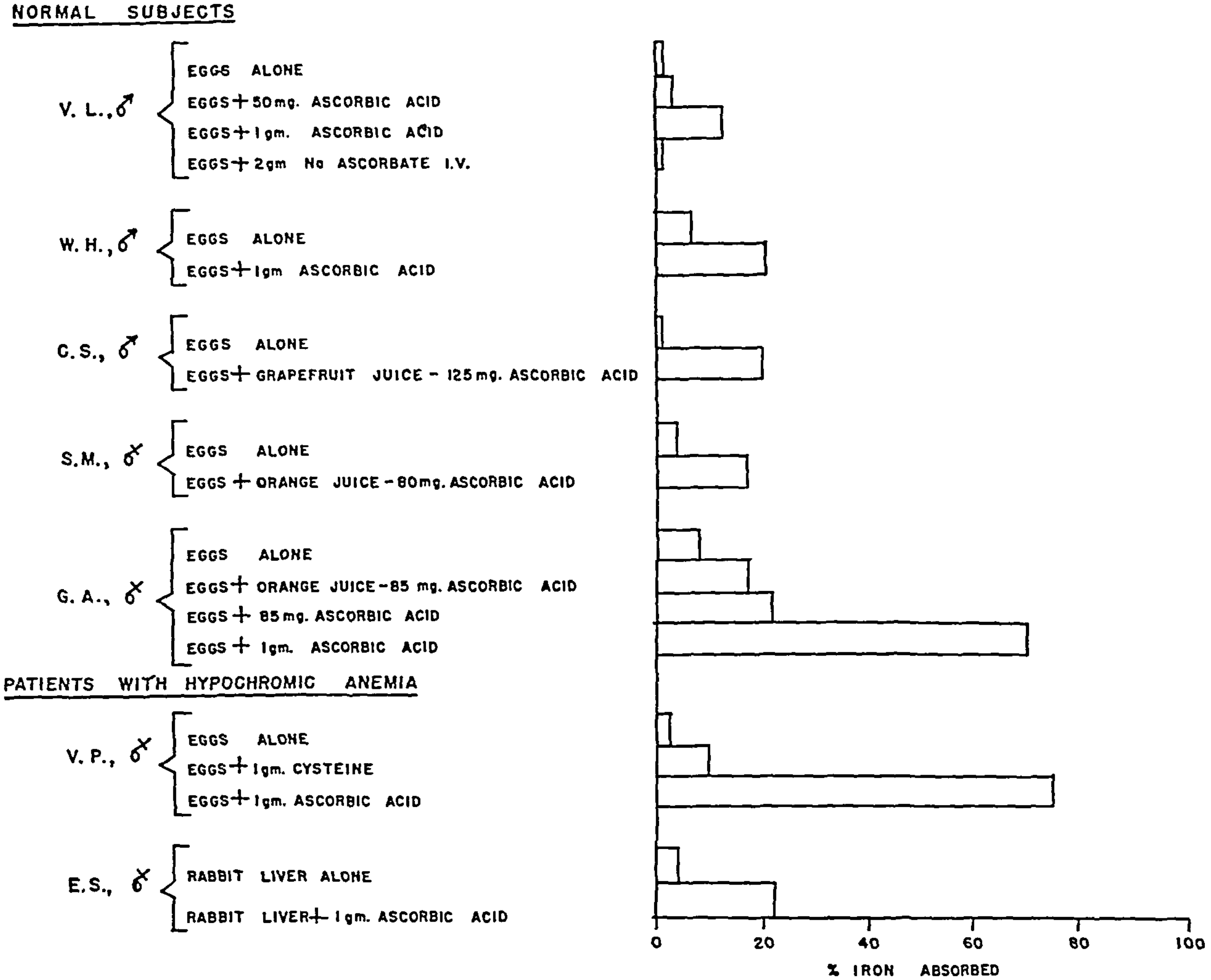


Fig. 4.—Effect of reducing substances on absorption of food iron.

This brief, schematic summary of some of the major characteristics of iron metabolism has emphasized how tenaciously the body conserves iron. It is evident that, if only small amounts of the metal are lost or excreted, the amount absorbed is of prime importance in the prevention of either iron deficiency or overload.

Absorption from Foods

Although a great deal has been learned about the absorption of iron from inorganic salts, we must know how well the metal is absorbed from foods before we can understand the problems of iron nutrition. This information has been very difficult to obtain. Some workers have measured the portion of food iron that can be ionized by dilute hydrochloric acid on the assumption that only ionizable iron can be assimilated. This method is indirect; it ignores the possibility that enzymatic digestion in the intestine may free an additional portion of the food iron, and it cannot indicate what percentage of the ionized iron will be absorbed. Balance studies have been helpful. McMillan and Johnston[6] found that about 12% of the iron in spinach or in a basal diet was absorbed by young college women. Iron is so ubiquitous, however, that the technical difficulties in such balance experiments are enormous.

Recently, more progress has been made with the use of radioactive iron (Fe^{59}). Foods containing Fe^{59} are obtained by growing vegetables in nutrient solutions to which the isotope is added or by injecting iron into hens so that eggs, liver, and muscle contain Fe^{59}.[7] These foods are cooked or prepared as they would be in a normal diet and are fed to fasting subjects. The unabsorbed radioactivity recovered in the feces and the maximum amount that appears in the circulating blood as newly synthesized hemoglobin are both measured. Figure 2 presents the results of a number of such observations, each column representing a separate experiment. With only two exceptions—the most striking exception being from chicken muscle—less than 10% of the food iron was absorbed by *normal persons. Similar observations* of patients deficient in iron revealed that very few of them absorbed iron from eggs any more efficiently than did normal persons. In a few observations made with chicken liver, spinach, and dried (brewer's) yeast, it appears that patients with iron deficiency anemia tend to absorb these forms of food iron somewhat more efficiently (fig. 3). When other foods were fed at the same time as eggs, only citrus fruit juices, containing a relatively high concentration of ascorbic acid, augmented the assimilation of the Fe^{59} (fig. 4). The increased absorption produced by 200 cc. of orange juice and the increase produced by an equivalent amount of crystalline *ascorbic acid* were similar (see G. A., fig. 4). The addition of 0.25 to 1 gm. of crystalline ascorbic acid to a number of different foods increased iron absorption in every case, with perhaps a slightly greater effect in the subjects deficient in iron. It is suggested that ascorbic acid produces this result by more *efficiently reducing* ferric iron in food to the *ferrous state.*

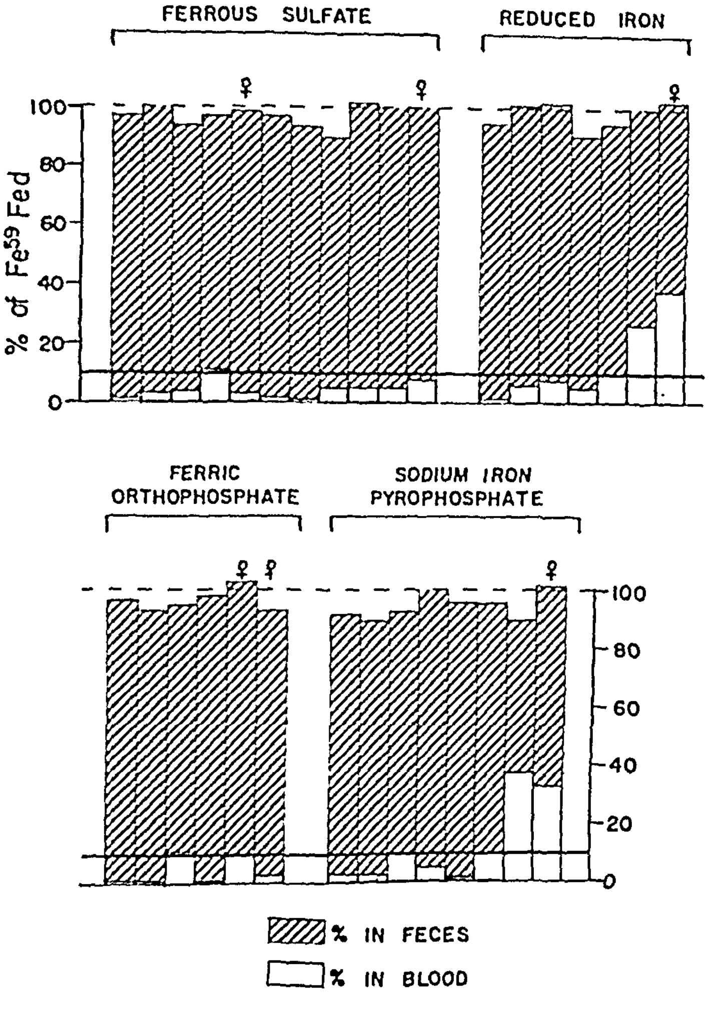


Fig. 5.—Absorption of four radioactive iron (Fe^{59}) preparations from enriched bread. Two of the four persons who absorbed more than 10% of the iron were young women whose loss of menstrual blood was above normal; the remaining two were two young men who had served repeatedly as blood donors. (Reproduced by permission of the A. M. A. *Archives of Internal Medicine.*)

A preliminary attempt has been made to evaluate the importance of gastric hydrochloric acid in the absorption of iron from food. For many years it has been taught that patients with hypochlorhydria or achlorhydria probably assimilate iron poorly. In such patients, however, we were not able to increase the absorption of iron by adding 60 cc. of 0.1 *N* hydrochloric acid to the food or by adding enough *N* hydrochloric acid to reduce the pH of the mixture to 1.5 before it was given by stomach tube. On the other hand, administration of 0.25 to 1 gm. of ascorbic acid increased absorption very significantly, even though this amount had comparatively little effect on gastric acidity.

These results can be summarized in the following manner. 1. Fe^{59} has been incorporated into eggs, chicken muscle, chicken liver, mustard greens, spinach, and dried yeast. 2. With three exceptions, the absorption of Fe^{59} from foods by 40 normal persons has been less than 20%; *with only six exceptions* it has been less than 10%. 3. Ascorbic acid and foods containing ascorbic acid have enhanced the absorption of food iron. 4. Persons deficient in iron absorb iron from foods somewhat better than do normal persons particularly if the food iron is reduced by ascorbic acid. 5. In preliminary observations, the addition of acid in patients with hypochlorhydria has not influenced absorption of food iron.

The diet of healthy adults in the United States contains approximately 12 to 15 mg. of iron per day. If the aforementioned figures are used as a basis for calculation, the amount of iron absorbed from food per day probably varies from about 0.6 to 1.5 mg. Poor diet, infection, steatorrhea, or diarrhea would decrease this amount even further. The effect of steatorrhea in reducing the absorption of iron by patients with hypochromic anemia has been demonstrated recently.[8]

Of related interest are observations recently completed on the absorption of iron from bread baked with flour that had been enriched with Fe^{59}.[9] In the food fortification program in the United States, iron is added as powdered metallic iron, as sodium ferric pyrophosphate, as ferric orthophosphate, or as ferrous sulfate in amounts sufficient to provide 6 to 8 mg. of iron per pound loaf of bread; however, the effectiveness of this particular type of fortification has not been evaluated adequately, and several of the preparations are so insoluble that one wonders how valuable they are. Each of the four iron preparations was obtained in radioactive form and baked into bread by a pilot bakery, along with other substances used in fortification. The baking process simulated as closely as possible that used by large commercial bakeries. Four slices of the bread were then fed to 32 healthy medical students and 3 persons with iron deficiency anemia, and absorption was measured. Twenty-eight of the 32 students absorbed and utilized between 1 and 12% of the iron, regardless of the form of iron added. The other four students assimilated 26 to 38% of the Fe^{59}, but there was reason to suspect that their iron stores were suboptimal (fig. 5). Apparently the various iron preparations are changed in the baking process, probably to a complex salt, so that all are about equally effective. The three patients with iron deficiency anemia assimilated 45 to 64% of the iron taken. Addition of 1 gm. of ascorbic acid to the bread eaten by six of the healthy persons increased the absorption of iron two to three times.

Excretion of Iron

Because iron is conserved so tenaciously and because the amount excreted is small, many people have mistakenly assumed that no iron whatever is lost from the body except as shed blood. The error of this assumption becomes obvious from the following considerations. All cells in the body contain iron. When leukocytes and epithelial cells are discharged in body secretions, when erythrocytes appear in urine, when cells are desquamated from the skin or the mucosa of the intestinal tract, and even when hair grows, some iron is lost. Attempts to estimate this amount, and to determine in addition how much is excreted in other ways have proved to be very difficult. The metal is so ubiquitous that it has been almost impossible to differentiate between excreted iron and that present because of contamination or failure to be absorbed. Fe^{59} has provided a partial solution to the problem.

The isotope has been injected in tracer amounts into the veins of normal subjects and patients with hypochromic or hemolytic anemias.[10] Five-day fecal collections were made at intervals for up to 150 days; this long period was used because most of the injected Fe^{59} was promptly synthesized into hemoglobin, and it was essential to continue the observations longer than the 120-day lifespan of erythrocytes. Every fecal specimen of every person contained a detectable amount of radioactivity; the amount averaged 0.01% of the dose per day for normal persons. Three patients who were deficient in iron excreted much less, whereas one young woman with a hemolytic (sickle cell) anemia excreted more. No significant increase in fecal radioactivity was detected at or near the 120th day after the injection. However, it is difficult to calculate from these figures the fecal excretion of all body iron—inert as well as radioactive. Two calculations were made: one from the ratio of total hemoglobin iron to radioactive hemoglobin iron, the other from the ratio of estimated total body iron to the injected dose of the isotope (fig. 6). Fecal excretion calculated in these ways for normal persons varied from 0.3 to 0.5 mg. per day. For patients deficient in iron, the value was about one-tenth as much. Although these calculated values are estimations, it is reasonably certain that they do not vary from true figures by more than 100%. With this method of determination, one cannot differentiate between the following three possible sources of fecal iron: (1) true excretion, (2) desquamated mucosal cells, and (3) iron delivered to the duodenum via the bile and not completely absorbed.

Some of the injected Fe^{59} was also found regularly in sweat for at least 320 days, the longest time after administration that a collection was made. The amount was small but definitely measurable. We were not able to determine whether it came from sweat glands by a process of true excretion or from desquamated epithelial cells. Calculations indicated that under normal conditions the total iron lost from dermal surfaces is certainly less than 1 mg. per day and probably not more than 0.5 mg. Radioactivity could also be detected in hair clippings obtained several months after the injection of radioiron and washed with dilute hydrochloric acid to free them from surface (sweat) contamination. The small amount of iron found in urine must also be considered.

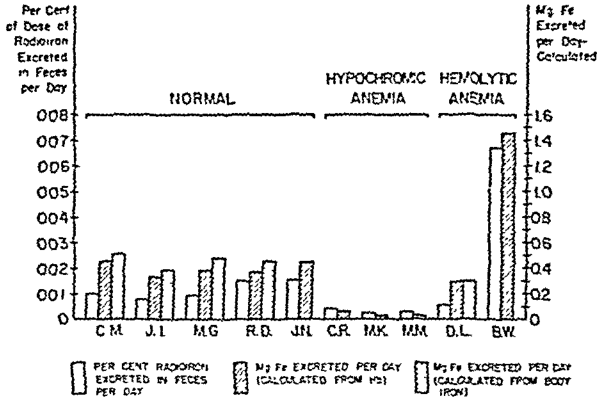


Fig. 6.—Average daily radioiron excretion and calculated total iron excretion of 10 human subjects. (Reproduced by permission of the *Journal of Laboratory and Clinical Medicine.*)

One can estimate that the adult male loses or excretes a total of 0.5 to 1.5 mg. of iron per day; the median value of 1 mg. is probably not in error by more than 20 to 25%. Menstrual blood flow of 35 to 70 cc. every 28 days in a normal woman with a hemoglobin value of 12 gm. would account for an additional average loss of 0.5 to 1 mg. per day. The donation of blood for transfusion purposes has become so common that this type of blood loss must also be considered in any discussion of excretion of iron. When 500 cc. of blood with a hemoglobin value of 15 gm. per 100 cc. is withdrawn, the donor loses approximately 0.25 gm. of iron. This amount spread evenly over a year averages about 0.68 mg. per day. It is evident that multiple donations, not covered by supplemental iron, would constitute a severe drain on the body's iron economy.

Observations on humans emphasize the fact that nutritionally significant amounts of iron are lost or excreted, but these studies are admittedly semiquantitative. The only truly quantitative experiments have been done by Finch and his associates on mice.[11] They have obtained surprising results by using a counter that permitted them to make measurements of radioactivity on the whole animal. Mice were killed at intervals for 300 days after injection of Fe^{59}; only half of the radioactivity could be recovered from the whole carcass after about 140 days.[11a] Furthermore, under experimental conditions of induced iron overload, the amount of iron excreted was increased proportionally to the increase in body iron.[11b] These data suggest that, in the mouse, excretion, as well as absorption, plays an important role in maintaining normal iron balance. All available evidence indicates that the human excretes iron more sparingly, even though in nutritionally significant amounts.

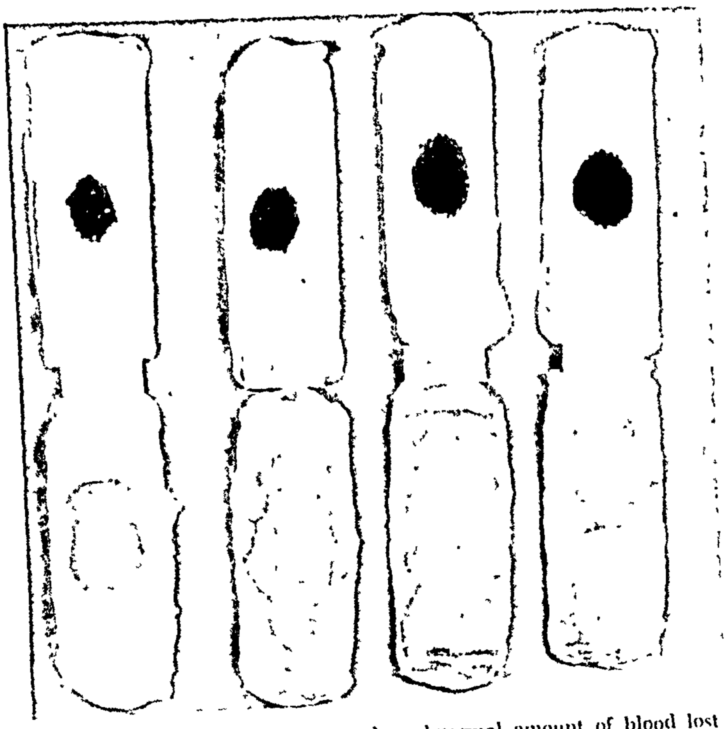


Fig. 7.—Pads prepared to show that abnormal amount of blood lost in menstrual flow may be accepted as normal. Blood in the amounts of 5, 10, 15, and 20 cc. was placed on pads. The four pads at the top were not disturbed; those at the bottom were rubbed together at edges to simulate agitation occurring with walking.

Importance of Nutrition in the Pathogenesis of Iron Deficiency Anemias

Although the data presented for the absorption of iron from food and for the excretion of iron are incomplete and provide approximations only, they permit a better evaluation of the importance of nutritional factors in the pathogenesis of iron deficiency than has been possible previously. If the adult male absorbs an average of 10% of the iron in a diet that contains 12 to 15 mg. per day, he retains 1.2 to 1.5 mg. Since he excretes only about 1 mg. or less of iron per day, he maintains a positive balance rather easily. The adult female, however, during the years of menstruation and child bearing, tends to eat less and loses additional amounts. During gestation a mother furnishes her fetus with about 0.3 to 0.5 gm. of iron, or between 1 and 2 mg. per day. The normal volume of menstrual blood is approximately 35 to 70 cc. If the hemoglobin value of that blood is 12 gm. per 100 cc., then 14 to 28 mg. of iron is involved. Spread evenly over a 28-day menstrual cycle, this amount equals 0.5 to 1 mg. per day. Iron balance in a young woman, therefore, is precarious; poor diet or poor absorption may lead to iron deficiency even though menstrual loss remains normal. Frequent pregnancies or any increases in menstrual flow make her more susceptible. Furthermore, women are often unaware of the fact that they might be losing several times the normal amount of menstrual blood. Menstrual pads absorb blood so efficiently that false impressions are obtained. The pads in figure 7 were prepared by adding onto their surfaces 5, 10, 15, and 20 cc. of blood, respectively. The four at the top were not disturbed. Those at the bottom were rubbed together at the edges to simulate the agitation that might occur with walking. In no instance did the blood soak through more than three-fourths of the material. Women physicians who inspected and watched the preparation all agreed that at least the pads to which 10 cc. had been adde would be considered "normal." It is evident that woman who uses 10 to 15 pads per period might easi lose more than 100 cc. of blood without being awa of any abnormality. The authors have seen two inte gent, medically trained women with hypochro anemia whose extracted pads contained in excess of 200 cc. of blood per period; neither one had been aware that her blood loss was unusual.

Table 1.—*Calculated Time for Development of Dietary Iron Deficiency*

	Adult Man*	Postmenop Woman
Normal		
Total hemoglobin iron, gm.	2.5	1.9
Storage iron, gm.	1	0.5
Total, gm.	3.5	2.4
Iron deficiency‡		
Total hemoglobin iron, gm.	1.25	0.95
Storage iron, gm.	0	0
Total, gm	1.25	0.95
Deficit in hemoglobin and storage iron, gm.	2.25	1.45
Time required to produce deficiency, days§	2,250 (6.3 yr.)	1,450 (4 yr)

* Hemoglobin, 15 gm./100 cc. Blood volume, 5,000 cc.
† Hemoglobin, 14 gm./100 cc. Blood volume, 4,000 cc.
‡ Hemoglobin, 7.5 gm./100 cc.
§ Assuming that no iron is absorbed and 1 mg. is excreted daily.

Almost nothing is known about excretion of iron in children, but the infant and the growing child need iron to increase their blood volume, their myohemoglobin volume, and the respiratory enzymes required by all cells. Since the body of an infant contains about

0.5 gm. of iron and that of an adult 3 to 5 gm., there must be a net gain during the first 20 years of life of 2.5 to 4.5 gm.; this net gain averages 0.12 to 0.22 gm. per year or about 0.35 to 0.6 mg. per day. In all probability, the positive iron balance maintained by normal children during their most active growth must be slight, and poor diet or poor absorption could readily produce iron deficiency.

It is much more difficult for iron deficiency to develop in the adult male or the postmenopausal female on a purely nutritional basis without any associated blood loss. The calculations in table 1, based on two hypothetical patients, an adult male and a postmenopausal woman, demonstrate that, if these two persons each excreted 1 mg. of iron per day and absorbed none at all, periods of six and four years, respectively, would pass before they became deficient enough to have only 7.5 gm. of hemoglobin per 100 cc. These figures ignore the evidence that as patients become deficient in iron they excrete smaller amounts of the metal. Any iron contained in the deficient diet, furthermore, would tend to be assimilated with greater than normal efficiency unless there were a serious absorptive defect in the intestinal tract. Both factors would considerably delay the appearance of iron deficiency anemia. One must admit, however, the theoretical possibility that men or postmenopausal women who consume very deficient diets or who have absorptive defects could, over a period of many years, develop iron deficiency on a nutritional basis alone. On the other hand, it seems far more likely that patients with inadequate diets or poor absorption also lose small amounts of blood that go undetected. The bleeding may be slight and intermittent, so that diligent search is required for its detection. There is some evidence that blood added in small amounts to the stomach may be so completely digested that tests for occult blood in the feces remain negative.[12] With hemorrhage, even though slight, inadequate iron intake or absorption becomes of major importance in the pathogenesis of hypochromic anemia.

TABLE 2.—*Recommended Dietary Allowance of Iron*[*]

	Iron, Mg.
Man, 70 kg. (154 lb.)	12
Woman, 56 kg. (123 lb.)	12
Pregnancy (latter half)	15
Lactation	15
Child, yr.	
Under 1	6
1-3	7
4-6	8
7-9	10
10-12	12
Over 12	15

[*] Recommended Dietary Allowances, A Report of the Food and Nutrition Board, Publication 302, National Research Council, 1953.

It is evident from the considerations reviewed in this section, from the incomplete state of our knowledge about the absorption of iron from foods, and from the meagerness of our information about excretion of iron in the human that a precise definition of dietary iron requirements is not yet possible. The recommendations of the Food and Nutrition Board seem to be adequate, and they probably represent as good approximations as can be made at present (table 2). These quantities of food iron, however, do not provide a wide margin of safety except, perhaps, for the adult man and the postmenopausal woman.

Iron Overload

Iron overload is of increasing clinical importance.[13] It is discussed briefly herein because increased absorption of iron, sometimes associated with high oral intake of the metal, is of pathogenic importance in some forms of overload. Iron overload occurs in hemochromatosis and in transfusion hemosiderosis; it occurs as a result of prolonged excessive iron therapy and as a part of an interesting nutritional abnormality in Africa called cytosiderosis. The natives who develop cytosiderosis eat primarily a diet of maize cooked for long periods of time in iron pots. This cooking process, plus the Kaffir beer drunk by the natives, makes the iron content of the diet abnormally high, often more than 100 mg. per day. A few years ago Hegsted, Finch, and Kinney showed that rats fed maize also absorbed abnormally large quantities of iron. They made the interesting observation that the maize diet is low in phosphorus, and they postulated that there was, consequently, less of a tendency for the iron to be precipitated as insoluble phosphate salts in the intestinal tract.[14] The addition of phosphate to the experimental diet corrected the tendency for increased absorption.

The large amounts of iron in transfusion hemosiderosis are easy to understand, since every pint of blood contains from 0.2 to 0.25 gm. of iron. One hundred transfusions would provide the recipient with 20 to 25 gm. of the metal. Some workers have found at autopsy more than the expected amount of iron in the tissues of patients who had had frequent transfusions and have postulated that some of them must absorb iron at rates greater than normal, even though the tissues are overloaded. Definitive experiments to prove this have not been done.

In true idiopathic hemochromatosis, the increased amounts of iron have been something of a mystery. The iron must reach the body by absorption; but, while it is possible to demonstrate that some patients with hemochromatosis do absorb the metal at a rate greater than normal, others seem to have a normal rate of assimilation.[15] It has been suggested that the absorption is greater than normal until the late stages of the disease, when the tissues are so laden with iron that assimilation becomes retarded.[13] The mechanism of the increased absorption is unknown.

In hemochromatosis, the iron overload is frequently associated with fibrosis of the liver, diabetes, and evidence of myocardial damage. The question naturally arises as to how much of these associated changes is caused by a cytotoxic effect of the high iron concentrations. In the Bantu with cytosiderosis, diabetes is rare but hepatic cirrhosis is usually found. The cirrhosis in these cases may possibly be explained by other nutritional deficiencies. In transfusion hemosiderosis, diabetes develops in only a minority of patients, and cirrhosis, when it occurs, may possibly be the result of serum hepatitis, other infection, or prolonged hypoxia of the liver.

In our laboratory, dogs that received 0.5 to 1 gm. of iron per kilogram of body weight—amounts comparable to those found in hemochromatosis—are still well after six years.[16] They have no laboratory evidences of hepatic disease or of diabetes. Between 1945 and January, 1951, one of our patients with refractory or hypoplastic anemia received 587 transfusions containing well over 100 gm. of iron. He recovered, after splenectomy, and has received no transfusions during the past four years. He is well and has no diabetes nor any evidence of liver disease, although his skin is still bronzed.

There is reason to wonder if iron alone causes the cirrhosis and diabetes of hemochromatosis. Iron overload must be present, plus some unknown factor, to produce these changes. The unknown factor may be an associated metabolic disturbance or some intercurrent event responsible for liver damage, or it may be only time. Patients with hemochromatosis have iron overload over a period of many years. Patients with transfusion hemosiderosis usually receive transfusions because of diseases incompatible with long life. That iron is cytotoxic in high concentration is not denied. We wish merely to emphasize that other factors may play a pathogenic role in the production of abnormalities found in association with iron overload.

Summary

Nutritional factors are of major importance in the production or prevention of iron deficiency. Under some circumstances, when the intake is greatly increased, they can be responsible for iron overload. Healthy persons probably maintain a positive iron balance by a narrower margin than was formerly believed. Approximately 5 to 10% of the iron in food seems to be assimilated by normal adults; daily retention on a diet containing 12 to 15 mg. of iron, therefore, can be estimated to be about 0.6 to 1.5 mg. The amount of iron lost from the body each day in all ways except as blood seems to be between 0.5 and 1 mg. The requirements needed additionally by children and young women for growth and to compensate for menstrual flow place them in a precarious state of iron balance; poor diet or poor absorption can readily lead to the production of hypochromic anemia. In adult men or postmenopausal women, nutritional factors appear to be of less importance in the pathogenesis of iron deficiency. If purely nutritional iron deficiency ever occurs in these persons, many years would be required for its production. It is more likely that occult, intermittent bleeding, often difficult to detect, must also be present, along with inadequate diet or malabsorption, before severe degrees of iron deficiency develop.

One may conclude that for the normal child or the normal adult the recommendations of the Food and Nutrition Board for iron are adequate; however, they do not provide a wide margin of safety.

This study was supported in part by a grant from the National Hea Institute of the United States Public Health Service.

References

1. Moore, C. V.; Dubach, R.; Minnich, V., and Roberts, H. K.: Absorption of Ferrous and Ferric Radioactive Iron by Human Subjects and b Dogs, J. Clin. Invest. 23: 755-767 (Sept.) 1944.

2. (a) Hahn, P. F.; Bale, W. F.; Lawrence, E. O., and Whipple, G H Radioactive Iron and Its Metabolism in Anemia: Its Absorption, Transportation, and Utilization, J. Exper. Med. 69: 739-753 (May) 1939. (b Dubach, R.; Callender, S. T., and Moore, C. V.: Studies in Iron Transportation and Metabolism; Absorption of Radioactive Iron in Patients wit Fever and with Anemias of Varied Etiology, Blood 3: 526-540 (May 1948. (c) Footnote 1.

3. Granick, S.: Structure and Physiological Functions of Ferritin, Physio Rev. 31: 489-511 (Oct.) 1951.

4. Bush, J. A.; Ashenbrucker, H.; Cartwright, G. E., and Wintrobe, M M.: The Anemia of Infection: XX. The Kinetics of Iron Metabolism i Anemia Associated with Chronic Infection, J. Clin. Invest. 35: 89-97 (Jan 1956.

5. Shoden, A.; Gabrio, B. W., and Finch, C. A.: Relationship Betwee Ferritin and Hemosiderin in Rabbits and Man, J. Biol. Chem. 204: 82 830 (Oct.) 1953.

6. McMillan, T. J., and Johnston, F. A.: Absorption of Iron from Spina by Six Young Women, and Effect of Beef upon the Absorption, J. Nutrit 44: 383-398 (July) 1951.

7. Moore, C. V., and Dubach, R.: Observations on the Absorption of Ir from Foods Tagged with Radioiron, Tr. A. Am. Physicians 64: 245-25 1951.

8. Badenoch, J., and Callender, S. T.: Iron Metabolism in Steatorrhe: Use of Radioactive Iron in Studies of Absorption and Utilization, Bloo 9: 123-133 (Feb.) 1954.

9. Steinkamp, R.; Dubach, R., and Moore, C. V.: Studies in Iron Transportation and Metabolism: VIII. Absorption of Radioiron from Iron-Enriche Bread, A. M. A. Arch. Int. Med. 95: 181-193 (Feb.) 1955.

10. Dubach, R.; Moore, C. V., and Callender, S.: Studies in Iron Transportation and Metabolism: IX. The Excretion of Iron as Measured by the Isotope Technique, J. Lab. & Clin. Med. 45: 599-615 (April) 1955.

11. (a) Stevens, A. R., Jr.; White, P. L.; Hegsted, D. M., and Finch, C. A.: Iron Excretion in the Mouse, J. Biol. Chem. 203: 161-165 (July) 1953. (b) Chappelle, E.; Gabrio, B. W.; Stevens, A. R., Jr., and Finch, C. A.: Regulation of Body Iron Content Through Excretion in the Mouse, Am. J. Physiol. 182: 390-392 (Aug.) 1955.

12. Mendeloff, A. I.: Selection of a Screening Procedure for Detectin Occult Blood in Feces, J. A. M. A. 152: 798-801 (June 27) 1953.

13. Finch, S. C., and Finch, C. A.: Idiopathic Hemochromatosis, an Iron Storage Disease, Medicine 34: 381-430 (Dec.) 1955.

14. Hegsted, D. M.; Finch, C. A., and Kinney, T. D.: Influence of Diet on Iron Absorption: Interrelation of Iron and Phosphorus, J. Exper. Med. 90: 147-156 (Aug.) 1949. Footnote 13.

15. Bothwell, T. H.; van Doorn-Wittkampf, H.; DuPreez, M. L., and Alper, T. A.: The Absorption of Iron: Radioiron Studies in Idiopathic Hemochromatosis, Malnutritional Cytosiderosis, and Transfusional Hemosiderosis, J. Lab. & Clin. Med. 41: 836-848 (June) 1953. Footnotes 2b and 13.

16. Brown, E. B.; Moore, C. V.; Reynafarie, C., and Smith, D. E.: Intravenously Administered Saccharated Iron Oxide in the Treatment of Hypochromic Anemia, J. A. M. A. 144: 1084-1089 (Nov. 25) 1950.

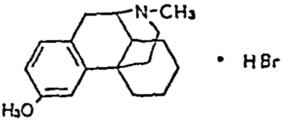
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary.*

Dextromethorphan Hydrobromide.—*d*-3-Methoxy-N-methylmorphinan hydrobromide.—The structural formula of dextromethorphan hydrobromide may be represented as follows:



Actions and Uses.—Dextromethorphan hydrobromide, a synthetic morphine derivative, is employed exclusively as an antitussive agent. Unlike codeine, dihydrocodeinone, and many of the other opium alkaloids used for this purpose, it exhibits little or no central depressant activity and does not produce analgesia. In addition, the drug appears to have no addicting effects, even after prolonged use in rather high doses. Its toxicity is low; side-effects reported to date have been slight, and there is some doubt that these can be attributed to the drug at all. The amount of bromine present in therapeutic doses is of no clinical significance.

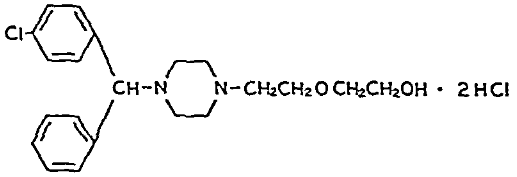
As with any antitussive drug, it is extremely difficult to obtain unbiased clinical data on effectiveness. With agents that have concomitant sedative actions, the possibility exists that patients become less conscious of and, hence, less bothered by cough although the actual frequency and intensity of cough is little affected. Dextromethorphan, however, has been subjected to well-controlled clinical evaluation. In a series of patients with severe chronic cough of varied etiology, dextromethorphan hydrobromide, codeine, and a placebo were administered under double-blind conditions; cough was rated numerically and recorded four times daily. The data obtained from a large number of such observations were subjected to a statistical analysis of variance. Only after the data had been thus analyzed was the identity of the medicaments revealed. These studies demonstrated that both dextromethorphan and codeine produced a definite and significantly greater diminution in cough than did the placebo. Thus, dextromethorphan hydrobromide compares favorably with the other antitussives used in clinical practice. Its activity in this respect is approximately as great as that produced by equal amounts of codeine.

Dosage.—Dextromethorphan hydrobromide is administered orally. The average dose for adults is 10 to 20 mg. one to four times daily. This dose is reduced to one-half for children over 4 years of age and to one-quarter for children under 4 years of age.

Preparations for use as stated for the foregoing drug are marketed under the following name: Romilar Hydrobromide.

Hoffmann-La Roche, Inc., cooperated by furnishing scientific data to aid in the evaluation of dextromethorphan hydrobromide.

Hydroxyzine Hydrochloride.—1-(*p*-Chlorobenzhydryl)-4-[2-(2-hydroxyethoxy)ethyl]piperazine dihydrochloride.—The structural formula of hydroxyzine hydrochloride may be represented as follows:



Actions and Uses.—Hydroxyzine hydrochloride, which is similar in chemical structure and pharmacological action to some of the antihistamines, produces depression of the central nervous system. Sedation is the most prominent action of hydroxyzine hydrochloride and forms the basis for its clinical use. The drug also appears to exert some actions similar to those of chlorpromazine; however, these are not sharply enough defined to permit pharmacological classification as a chlorpromazine-like drug.

Hydroxyzine hydrochloride has been employed clinically as a tranquilizing or calming agent for the symptomatic treatment of a wide variety of emotional or mental disorders characterized by anxiety, tension, and agitation; however, sufficient experience has not been gained to determine its ultimate usefulness as a psychotherapeutic agent. To date, its use in patients with frank psychoses has not been promising. The drug is likewise of little benefit in depressive states unless there is a strong overlay of agitation and anxiety. On the basis of currently available evidence, it would appear to be useful for the symptomatic management of neuroses rather than psychoses.

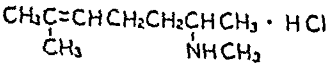
The toxicity of hydroxyzine hydrochloride is low. Drowsiness may occur shortly after the drug is taken but is transient and apparently never proceeds into true sleep. This effect, as distinguished from the tranquilizing action of the drug, seems to diminish in frequency and intensity upon prolonged administration.

Dosage.—Hydroxyzine hydrochloride is administered orally. The usual dose for adults is 25 mg. three times daily, but this may vary in amount and frequency according to severity of symptoms and individual response. For children between 6 and 12 years of age, doses of 10 mg. twice a day have been employed. This may be increased to 10 mg. three to four times daily if necessary. Sufficient experience is not available to state dosage requirements for infants or children under the age of 6.

Preparations for use as stated for the foregoing drug are marketed under the following name: Atarax Hydrochloride.

J. B. Roerig and Company, Division of Chas. Pfizer & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of hydroxyzine hydrochloride.

Isometheptene Hydrochloride.—2-Methylamino-6-methyl-5-heptene hydrochloride.—The structural formula of isometheptene hydrochloride may be represented as follows:



$$\underset{\displaystyle CH_3}{CH_3C}{=}CHCH_2CH_2\underset{\displaystyle NHCH_3}{CH}CH_3 \cdot HCl$$

Actions and Uses.—Isometheptene hydrochloride, an unsaturated aliphatic amine, exhibits antispasmodic and vasoconstrictor properties. Thus, in experimental animals it produces relaxation of smooth muscle of hollow organs, including the urinary and gastrointestinal tract and the sphincters of the bile duct, pancreatic duct, and urinary bladder. Its antispasmodic effect on these structures is caused by stimulation of sympathetic (inhibitory) nerve endings rather than by inhibition of parasympathetic endings, as with atropine. The drug resembles epinephrine in that it produces moderate peripheral vasoconstriction, an increase in the contractile force of the myocardium, and a transient increase in blood pressure. Other effects include a slight bronchodilation, mydriasis, respiratory stimulation, and a shrinkage of nasal and pharyngeal mucosa. Isometheptene hydrochloride therefore may be classified as a sympathomimetic amine.

On the basis of these pharmacological studies, isometheptene hydrochloride has been employed clinically for the treatment of urinary tract spasm and spastic conditions of the gastrointestinal tract and its sphincters, as well as for the relief of migraine-like headache and other conditions believed to be caused by vasodilation in the cranial and cerebral vascular beds. Although it is the clinical impression of some physicians that patients with such conditions are benefited, convincing evidence is lacking to indicate that the drug, rather than the natural course of the disease, is responsible for alleviation of symptoms. Thus, the usefulness of isometheptene hydrochloride for relieving the pain of ureteral colic, as an aid in the passage of stone, for facilitating instrumentation during urologic or gastrointestinal examination, for relaxing gastrointestinal spasm, or for the alleviation of migraine or tension headache or histaminic cephalalgia is unsettled. Since pharmacological studies indicate that it may have some use in such conditions, and since it is of low clinical toxicity, its therapeutic trial may be justified in appropriate cases.

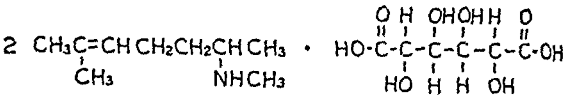
After parenteral administration of isometheptene hydrochloride, the most common side-effect is a rise in blood pressure, particularly in patients with a labile vascular system. This occurs much less frequently after oral administration. Other minor side-effects, which are rare and transient, include lightheadedness, nervousness, and sometimes nausea. The drug is contraindicated in all hypertensive patients. Initial parenteral administration should follow injection of a small test dose with subsequent careful checks on blood pressure.

Dosage.—Isometheptene hydrochloride is administered orally or intramuscularly. The usual oral dose for adults is 15 to 20 drops of a 10% solution (containing 100 mg. per cubic centimeter) every half hour for a total of four doses. By the intramuscular route, 50 to 100 mg. is injected for the control of acute pain in adults, but oral therapy should be substituted as soon as possible. The drug should never be injected intravenously.

Preparations for use as stated for the foregoing drug are marketed under the following name: *Octin Hydrochloride.*

Bilhuber-Knoll Corp. cooperated by furnishing scientific data to aid in the evaluation of isometheptene hydrochloride.

Isometheptene Mucate.—2-Methylamino-6-methyl-5-heptene mucate.—The structural formula of isometheptene mucate may be represented as follows:



$$2\ \underset{\displaystyle CH_3}{CH_3C}{=}CHCH_2CH_2\underset{\displaystyle NHCH_3}{CH}CH_3 \cdot HO{-}\underset{}{\overset{O}{\overset{\|}{C}}}{-}\underset{\displaystyle HO}{\overset{\displaystyle H}{C}}{-}\underset{\displaystyle H}{\overset{\displaystyle OH}{C}}{-}\underset{\displaystyle H}{\overset{\displaystyle OH}{C}}{-}\underset{\displaystyle OH}{\overset{\displaystyle H}{C}}{-}\overset{O}{\overset{\|}{C}}{-}OH$$

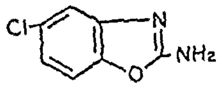
Actions and Uses.—Isometheptene mucate has the same actions and uses as the hydrochloride salt. (See the monograph on isometheptene hydrochloride.) Because it is not used by the parenteral route, it rarely causes hypertension.

Dosage.—Isometheptene mucate is administered orally or rectally. The usual oral dose for adults i 0.12 gm. every half hour for a total of four doses. Alternatively, one suppository containing 0.25 gm. may be inserted into the rectum; this procedure may b repeated in one hour if necessary.

Preparations for use as stated for the foregoing drug are marketed und the following name: Octin Mucate.

Bilhuber-Knoll Corp. cooperated by furnishing scientific data to aid the evaluation of isometheptene hydrochloride.

Zoxazolamine.—2-Amino-5-chlorobenzoxazole.—Th structural formula of zoxazolamine may be represented as follows:



Actions and Uses.—Zoxazolamine, a skeletal muscle relaxant, depresses or interrupts transmission of nerve impulses through polysynaptic pathways. Like mephenesin, its major sites of action are the brain stem, subcortical areas, and the spinal cord. Experiments with animals indicate that the drug has no direct effect on skeletal muscle, nor does it act at the myoneural junction. With experimental methods currently employed, comparatively little effect can be detected on monosynaptic arcs. Zoxazolamine has a longer duration of action than mephenesin and, in comparable dosage, its spasticity-reducing potency is greater. It likewise is more effective by mouth than mephenesin in equal amounts.

Zoxazolamine has been employed in a wide variety of conditions that may be unrelated in pathogenesis but in which either skeletal muscle spasm or spasticity is present as a common denominator. Of these disease entities, those resulting from musculoskeletal disorders, such as sprains, muscle strains and contusions, low back disorders, fibrositis, bursitis, myositis, and spondylitis, appear to respond best to the drug. A high percentage of patients with these conditions may be expected to be benefited by the drug with attending relief of muscle spasm discomfort. In such conditions, the drug should not be expected to bring about permanent improvement without appropriate attention to the application of suitable physical therapeutic measures. In patients with rheumatoid arthritis and osteoarthritis, the drug is of limited usefulness as an adjunct to salicylate and other forms of therapy. Although the drug may aid in the relief of muscle spasm, the concomitant production of muscular weakness in some cases can result in decreased over-all functional activity. The agent is of questionable usefulness in cervical root syndrome.

In general, patients with muscle spasm and spasticity resulting from musculoskeletal disorders appear to respond better to zoxazolamine than those with neurological disease. Of the latter category, beneficial results have been attained chiefly in patients with cerebral involvement, as for example, cerebral palsy and spastic paraplegia. Excluding those cerebral spastic states with athetoid derangements, the drug has been moderately successful in relieving hypertonus of the involved muscle groups in some patients. The more severe type of neurological spasticity states, namely those involving the spinal cord, have so far responded less well to zoxazolamine. These include such conditions as cord injury or neoplastic involvement and multiple sclerosis; results are likewise often disappointing in Parkinson's disease and various pyramidal tract lesions. The drug has no effect on basal ganglion disorders or convulsive diseases such as epilepsy.

Zoxazolamine has a margin of safety greater than that of mephenesin. Excessive muscle fatigue, which can occur after administration of both agents, is less pronounced after zoxazolamine. Side-effects to its administration, though frequent and often unpleasant, are not serious and are reversible upon withdrawal of the drug. The most frequent of these are nausea and vomiting; other less frequent side-effects include anorexia, headache, lightheadedness, transient skin rash, malaise, weakness, and drowsiness.

Dosage.–Zoxazolamine is administered orally. The usual dosage for adults is 0.25 to 0.5 gm. three or four times daily during meals or with food. For children, a dose of 0.25 gm. two to four times a day may be administered.

Preparations for use as stated for the foregoing drug are marketed under the following name: *Flexin.*

McNeil Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of zoxazolamine.

Additional Uses of Acetazolamide

The Council has evaluated the use of acetazolamide for the treatment of toxemia and edema of pregnancy, premenstrual tension, obesity, and drug-induced edema. This diuretic agent previously has been found useful for the management of cardiac edema, epilepsy, and glaucoma. On the basis of currently available evidence, the Council concluded that its oral administration to patients with toxemia and edema of pregnancy often will provide relief from the fluid retention that accompanies or characterizes mild preeclampsia of the third trimester. The drug is also useful for the treatment of the discomforts of premenstrual tension associated with fluid and electrolyte retention. Acetazolamide has been employed as an adjunct to dietary and other therapeutic measures for the management of simple obesity and excessive weight gain during pregnancy; preliminary results indicate a salutary effect in some patients. The drug also may be administered with phenylbutazone or cortisone to control the edema induced by these agents. The possibility of untoward effects from long-term use has not been assessed.

Acetazolamide is administered orally for all of the foregoing indications. Doses of 0.25 gm. daily are usual for the treatment of toxemia and edema of pregnancy. For premenstrual tension accompanied by fluid retention, doses of 0.25 gm. per day beginning 6 to 10 days prior to onset of menstruation or at the onset of symptoms have been employed; however, doses considerably lower than this may be adequate. The average dose for the adjunctive management of obesity is 0.25 gm. each day. When control of drug-induced edema is desired, doses of 0.25 gm. twice weekly may be tried.

The Council voted to amend New and Nonofficial Remedies to describe these additional uses of acetazolamide.

Lederle Laboratories Division, American Cyanamid Company, cooperated by furnishing scientific data to aid in the evaluation of these additional uses of acetazolamide.

Nuclear Radiations in the Treatment of Cancer.—*Up to the* present moment, investigations with only two radioactive isotopes have given us important therapeutic applications in hyperplastic and neoplastic diseases through selective localization. These are radiophosphorus in the treatment of polycythemia vera and radioiodine in the treatment of the thyroid hyperplasia of Grave's disease and in the palliative treatment of certain thyroid cancers. However, one who has worked in the field from the beginning and who is asked to sum up his experiences can't help saying that the therapeutic achievements have been disappointing; but even in the early days we believed that the greatest contribution of radioactive isotopes in the field of medical and cancer research would lie in tracer applications, and we have devoted most of our energies to the latter. Even though the achievements in prolongation of life and cures in cancer have not been great so far, one should not dismiss too lightly the contributions of artificial radioactivity and nuclear radiations in cancer therapy. The clinician should not underestimate the importance of relief from pain and extension of comfortable life, and here their value is well established.–J. H. Lawrence and C. A. Tobias, Radioactive Isotopes and Nuclear Radiations in the Treatment of Cancer, *Cancer Research,* March, 1956.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

AGING

Because of a progressive increase in the number of persons living beyond 60 years, more and more attention has been focused on the diseases to which they are especially prone and, more important, on ways of keeping them active and relatively healthy. In recognition of this, a Committee on Aging has been established in the A. M. A. Council on Medical Service (see this issue, page 210). Literally we start aging at the moment of conception and never stop until we die, but in the more usual sense aging starts when growth ceases. Lansing[1] defines aging as a process of unfavorable progressive change, usually correlated with the passage of time, becoming apparent after maturity and terminating in death. It is a gradual process, and Zimmerman[2] says that it represents a loss of functional reserve. One of the chief difficulties in studying this process is that no sure way is known at present to separate physiological sclerosis (the age-conditioned consolidation of tissues) from arteriosclerosis, to which it is not related histologically or pathogenetically. The concept that you are as old as your arteries does not get to the root of the matter, because aging is a process that can be recognized in plants and in animals that do not have arteries but in which a period of growth is followed by cessation of growth, decline, and death. Furthermore, Buerger and Hevelke[3] have shown that blood vessels in different organs age at different rates. Arteriosclerosis is also unevenly distributed in the body; thus the physiological process is masked by the pathological.

In man the main characteristics of aging are (1) tissue atrophy, the onset of which occurs at a different time and at different rates for different organs; as the oxygen supply to the tissues decreases the number and size of the cells also decreases; (2) gradual and partial replacement of more differentiated tissues by less differentiated tissue, e. g., hemopoietic tissue by fat in the marrow and interstitial fibrosis in various organs; and (3) deposition of pigment such as lipochromes in cells and of calcium in cartilage. Buerger and Hevelke studied the bradytrophic tissues, those tissues such as cartilage, crystalline lens, cornea, tympanic substantia propria, teeth, scar tissue, and the walls of the larger blood vessels, all of which have few if any capillaries. With age these tissues become dryer and denser. As their density increases, organic and inorganic inclusions appear and the tissue colloids become more concentrated. As these tissues become dryer, their nitrogen content decreases.

One of the questions regarding aging that is still unanswered is whether it is a property inherent in all living matter or whether it is related to physiological impairment in a specific organ or system such as the gonads. Shock[4] calls attention to the fact that all physiological processes do not deteriorate with age and cites examples: age induces no significant change in (1) the regulation of the acid-base equilibrium of the blood; (2) the fasting arterial blood sugar level (although there is an increase in the venous level); (3) the absorption of vitamin A; (4) the eosinophil response to corticotropin; or (5) the ability to retain nitrogen when given increased amounts of protein by mouth. Lansing believes that in senescence cellular permeability may be decreased due to an increase in the calcium content of the cell surface, but as yet there is no conclusive proof that this is the case. Shock has shown that with age there is a diminution in the renal plasma flow, loss of ability of the renal tubular cells to do osmotic work, and a decrease in the cardiac output at rest. Whether the changes that accompany aging are due to a reduction in the amount of active protoplasm in various organs or to reduced function of the protoplasm remaining is not known. In any case it has been shown that the aging of the blood vessels is accelerated by any increase in stress. Davidson[5] notes that elderly persons tend to lose interest in eating and that they eat foods high in carbohydrates and low in proteins, probably because these foods are easier to obtain, prepare, and chew, despite the fact that protein needs are not appreciably reduced with age. This may be a factor in accelerating the aging process.

One of the most important problems connected with aging is the determination of signs of mental deterioration, especially in business executives and persons in positions of responsibility. Birren[6] found that a test of writing speed differentiated more clearly between patients with senile psychosis and controls than did various combinations of standard mental tests. Flicker fusion tests at different levels of brightness showed a greater difference between old and young subjects as the level of brightness decreased. A battery of tests that would give a quantitative indication of the mental adaptability, judgment, and reasoning ability of aging executives could if properly used be of enormous benefit to business and to aging persons, many of whom are now forced to retire prematurely solely on the basis of their chronological age. Removal from positions of responsibility for signs of mental deterioration would also save companies from embarassment and should be a real service to the aging employee as well, freeing him in some cases to turn to a less taxing occupation and thereby prolonging his life.

---

1. Lansing, A. I.: What Is Aging?: Ludwig Kast Lecture, Bull. New York Acad. Med. **32**: 5-13 (Jan.) 1956.
2. Zimmerman, H. J., and others: Physiology of Aging, Illinois M. J. **109**: 251-254 (May) 1956.
3. Buerger, M., and Hevelke, G.: Do Human Beings Have Age of Their Blood Vessels? Angiology **7**: 137-151 (April) 1956.
4. Shock, N. W.: Some Physiological Aspects of Aging in Man, Bull. New York Acad. Med. **32**: 268-283 (April) 1956.
5. Davidson, C. S.: Protein Metabolism: With Particular Reference to Problems of Aging, Internat. Rec. Med. **167**: 428 (July) 1954.
6. Birren, J. E.: Changes in Speed and Timing, Pub. Health Rep. **70**: 844-846 (Sept.) 1955.

PANORAMA OF MEDICAL RESEARCH

Much favorable comment has been evoked by the appearance of the two volumes "Medical Research: A Midcentury Survey," published under the auspices of the American Foundation.[1] They spread before the reader an exciting picture of the achievements of the past 50 years, in the medical sciences alone. If one adds to this some conception of the activity that has gone on in mathematics, physics, chemistry, biology, the earth sciences, and the social sciences, the result is overwhelming. Turning from the accomplishments of the past to the tasks and opportunities of the future is equally inspiring. Is it possible that research in social sciences may lead to so good a knowledge of man, so thorough a control of his impulses, as to eliminate poverty and crime? Will the accumulating data of experimental psychology conquer war and insanity? Will sociology tell us at last how to ensure the peaceable utilization of nuclear energy? In particular, will the medical sciences provide the physician with more of the tools he needs to battle disability and pain?

The facilities for research of all kinds now provided by individuals, by industries, by universities, by foundations, by the federal government, and by other organizations have become enormous; the annual expenditures are stated in terms of billions of dollars. Millions are spent on the development of a single new synthetic fiber. Market surveys determine the most effective color schemes for food packaging, and acoustic engineers produce phonographs so realistic that the listener can imagine himself in the midst of a symphony orchestra during its most exalted moments. Photographs of the buildings devoted to research and development by one automobile manufacturing company—"Main Research Building, Service Building, Manufacturing Development Building . . . Engineering Building, Styling Building and Styling Auditorium Dome facing 22-acre lake"—form a sort of polychromatic nocturne of forms and reflections, and the area houses more than 4,000 "scientists, engineers, stylists and technicians . . . within its twenty-five modern air-conditioned buildings."[2]

It would appear that the resources of science and engineering are inexhaustible. From television in color to new forms of plastics, from pesticides to fertilizers, from house paints to lubricants, the engineer seemingly has but to formulate his wishes and the research laboratory translates them into substance. The structure of any organic compound seems to be capable of an infinitude of variations, and there are corresponding differences, if the compound has value as a drug, in its principal action and its side-effects.

The second volume of "Medical Research" reminds the reader of the principal unsolved problems of clinical medicine, especially cancer. There is an urgency about these medical problems that perhaps is lacking in many industrial problems—the fact that promptness or delay in a medical discovery makes so great a difference in human lives. For instance, in 1953 "108,405 infants in the United States died before their first birthday."[3] Although the rate of infant mortality has been whittled down from a figure of 101.0 per 100,000 in 1916 to 27.8 in 1953, there are still nearly 300 deaths each day of children under the age of one year. Similarly, there were 16,399 deaths from cirrhosis of the liver in 1953. Although this disease is 12th from the top in the list of causes of death in the United States, it is claiming nearly 45 lives each day.[4]

Sudden breaks in the mortality from particular diseases have occurred within the experience of every research worker whose memory goes back to the days before sulfanilamide and penicillin. In 1922, before the announcement of the discovery of insulin by Banting and Best, there was a widespread conviction among scientists that the problem of making good extracts of pancreas was on the verge of solution. One young woman, rapidly losing ground because of severe diabetes, sat in her wheel chair every day on the veranda of a famous research institution and watched two students pass on their way to the laboratory. One day as they passed she asked them weakly when they were going to make the discovery that would save her. Embarrassed by a sense of the insignificance of their own contribution, the two students never forgot her earnest question. And to their joy, even though the discovery of insulin was made in another laboratory, it did come in time to save this patient.

Medical research is distinguished not only by the sense of urgency that motivates it but also by the fact that it unites men against a common enemy. The impulse to share with others whatever information has been gained by research, and the need to do so, is probably more keenly felt in medicine than in other branches of science. This is illustrated, for instance, by the common use of multiple or second languages for summaries of important articles. The obligation to publish important medical results and the policy of disseminating them in other languages might be considered in some ways as a counterpart to the ethical principle that forbids a physician to purvey secret remedies.

Thus there exists the machinery, all oiled and primed, for producing research and distributing its benefits—gigantic machinery that has already produced wonderful things. There will come moments when it needs fresh programs to work on. No suggestion, however trivial or capricious, should be overlooked if it leads investigators in new directions. Manufacturers of drugs and apparatus are eager for suggestions from medical men. The Rockefeller Institute for Medical Research has sponsored a series of conferences between physicians and manufacturers of apparatus of various kinds. The fifth conference, for instance, held on February 21, 1956, dealt with electronic instrumentation in surgery. In connection with apparatus for surgical diathermy, a manufacturer remarked that there seemed to be no limit to what could be supplied in the way of current forms and strengths provided the requirements were sufficiently definite and the costs were within reason. Never before has humanity seemed so close to realizing the hope of seeing "alabaster cities gleam, undimmed by human tears."

---

1. Medical Research: A Midcentury Survey: vol. 1, American Medical Research: *In Principle and Practice*; vol. 2, Unsolved Clinical Problems: In Biological Perspective, published for American Foundation, Boston, Little, Brown & Company, 1955.
2. Saturday Evening Post, May 19, 1956, p. 9.
3. Infant Mortality: Each State and Territory, and Specified Possessions, 1953, Vital Statist.—Special Rep. 42:327 (Jan. 4) 1956.
4. Leading Causes of Death United States: Each State and Territory, and Specified Possessions, 1953, Vital Statist.—Special Rep. 42:302 (Dec. 27) 1955.

ORGANIZATION SECTION

A STATEMENT OF THE COMMITTEE ON AGING

At the June, 1955, session of the House of Delegates of the American Medical Association a resolution recommending the creation of a committee on geriatrics was adopted. As recommended, this committee was established under the Council on Medical Service. At the first meeting of the committee it became evident that the scope of its studies should be broader than the field inferred by the term geriatrics.

Unfortunately, geriatrics suggests the limited field of caring for the aged. It is a term that most serious students of aging avoid except to designate care of those far spent in their life content and activities. It probably has a certain utility but is not a stimulating title that can arouse the interest of members of the medical profession. After a thorough discussion, the committee recommended that its title be changed to that of Committee on Aging. This title was approved by the House of Delegates at the June, 1956, session.

Individuals, like institutions, may become obsolete—passé. Even then, these aged individuals have certain definite and important medical, housing, social, and emotional needs. Changes in the human body, in personality, and in social functions occurring as the individual grows and develops have introduced important new dimensions in medical science. As a result, problems of aging are multidimensional. As one national authority points out, these problems require not only a multiple disciplinary approach but also a correlating of diverse findings and planning for action. Information concerning the biological, psychological, and social processes bearing on the early years of human existence has increased our understanding of this period of human life. Control of the diseases, disorders, and deficiencies of the early years has created the opportunity for more and more individuals to live longer.

Gerontology concerns the scientific study of the phenomena of aging. All living matter changes with time in both structure and function, and the changes that follow a general trend constitute aging. Aging begins with conception and ends only with death. Growth, development, and maturation are thus a part of the aging process just as much as are atrophy and degeneration. The problems of gerontology extend from questions of changes in enzyme systems within individual cells to important social and economic problems of the interrelationships between aged people themselves and other members of society.

The medical profession has a unique opportunity, as well as an obligation, to study the medical, biological, psychological, and social aspects of growing older. Data concerning energy maintenance, fatigue control, and the preservation of specific motivation are needed. In the medical area the four most common disorders are (1) vascular deterioration, (2) cancer, (3) arthritis and rheumatism, and (4) mental disorders. Medical research should continue to study more and more the most common disorders of senior citizens.

Members of the medical profession should inform themselves of the great amount of study that has been devoted to problems of aging not only by physicians but also by sociologists, psychologists, social service workers, and political leaders. American medicine can play a practical and important part in enriching the lives of older citizens. Indeed, physicians should be expected to assume full leadership in all phases of this problem.

With some of these thoughts in mind the Committee on Aging has set forth the following objectives:

1. To explore problems concerned with the medical, biological, psychological, and social aspects of aging
2. To collect data concerning energy maintenance, fatigue control, and the preservation of specific motivation.
3. To promote research in these areas.
4. To inform the medical profession of the availability of information regarding the aging process.
5. To stimulate medical society interest in the problems of aging.
6. To impress upon the practicing physician the important role he can play by assuming community leadership to enrich the lives of older citizens.

HEALTH PLAN COMMISSION MAKES FIELD STUDIES

A subcommittee of the Commission on Medical Care Plans, appointed by the Board of Trustees of the American Medical Association in November, 1954, met in New York City June 29-July 1 to explore the possibility of conducting field studies of the many so-called independent plans having sponsors such as unions, management, and fraternal organizations. The committee members met with representatives of various medical societies to discuss local developments in

---

The members of the Committee on Aging are: Drs. Henry B. Mulholland, Chairman, Charlottesville, Va.; Edward L. Bortz, Philadelphia; Henry A. Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; Theodore G. Klumpp, New York; Cecil Wittson, Omaha; and Frederick C. Swartz, Lansing, Mich.

this particular area of medical service. Committee members also visited several union health centers, management-sponsored health centers, and a number of group practice units connected with the Health Insurance Plan of Greater New York. Additional visits and conferences of this type are being planned by the subcommittee, the members of which are Drs. H. Russell Brown, Watertown, S. D., Chairman; John F. Conway, Clovis, N. Mex.; F. J. Elias, Duluth, Minn.; and Leo Price, New York. Working with the subcommittee in New York was Dr. Leonard W. Larson, Bismarck, N. D., a member of the Board of Trustees and Chairman of the Commission on Medical Care Plans. The Commission filed a progress report at the A. M. A. Clinical Session in Boston, which appeared in the Dec. 3, 1955, issue of THE JOURNAL, page 1370.

INAUGURATION FILM AVAILABLE

A 30-minute film recording of Dr. Dwight H. Murray's inauguration as President of the American Medical Association is available for showing to medical society audiences. The high-quality Kinescope of a local telecast includes the induction ceremony, Dr. Murray's inaugural address, and the presentation of the 1956 Distinguished Service award to Dr. Walter L. Bierring. The presidential inauguration took place during the Annual Meeting in Chicago, June 12.

WORLD MEDICAL ASSOCIATION CONVENTION

PROVISIONAL AGENDA

10TH GENERAL ASSEMBLY

THE

WORLD MEDICAL ASSOCIATION

held at

Latin American Culture House

Ave. de Los Presidentes and Calle Tercera

Havana, Cuba

October 9-15, 1956

OPENING SESSION

October 10th at 10:00 A. M. (1000)

WELCOME TO DELEGATES

1. Call to Order and Welcome to Delegates by DR. KARL NIEDERBERGER (Austria), President.
2. Greetings:

RETURN OF DELEGATES

3. Receive: The list of delegates, alternate delegates and observers appointed by member associations and other bodies. (Doc 33.1/56)

STANDING ORDERS

4. Adopt: Standing Orders of The World Medical Association

AMENDMENTS TO ARTICLES AND BY-LAWS

5. Consider: Adoption of Paragraph II and III of By-Law 19 (Constitution and By-Laws)
6. Consider: Amendment to Article 5, subsection (ii) and By-Law 2 (Doc 32.2/56)

ELECTION AND INSTALLATION OF PRESIDENT

7. Elect: President for 1956-57
8. Install: President for 1956-57
9. Presidential Address

PRESIDING OFFICER

10. Consider: Desire of President relative to election of a Presiding Officer (By-Law 18; Doc 32.50/56).

Should the President desire to evoke By-Law 18 during the 10th General Assembly the following items should be considered.

11. Consider: Presidential Nomination of member of 10th General Assembly to preside over the business transactions of the Assembly;
12. Consider: Confirmation by General Assembly of President's Nomination;
13. Install: Presiding Officer

GREETINGS

14. Greetings: Extended by the President to the Observers of international and national organizations in attendance. (Due to limitation of time and heavy business agenda of the General Assembly, International and National Observers will not be able to address the Assembly at this time.
    Organizations desiring messages extended to the 10th General Assembly are invited to transmit these to the Secretary General for inclusion in the Official Minutes.)

APPLICATION FOR MEMBERSHIP

15. Consider: Recommendations of the Council that applications of National Medical Associations approved by the Council be received into full membership in The World Medical

Association (Constitution and *By-Laws, Articles 4 and 5;* By-Laws 1, 2 and 15)
New Zealand Branch
) Doc 31.1/56
British Medical Association)

16. Receive: *Delegates*, and Alternate Delegates of New Member Associations.

MINUTES

17. Consider: Minutes of the 9th General Assembly held *in* Vienna, Austria, September 20-26, 1955, as compiled by the Secretary General and distributed (Doc 4.10/56) with the corrections received (Doc 4.10A/56)

ANNUAL REPORTS TO THE GENERAL ASSEMBLY

18. Consider: Annual Report of the Council to the General Assembly
Dr. Lorenzo Garcia-Tornel (Spain) Chairman of Council. (Doc 6.50/56)

19. Consider: Supplementary Report of the Council to the General Assembly (Doc 6.51/56)

20. Consider: Reports of Regional Secretaries

A. Asia	Dr. S. C. Sen (India) (Doc 7.10; 7.10A/56)
B. Australasia	Dr. J. G. Hunter (Australia) (Doc 7.20; 7.21/56)
C. Europe	Dr. P. Cibrie (France) (Doc 7.30/56C)
D. Latin America	Dr. Hector Rodriguez (Chile) (Doc 7.40; 7.40A/56)

21. Consider: Reports of Executive Editor and the *Editorial* Board of *World Medical Journal,* Dr. Austin Smith (USA) (Doc 9.1; 9.2/56)

22. Consider: Report of the Business Manager of *World Medical Journal,* Dr. Louis H. Bauer (USA) (Doc 9.10/56)

23. Consider: Annual Financial Reports
Reports of the Treasurer, Dr. Otto Leuch (Switzerland)

    A. Financial Statement as of December 31, 1955
    (Doc 5.1/56)

    B. Closing of accounts of 1955
    (Doc 5.2/56)

    C. Auditors Report for 1955 (*World Medical Journal,* September 1956, Page 204)

    D. Remarks of the Treasurer
    (Doc 5.3/56)

    E. Tentative Budget for 1957
    (Doc 5.5/56)

24. Receive: Annual Report of WMA Supporting Committees

    A. United States Committee, Inc.
    (Doc 5.10/56)

    B. Canadian Supporting Committee
    (Doc 5.50/56)

    C. Report of other supporting Committees

25. Consider: Council Committee Reports;

    A. Report of the Planning and Finance Committee, Dr. Otto Leuch (Switzerland) Chairman, (Doc 18.3/56)

    B. Report of the Medical Education Committee, Sir Lionel Whitby (UK) Chairman (Doc 11.2/56)

    C. Report of Miscellaneous Business Committee, Dr. Otto Rasmussen, (Denmark), Chairman (Doc 16.3/56)

    D. Report of Medical Ethics Committee, Dr. P. Glorieux, (Belgium), Chairman, (Doc 17.-/56)

    E. Report of International Liaison Committee, Dr. Jean Maystre, (Switzerland), Chairman (Doc 15.3; 15.4/56)

26. Consider: Report of Observers to other international organizations

    A. Dr. Jean Maystre (Switzerland)—Official Liaison Officer
        1. WHO (Doc 8.30; 8.30A/56)
        2. ISSA (Doc 8.32; 8.33/56)
        3. ILO (Doc)
        4. others ( )

    B. Dr. P. Cibrie (France)
    UNESCO and CIOMS (Doc 8.10/56)

    C. Dr. P. Glorieux (Belgium)
    International Congress of Military Medicine and Pharmacy

GENERAL ASSEMBLY COMMITTEE

27. Consider: Report of the General Assembly Committee on Social Security (Doc 10.1/56)

28. Receive: Report on The Role of the Medical Profession in any Medical Care Plan.

    A. *The Status of the Profession in Social* Security Schemes in Latin America, Dr. Hector Rodriguez (Chile) (Doc 10.2/56)

    B. Freedom of the Medical Profession and Medical Care Plans, Dr. Rolf Scholegell (Germany) (Doc 10.3/56)

MOTIONS FROM MEMBER ASSOCIATIONS

29. Consider: Motions from Member Associations

SELECTION OF MEETING PLACE AND ELECTION

30. Consider: Confirmation of Selection of Istanbul, Turkey, as venue of 11th General Assembly in 1957.

31. Consider: *Motion to* approve Council recommendation of Venue for 12th General Assembly in Copenhagen, Denmark, in 1958.

32. Election: Elect

    A. President-Elect 1956-57

B. Treasurer and Members of Council for three (3) years

Those whose terms expire in 1956 are:

Treasurer Dr. Otto Leuch (Switzerland)

Members of Council*

Dr. Lorenzo Garcia-Tornel (Spain)
Dr. Gunnar Gundersen (USA)
Dr. A. Mantellos (Greece)
*Dr. S. C. Sen (India)

*A regional vacancy exists in the Asiatic area and must be filled by a candidate from that area. The other three vacancies can be filled from any area.
(Doc 60.1; 60.2; 60.3; 60.4/56)

NEW BUSINESS

33. Consider: Any New Business

MINUTES

34. Consider: Motion that the Secretary General be empowered to prepare the Minutes of the 10th General Assembly for distribution subject to correction at the 11th General Assembly.

ADJOURNMENT

35. Consider: Motion for adjournment.

AGENDA
OF
SEVENTH ANNUAL CONFERENCE
OF
MEDICAL EDITORS

Latin American Culture House

Ave. de Los Presidentes and Calle Tercera

Havana, Cuba

October 11, 1956

9:30 A. M.–12:00 Noon

(0900–1200)

Chairman: Dr. Saturnino Picaza Del Pino
Director of Journal; *Annals of the Academy of Physical, Natural and Medical Sciences of Havana.*

Secretary: Dr. Austin Smith (USA)
Editor, *World Medical Journal* and *Journal of the American Medical Association.*

Subject: *Pan American Medical Publication Problems*

A cordial invitation is extended to all delegates, alternate delegates and observers to the 10th General Assembly to attend this meeting. The problems to be considered are not limited to Editors of Medical Publications, the practicing Doctor as the "Consumer" and "Contributor" to medical journals will be interested in the topics developed at this meeting.

I

LATIN AMERICAN PROBLEMS IN EDITING MEDICAL JOURNALS

by

Dr. Agustin Delacroix, h (Argentina)
Director: *Journal of the Argentina Medical Confederation*

Discussants: Dr. Ernst Fromm (Germany)
Hamburger Arzteblatt
Dr. Yasusaburo Sugi (Japan)
Journal of Japan Medical Association

General Discussion

II

THE SCIENTIFIC MEDICAL ARTICLE AND MEDICAL ETHICS

by

Dr. Rafael Lopez Ruiz (Colombia)
Editor: *Pan American Medical Confederation Journal*
Former Director: *Heraldo Medico*

Discussants: Dr. Felix Worré (Luxembourg)
Bulletin du Syndicat Medical
Dr. Viljo Rantasalo (Finland)
Finland Lakartidning

General Discussion

III

THE PAN AMERICAN CONFEDERATION JOURNAL AS A MEANS OF MEDICO-SOCIAL ADVANCEMENT IN LATIN AMERICA

by

Dr. Leopoldo E. Araujo (Cuba)
Editorial Board Member: *Pan American Medical Confederation Journal.*

General Discussion

IV

Consider: Any other business or discussion

V

Adjournment

LUNCHEON

A Luncheon, sponsored by the Nepera Chemical Company, Yonkers, New York, with Mr. Milton Lasdon as the Host will be held at the close of the meeting.
Participants in the Seventh Medical Editor's Meeting are invited to attend this Luncheon.

Reservations for the luncheon must be made in advance.

SCIENTIFIC PROGRAM
AT
10TH GENERAL ASSEMBLY

Latin American Culture House

Havana, Cuba

Friday, October 12, 1956

9:30 A. M.–1:00 P. M.

(0930–1300)

Chairman: Dr. Vicente Banet Pina
Professor of Clinicial Surgery, University of Havana.

I

SYMPOSIUM
PATHOLOGY IN PREMATURITY

A. *Causes of Death of the Premature in Cuba*

1. Dr. Emilio Soto Pradera
Member of the Cuban Pediatrics Society; Havana Society of Clinical Studies; American Academy of Pediatrics.

2. Dr. Federico Fuste Amieba
Pathologist, Obrera Maternity Clinic of Havana and Cuba Mental Hospital; Member of the Cuban Pediatrics Society.

3. Dr. Jose R. Montalvo
Member of the Cuban Pediatrics Society and the American Academy of Pediatrics.

B. *Infections of the Premature Infant*

1. Dr. Rene Montero De La Pedraja
Fellow–American Academy of Pediatrics

2. Dr. Carlos Montalvo Sotolongo
Professor of Pediatrics, University of Havana, School of Medicine; Staff Member–Havana Municipal Hospital for Children.

3. Dr. Jorge Beato Nunez
Instructor of Pediatrics, University of Havana, School of Medicine.

C. *Erythroblastosis and Kernicterus*

1. Dr. Serafin Falcon Lopez
Chief of Service of the Municipal Infants and Maternity Hospital of Havana "America Arias"; Member of the Cuban Pediatrics Society, the French Pediatrics Society and the American Academy of Pediatrics.

2. Dr. Julio Cornejo Gonzalez
Professor of Pediatrics at Our Lady of Mercy Hospital; Member of the Cuban Pediatrics Society.

3. Dr. Juan Bencomo Garcia
Chief of Blood Bank Municipal Maternity Hospital "America Arias" and Chief of Laboratories of General Pathology. Professor of Summer School at the University of Havana, School of Medicine.

4. Dr. Israel Borrajero
Pathologist, Municipal Maternity Hospital "America Arias," Havana.

D. *Hemorrhagic Disturbances of the Premature*

1. Dr. Angel A. Aballi Garcia Montes
Associate Professor, Faculty of Medicine, University of Havana; Member of Havana Society of Clinical Studies and Cuban Pediatrics Society.

2. Dr. Valeriano Lopez Banus
Staff Member, Infant and Maternity Division of University Hospital "General Calixto Garcia"

3. Dr. Sergio De Lamerens Zayas
Professor of Pediatrics, University of Havana, School of Medicine.

4. Dr. Israel Borrajero
Pathologist, Municipal Maternity Hospital "America Arias," Havana.

II

SYMPOSIUM
CARDIOVASCULAR SURGERY

A. *Cardiovascular Surgery in Cuba*

Professor Vicente Banet Pina, Past President–Nacional Medical College; Professor of Clinical Surgery, University of Havana, School of Medicine; Member of Havana Academy of Physical, Natural and Medical Sciences.

B. *Tetralogy of Fallot*

1. Dr. Agustin Castellanos
Professor of Pediatrics, University of Havana; Director, Municipal Hospital for Children.

2. Dr. Angel Giral Casielles
Member of Executive Committee, National Medical College. Chief Surgeon, Cardiovascular and Chest Disease, Municipal Childrens Hospital.

C. *Pulmonary Stenosis*

1. Dr. Rodrigo Bustamante, M. R. C. P. (EDIN)
Cardiologist–University Hospital and "Lila Hidalgo" Hospital.

2. Dr. Armando Nunez Nunez
President–Cuban Angiology Society

D. *Inter-Auricular Communication*

1. Dr. Otto Garcia Diaz
Internist–Municipal Children's Hospital of Havana.

2. **Dr. Antonio Rodriguez Diaz**
Director—Institute of Cardiovascular and Chest Surgery.

E. *Mitral Stenosis*

1. **Dr. Frank Barrera**
Former Instructor, Temple University of Philadelphia; Chief—Department of Cardiology and Experimentation, Institute of Cardiovascular and Chest Surgery.

2. **Dr. Hilario Anido**
Chief Surgeon, Institute of Cardiovascular and Chest Surgery; Secretary National Society of Surgery.

F. *Anesthesia in Cardiovascular Surgery*

Dr. Francisco Gutierrez Pelaez
Anesthesiologist—Municipal Maternity Hospital "America Arias" and Cardiovascular Surgeon, Institute of Cardiovascular and Chest Surgery.

Travel Information

HAVANA, CUBA

Population: 674,376 Altitude: Sea level

Immigration. U. S. citizens require proof of nationality, round trip ticket or onward transportation, and documentation to country beyond Cuba.

Note: A passport is required of U. S. citizens who are racially Chinese. A smallpox certificate, not less than 8 days nor more than 3 years old, is required for return to the U. S.

General Information:

Language—Spanish. English is generally spoken by those in public activities. Special English-speaking police are on hand to help tourists.

Havana—The capital of Cuba, is a city of fun, sunshine and sociability.

Hotels—There are nine leading hotels in Havana, they are luxurious, beaches fine, food and drink among the best in the world. Everything is done to make your stay enjoyable. Almost all hotels have laundry and dry cleaning service.

Church—There are churches of nearly all major denominations, as well as a synagogue.

Climate—The temperature ranges from an average of 72° in January to an average high of 82° in July and August.

Currency—Monetary unit is the Peso—on a par with the U. S. dollar. Business travelers may take out of Cuba only $50.00 U. S. currency. All excess must be in travelers checks, money orders, etc.

Duty Free Imports—Tobacco, no restrictions—Cameras, no restrictions—Liquor, no restrictions.

AIR FLIGHTS

U. S. CARRIERS

PAN AMERICAN WORLD AIRWAYS

	Daily	Su We-Fr	Daily	Daily	Mo-Fr	Daily	Mo-We Th-Sa	Su-Tu Fr	Daily
	Super 6	Super 6	Convair	Super 6	Convair	Super 6	Super 6	Super 6	Convair
Flight No.	411	505	413	415	513	417	434	436	421
Miami Lv.	8:00am	9:15am	10:00am	11:45am	1:00pm	3:40pm	5:40pm	5:40pm	7:15pm
Havana Ar.	9:00am	10:15am	11:07am	12:45pm	2:07pm	4:40pm	6:40pm	6:40pm	8:22pm

	Daily	Su-Tu We-Fr	Mo-Th Sa	Daily	Daily	Daily	Tu-Th Sa	Mo-Fr	Daily
	Convair	Super 6	Super 6	Convair	Super 6	Super 6	Super 6	Convair	Super 6
Flight No.	412	433	435	414	414	418	506	514	422
Havana Lv.	8:00am	9:45am	9:45am	11:45am	1:40pm	5:30pm	6:45pm	9:15pm	9:00pm
Miami Ar.	9:03am	10:45am	10:45am	12:45pm	2:40pm	6:30pm	7:45pm	10:18pm	10:00pm

DELTA AIRLINES

	Daily		Daily
Flight No.	751	Flight No.	750
New Orleans	Lv. 9:50pm	Havana	Lv. 3:08pm
Havana	Ar. 1:13am	New Orleans	Ar. 4:27pm

NATIONAL AIRLINES

	Daily		Daily		Daily (tourist)
Flight No.	451	Flight No.	351	Flight No.	501
New York	Lv. 5:30pm	Miami	Lv. 6:45pm	Miami	Lv. 2 pm
Havana	Ar. 8:50pm	Havana	Ar. 7:50pm	Havana	Ar. 2:58pm

	Daily		Daily		Daily
Flight No.	450	Flight No.	352	Flight No.	504
Havana	Lv. 10:30am	Havana	Lv. 11:30am	Havana	Lv. 4 pm
New York	Ar. 3:50pm	Miami	Ar. 12:35pm	Miami	Ar. 4:58pm

AIR FARE: ROUND TRIP

CHICAGO - HAVANA - CHICAGO

First Class	Tourist Class
$183.20	$136.60
Tax 18.32	Tax 13.66
$201.52	$150.26

NEW YORK - HAVANA - NEW YORK

First Class	Tourist Class	30 Day Excursion (first class)
$180.80	$137.00	$146.50
Tax 18.08	Tax 13.70	Tax 14.65
$198.88	$150.70	$161.15

MIAMI - HAVANA - MIAMI

First Class	Tourist Class
$36.00	$20.00
Tax 3.60	Tax 2.00
$39.60	$22.00

SCIENTIFIC PROGRAM
AT
10TH GENERAL ASSEMBLY

Latin American Culture House

Havana, Cuba

Friday, October 12, 1956

9:30 A. M.–1:00 P. M.

(0930–1300)

Chairman: Dr. Vicente Banet Pina
Professor of Clinicial Surgery, University of Havana.

I

SYMPOSIUM

PATHOLOGY IN PREMATURITY

A. *Causes of Death of the Premature in Cuba*

1. Dr. Emilio Soto Pradera
Member of the Cuban Pediatrics Society; Havana Society of Clinical Studies; American Academy of Pediatrics.

2. Dr. Federico Fuste Amieba
Pathologist, Obrera Maternity Clinic of Havana and Cuba Mental Hospital; Member of the Cuban Pediatrics Society.

3. Dr. Jose R. Montalvo
Member of the Cuban Pediatrics Society and the American Academy of Pediatrics.

B. *Infections of the Premature Infant*

1. Dr. Rene Montero De La Pedraja
Fellow–American Academy of Pediatrics

2. Dr. Carlos Montalvo Sotolongo
Professor of Pediatrics, University of Havana, School of Medicine; Staff Member–Havana Municipal Hospital for Children.

3. Dr. Jorge Beato Nunez
Instructor of Pediatrics, University of Havana, School of Medicine.

C. *Erythroblastosis and Kernicterus*

1. Dr. Serafin Falcon Lopez
Chief of Service of the Municipal Infants and Maternity Hospital of Havana "America Arias"; Member of the Cuban Pediatrics Society, the French Pediatrics Society and the American Academy of Pediatrics.

2. Dr. Julio Cornejo Gonzalez
Professor of Pediatrics at Our Lady of Mercy Hospital; Member of the Cuban Pediatrics Society.

3. Dr. Juan Bencomo Garcia
Chief of Blood Bank Municipal Maternity Hospital "America Arias" and Chief of Laboratories of General Pathology. Professor of Summer School at the University of Havana, School of Medicine.

4. Dr. Israel Borrajero
Pathologist, Municipal Maternity Hospital "America Arias," Havana.

D. *Hemorrhagic Disturbances of the Premature*

1. Dr. Angel A. Aballi Garcia Montes
Associate Professor, Faculty of Medicine, University of Havana; Member of Havana Society of Clinical Studies and Cuban Pediatrics Society.

2. Dr. Valeriano Lopez Banus
Staff Member, Infant and Maternity Division of University Hospital "General Calixto Garcia"

3. Dr. Sergio De Lamerens Zayas
Professor of Pediatrics, University of Havana, School of Medicine.

4. Dr. Israel Borrajero
Pathologist, Municipal Maternity Hospital "America Arias," Havana.

II

SYMPOSIUM

CARDIOVASCULAR SURGERY

A. *Cardiovascular Surgery in Cuba*

Professor Vicente Banet Pina, Past President–Nacional Medical College; Professor of Clinical Surgery, University of Havana, School of Medicine; Member of Havana Academy of Physical, Natural and Medical Sciences.

B. *Tetralogy of Fallot*

1. Dr. Agustin Castellanos
Professor of Pediatrics, University of Havana; Director, Municipal Hospital for Children.

2. Dr. Angel Giral Casielles
Member of Executive Committee, National Medical College. Chief Surgeon, Cardiovascular and Chest Disease, Municipal Childrens Hospital.

C. *Pulmonary Stenosis*

1. Dr. Rodrigo Bustamante, M. R. C. P. (EDIN)
Cardiologist–University Hospital and "Lila Hidalgo" Hospital.

2. Dr. Armando Nunez Nunez
President–Cuban Angiology Society

D. *Inter-Auricular Communication*

1. Dr. Otto Garcia Diaz
Internist–Municipal Children's Hospital of Havana.

will speak on "Life Among the World Planners." The Kentucky Society of Anesthesiology will have as guest speaker Dr. Charles R. Stephen, Durham, N. C., who will discuss "Ventilation in Anesthesia." Dr. Louis A. Buie, Rochester, Minn., will consider "Office Practice in Proctology" before the Kentucky Academy of General Practice. The Kentucky Obstetrical and Gynecologic Society has scheduled a round table on obstetric difficulties, for which Dr. V. Edward Masters, Louisville, will serve as moderator. The scientific sessions will end Thursday afternoon with a panel discussion on upper gastrointestinal bleeding, moderated by Dr. Rudolf J. Noer, Louisville. An innovation at the annual meeting will be the presentation of scientific movies and of postgraduate refresher courses, including "The Management of Trauma," "Common Problems in Infants and Children," and "A Medical Symposium." The registration fee is $5. The woman's auxiliary will meet concurrently.

MASSACHUSETTS

Traineeships in Adolescent Care.—The Adolescent Unit at the Children's Hospital, 300 Longwood Ave., Boston 15, offers a general practice type of postgraduate training in the care of adolescents. A limited number of one-year traineeships are available to properly qualified physicians who have had two or more years of hospital experience after graduation from medical school. The teaching staff, including a gynecologist, endocrinologist, gastroenterologist, cardiologists, and psychiatrists, is directed by Dr. James R. Gallagher, to whom any inquiries should be sent.

Institute of Psychiatric Treatment.—The fourth annual Institute of Psychiatric Treatment will be presented in the Reception Building of the Boston State Hospital, Sept. 27-29, under the direction of Drs. Leo Alexander and Robert E. Arnot. Presentations by out-of-state speakers will include:

Ambulatory Treatment with Tranquilizing Drugs, Frank J. Ayd Jr., Baltimore.
Role of the Conditional Reflex in the Mechanism of Mental Illness and Therapy, W. Horsley Gantt, Baltimore.
Psychotherapy, Hans Lowenbach, Durham, N. C.
Demonstrations: Electric Sleep, Paul H. Wilcox, Traverse City, Mich.
Clinical Use of the New Drugs, Including Chlorpromazine and Reserpine, in the Major Psychoses, Nathan S. Kline, New York City.
Hypnosis (with clinical demonstration), Milton H. Erickson, Phoenix, Ariz.

Cocktails and dinner at the Harvard Club have been scheduled for 6:30 p. m. Friday. A review of experiences in organizing a treatment and research service at the Philadelphia State Hospital will be presented by Dr. Irving M. Rosen. The registration fee for the institute is $35. Further information may be obtained from Dr. Alexander at 433 Marlborough St., Boston.

MICHIGAN

Increase in Typhoid.—The Michigan Department of Health reports that the number of typhoid cases in Michigan is larger than at any time in the last 10 years. The number of cases in Michigan from January through Aug. 10 was 39, an increase of 24 over the same period in 1955 and the highest incidence since 1947. All typhoid cases reported in Michigan during 1956 have occurred in the lower peninsula, where they have been distributed evenly with no concentration by localities.

State Medical Meeting in Detroit.—The 91st annual session of the Michigan State Medical Society will convene Sept. 26-28 at the Sheraton-Cadillac Hotel, Detroit, under the presidency of Dr. William S. Jones, Menominee. On Wednesday, which has been designated General Practice Day, the following presentations will be made:

Perry S. MacNeal, Philadelphia, Diseases of the Adrenal Gland.
Francis R. Keating Jr., Rochester, Minn., Clinical Problem of Primary Hyperparathyroidism.
Seward E. Miller, Washington, D. C., The GP in Chronic Disease and Disabilities in Industry.
John K. Lattimer, New York, Chemotherapy of Renal Tuberculosis.
John P. Caffey, New York, Infantile Cortical Hyperostosis: Chronic and Prenatal Types.
Somers H. Sturgis, Boston, Psychosomatic Aspects of Gynecology.
Edwin J. DeCosta, Chicago, The Thyroid Gland in Pregnancy.
Otis L. Anderson, Washington, D. C., Chronic Disease, a Challenge to the Medical Profession.

The Thursday session will open with a surgical panel on thyroid diseases, moderated by Dr. Frederick A. Coller, Ann Arbor, with Drs. Dwight E. Clark, Chicago, E. Perry McCullagh, Cleveland, and James H. Means, Boston, as participants. Dr. G. Slaughter Fitz-Hugh, Charlottesville, Va., will then present "Indications for Tracheotomy" and Dr. John R. Schenken, Omaha, "The Cystic Ovary—Surgical or Nonsurgical?" After the William Beaumont, M.D., Annual Lecture, "Clues and Pitfalls in the Diagnosis of Jaundice," by Dr. Leon Schiff, Cincinnati, Dr. Theodore F. Schlaegel Jr., Indianapolis, will discuss "The Etiology and Diagnosis of Endogenous Uveitis"; Dr. Warren E. Wheeler, Columbus, Ohio, "Bacterial Disease in the Newborn"; and Dr. M. Ralph Kaufman, New York, "Psychotherapies in a General Hospital." The Friday assembly will hear the following papers:

LeRoy A. Calkins, Kansas City, Kan., Prolonged Labor.
Averill A. Liebow, New Haven, Conn., Some Aspects of Diagnosis of Lung Tumors and Cancer.
Herbert Rattner, Chicago, The Art of Topical Therapy.
Edward P. Cawley, Charlottesville, Va., Milkers' Nodules.
Kenneth E. Appel, Ardmore, Pa., Medical and Psychiatric Collaboration—Importance and Possibility.
O. Sidney Orth, Madison, Wis., Physician Alertness to Altered Physiology During Anesthetization.

Discussion conferences (12-1 p. m.) have been scheduled daily. They will be led Wednesday by Dr. Harold C. Mack, Detroit, Thursday by Dr. Frederick A. Coller, Ann Arbor, and Friday by Dr. Harold Henderson, Detroit. The general sessions will end Friday afternoon with a cross country panel on Cardiovascular Diseases, for which Dr. John M. Murphy, Detroit, will serve as moderator. Drs. Arthur C. Corcoran, Cleveland, George R. Meneely, Nashville, Tenn., Charles A. Poindexter, New York, and Myron Prinzmetal, Beverly Hills, Calif., will participate. On Wednesday at 6:30 p. m. the officers' night reception will precede the informal banquet, honoring officers of the Michigan State Medical Society and its woman's auxiliary. The president's annual address and the Andrew P. Biddle Lecture will be delivered that evening. The Michigan State Medical Assistants Society will meet Sept. 26-27 for a program that will include presentations by Dr. James D. Fryfogle, Detroit, ("Facts and Figments of Heart Surgery") and Dr. W. W. Bauer, Chicago, Director of the American Medical Association Bureau of Health Education ("Stop Annoying Your Patients"). The woman's auxiliary will meet concurrently with the parent organization.

MINNESOTA

Society News.—The Minnesota chapter of the Arthritis and Rheumatism Foundation recently named Dr. Cecil J. Watson, Minneapolis, president; Dr. Charles H. Slocumb, Rochester, vice-president; and Dr. John M. Wolff, Duluth, second vice-president.——The Twin City Radiological Society was recently organized by radiologists active in St. Paul and Minneapolis. The organization will hold quarterly meetings. Dr. Cyrus O. Hansen, Minneapolis, was elected chairman and Dr. Leo A. Nash, St. Paul, secretary.

NEW YORK

Society News.—Dr. Thurman B. Givan, Brooklyn, president-elect of the Medical Society of the State of New York, will be the principal speaker during the dinner at the annual meeting of the eighth district branch of the state medical society, Sept. 27 at the Bartlett Country Club, Olean. The scientific session, 2-5 p. m., will include the following presentations by guest speakers:

Cytologic Diagnosis of Malignancy, Thomas R. Simon, director of cytology, Memorial Center for Cancer and Allied Diseases, New York City.
The Tranquilizing Drugs, George B. Koelle, professor of pharmacology, University of Pennsylvania Graduate School of Medicine, Philadelphia.
The Surgical Risk in Patients with Cirrhosis of the Liver, Woodrow W. Lindenmuth, chief of surgical service, Veterans Administration Hospital, West Haven, Conn.

New York City

Visiting Professor of Physiology.—Dr. Jose del Castillo of London, England, has been appointed visiting professor of physiology at the State University of New York College of Medicine at New York City, Brooklyn, for one year, beginning on Sept. 1. A professor in the department of biophysics at University College, London, Dr. del Castillo has been on the faculties of the University of Salamanca, Spain; Middlesex Hospital Medical School, London; and the University of Bern, Switzerland.

Conference on Rehabilitation.—Rehabilitation of sick and injured workers will be the subject of a conference called by Miss Angela R. Parisi, chairman, New York State Workmen's Compensation Board, at the Sheraton-Astor Hotel, Sept. 27. Participants in the conference will include Dr. Paul H. Hoch, New York state commissioner of mental hygiene; Dr. Howard A. Rusk, director, Institute for Physical Medicine and Rehabilitation; Dr. Henry H. Kessler, director of the Kessler Institute, West Orange, N. J.; Assemblyman John Ostrander, chairman, joint legislative committee on industrial and labor conditions; Mr. Joseph Shaw, Associated Industries of the State of New York; and Mr. Thomas Jefferson Miley, president of the Commerce and Industry Association.

OHIO

Meeting of General Practitioners.—The sixth annual scientific assembly of the Ohio Academy of General Practice will be held in the new Franklin County Veterans Memorial Auditorium, Sept. 19-20. The banquet will be at the Deshler-Hilton Hotel Wednesday. Presentations by out-of-state speakers during the scientific sessions will include:

Trends in Pediatric, Adult, and Geriatric Nutrition, Thaddeus D. Labecki, Jackson, Miss.
Herniated Lumbar Intervertebral Disk Problem, Harold R. Oberhill, Chicago.
Abnormal Uterine Bleeding, Frederick H. Falls, Chicago.
Management of Congestive Heart Failure, E. Hugh Luckey, New York.
Cancer Detection in the Office of the Generalist, John S. DeTar, Milan, Mich.
Office Management of Leukorrheas, Leslie V. Dill, Washington, D. C.
Treatment and Prevention of Lateral Rotation of Legs and Flatfeet in Small Children, Joseph H. Kite, Atlanta, Ga.
Psychotherapy in General Practice, Vernon P. Williams, Boston
Hypnosis for the General Practitioner, Seymour Hershman, Chicago.
Premalignant Lesions of the Rectum and Colon, Charles W. Mayo, Rochester, Minn.

RHODE ISLAND

Hospital Reunion.—The reunion of former interns, residents, and fellows of the Rhode Island Hospital, Providence, is scheduled for Sept. 28-29. Plans are being formulated for professional programs at the hospital on Friday morning and afternoon and on Saturday morning. The main social event will be a shore dinner at the Squantum Club for the homecomers and their wives.

VIRGINIA

Society News.—The Virginia Society of Ophthalmology and Otolaryngology recently elected Dr. L. Benjamin Sheppard, Richmond, president; Dr. Emanuel U. Wallerstein, Richmond, president-elect; Dr. Calvin T. Burton, Roanoke, vice-president; and Dr. Maynard P. Smith, Richmond, secretary-treasurer.

Personal.—At its annual meeting the Virginia Tuberculosis Association bestowed on Dr. Charles P. Cake, Washington, D. C., the Douglas Southall Freeman award for his efforts in tuberculosis control. Dr. Cake, who is president of the Southern Tuberculosis Association, is a past president of the Arlington County Medical Society, the Community Chest, Metropolitan Washington TB Conference, Virginia Trudeau Society, and the Swanson Parent-Teacher Association. During World War II he served as chief of the tuberculosis division, U. S. Public Health Service Hospital, Staten Island, N. Y.

Conference on Obstetrics and Gynecology.—The University of Virginia School of Medicine, Charlottesville, will have a Conference on Obstetrics and Gynecology Sept. 28. Guest speakers include Dr. Charles H. Mauzy, associate professor of obstetrics and gynecology, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.; Dr. Robert A. Kimbrough Jr., chairman, department of obstetrics and gynecology, University of Pennsylvania Graduate School of Medicine, Philadelphia; and Dr. Andrew A. Marchetti, professor of obstetrics and gynecology, Georgetown University School of Medicine, Washington, D. C.

WASHINGTON

Symposium on Heart Disease.—The eighth annual Symposium on Heart Disease will be presented Sept. 28-29 at the University of Washington Medical School Auditorium in Seattle by the Washington State Heart Association and the Washington State Department of Health. The themes of the symposium, "Peripheral Vascular Disease" and "Congenital Heart Disease," will be developed in papers, panel sessions, and question periods by the following speakers: Drs. Frederic H. Bentley, Portland, Ore., S. Gilbert Blount Jr., Denver; Denton A. Cooley, Houston, Texas, C. Walton Lillehei, Minneapolis; and J. Lowell Orbison, Rochester, N. Y. The symposium is in category I of the Academy of General Practice; credit can be earned hour for hour for attendance. There will be no registration fee. The Minnesota football game will be played at the University of Washington on Saturday.

WEST VIRGINIA

Hospital News.—Dr. Robert G. Blackwelder, Marion, Va., has been appointed superintendent of the Andrew S. Rowan Memorial Home at Sweet Springs, succeeding Dr. Edward E. Rose, formerly of Huntington, who resigned because of ill health. Dr. Blackwelder served as a member of the staff at Huntington State Hospital in Huntington from 1933 until 1939. Since October, 1954, he has been clinical director of the Southwestern State Hospital at Marion. He has also served as superintendent of the State Hospital at Raleigh, N. C., and of the Eastern Shore State Hospital at Cambridge, Md.

Society News.—Mr. Oliver Matthews, Kingwood, was recently elected president of the West Virginia Public Health Association, Dr. Bruce H. Pollock, Huntington, first vice-president, Mrs. Oletta M. Riffe, second vice-president; and Mrs. Katherine L. Brown, treasurer.——At the annual meeting of the West Virginia chapter of the American College of Surgeons Dr. Charles M. Scott, Bluefield, was elected president; Dr. Charles D. Hershey, Wheeling, vice-president; and Dr. Kenneth G. MacDonald, Charleston, secretary-treasurer.——The annual regional meeting of the West Virginia chapter of the American College of Physicians will be held at the Daniel Boone Hotel in Charleston, Sept. 29. The scientific session will open with "Acryoglobulin with Unusual Characteristics Associated with a Rare Hematological Disorder" by Dr. Edgar L. Crumpacker, Mary L. Petermann, Ph.D., and Dr. W. D. Irvine, the Greenbrier Clinic, White Sulphur Springs. It will close with "Coal Workers' Pneumoconiosis" by Dr. Peter P. Ladewig, pathologist, Laird Memorial Hospital, Montgomery. A cocktail party at 6 p. m. will precede dinner, 7 p. m., at the Edgewood Country Club. The guest speaker will be an officer of the American College of Physicians.

GENERAL

Conference on Occupational Therapy.—The 1956 conference of the American Occupational Therapy Association will be held Sept. 29–Oct. 5 at the Nicollet Hotel, Minneapolis. The theme of the conference will be "Time for Reflection," and the topics will include: Occupational Therapy in Relation to General Medicine and Surgery, Geriatrics, Pediatrics, Physical Disabilities, and Psychiatry.

Mid-Continent Psychiatric Association.—The Mid-Continent Psychiatric Association will hold its annual meeting at the Velda Rose Motel, Hot Springs, Ark., Sept. 21-23 under the presidency of Dr. Harold W. Sterling, North Little Rock, Ark. Members of the Arkansas Psychiatric Society will act as hosts. Speakers will include Dr. Nathan W. Ackerman, New York City, Dr Ewing H. Crawfis, Cleveland; Dr. Leopold N. Judah, North Little Rock, Ark.; Dr. Jules H. Masserman, Chicago, Dr. Richard C. Proctor, Winston-Salem, N. C.; Drs. William G. Reese, Terry C. Rodgers, and William P. Kolb, Little Rock, Ark.; Dr. Martin L. Towler, Galveston, Texas; Dr. Jack P. Whisnant, Rochester, Minn., and Dr. Charles D. Yobe, Hot Springs National Park, Ark.

Medical Writers Association Meeting in Chicago.—The American Medical Writers' Association will hold its 13th annual meeting at the Hotel Morrison, Chicago, Sept. 28 and its workshop

Sept. 29. Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will address the evening meeting, which will be preceded by a social hour (compliments of the Schering Corporation). Other speakers will include:

Austin E. Smith, Chicago, Role of an Official Journal.
Johnson F. Hammond, Chicago, The Make-Up of the J. A. M. A.
Mr. Gilbert S. Cooper, Chicago, Tables and Illustrations.
Mr. L. B. Murdock, Chicago, Problems of the Medical Manuscript Editor.
Morris Fishbein, Chicago, The Editorials of Medical Journals.
Harold Swanberg, Quincy, Ill., The A. M. W. A. Manuscript Editing Service.
Paul D. White, Boston, Experiences with Science Writers, Medical and Lay, and with the Press.
Alton Blakeslee, B.A., New York, Interpreting Medical Science for the Public.
Jonathan Forman, Columbus, Ohio, Workshops in Medical Writing for Medical Societies.
Sholom O. Waife, Indianapolis, Problems and Prospects in Specialty Journal Editing.
Jacques P. Gray, Detroit, The A. M. W. A. Visiting Lectureship.

Mississippi Valley Medical Meeting.—The 21st annual meeting of the Mississippi Valley Medical Society will convene at the Hotel Morrison, Chicago, Sept. 26-28 under the presidency of Dr. Frank R. Peterson, Cedar Rapids, Iowa. The principal banquet speaker will be Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association. Also scheduled as banquet speakers are Dr. Wendell L. Downing, LeMars, Iowa, president, Iowa State Medical Society; Dr. F. Lee Stone, Chicago, president, Illinois State Medical Society; and Dr. Lien O. Simenstad, Osceola, Wis.; president, Wisconsin State Medical Society. Dr. Martin A. Seidell, Urbana, Ill., winner of the 1956 Mississippi Valley Medical Society essay contest, will present "A Compendium for Fluid and Electrolyte Management with Ordinary and Extraordinary Laboratory Facilities." The following panels will be offered:

Osseous Trauma—Fractures: Modern Concepts of Treatment (Samuel W. Banks, Chicago, moderator).
Gynecology (J. P. Greenhill, Chicago, moderator).
Thyroid Diseases (Arnold S. Jackson, Madison, Wis., moderator).
Recent Advances in Diagnosis and Therapy (John F. Sheehan, Chicago, moderator).
Arthritis and Rheumatic Disease (Charles H. Slocumb, Rochester, Minn., moderator).
Coronary Thrombosis (Paul D. White, Boston, moderator).

A cocktail party (courtesy of Chas. Pfizer & Co.) will precede, and the president's reception will follow the informal banquet.

Pediatricians Meet in New York.—The American Academy of Pediatrics will hold its 25th annual meeting at the Hotel Statler, New York, Oct. 6-11 under the presidency of Dr. Harry Bakwin, New York. Ten seminars have been scheduled for Saturday and Sunday and 20 round-table discussions for Monday through Wednesday. The general session will open Monday at 9:30 a.m. with a panel on obesity, moderated by Dr. Harry H. Gordon, Baltimore. Dr. Edith H. M. Lincoln, New York, will serve as moderator for a symposium on tuberculosis at 2 p.m. A symposium on genetics and disease (Dr. Barton Childs, Baltimore, moderator) will open the Tuesday morning session. On Wednesday morning, Dr. Paul R. Swyer, Toronto, Canada, will speak on hiatus hernia and Seymour Heymann, M.B., Johannesburg, South Africa, on the medical treatment of congenital hypertrophic pyloric stenosis. A panel discussion on adolescence will be presented Thursday morning (Dr. Waldo E. Nelson, Philadelphia, moderator). Thursday afternoon will be devoted to clinical sessions at various hospitals. The price of admission, $1.00, will include bus transportation from the Hotel Statler to the hospitals and return. The committee on adoptions has announced that its panel on adoptions Monday evening will be open to everyone interested in this discussion. The social program includes a special symphony concert at Hunter College Auditorium, Tuesday, 8:30 p. m.; a reception and cocktail hour (courtesy of Mead Johnson & Company) preceding the banquet Wednesday, 8 p.m.; an International Food Festival (Courtesy of Beech-Nut Packing Company) Monday and Tuesday; a welcome hour (courtesy Ross Laboratories) Sunday, 6-7:30 p.m.; breakfast (courtesy Libby's Baby Foods) Tuesday, 7-8:45 a.m.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

Area	Aug. 18, 1956		Aug. 20, 1955, Total
	Paralytic Type	Total Cases Reported	
New England States			
Maine	..	..	13
New Hampshire	..	..	41
Vermont	..	..	20
Massachusetts	2	9	448
Rhode Island	..	..	34
Connecticut	3	7	55
Middle Atlantic States			
New York	11	45	169
New Jersey	3	12	55
Pennsylvania	..	7	51
East North Central States			
Ohio	10	33	91
Indiana	21	34	23
Illinois	111	180	147
Michigan	21	62	94
Wisconsin	13	33	170
West North Central States			
Minnesota	2	16	62
Iowa	..	54	70
Missouri	7	21	13
North Dakota	1	2	5
South Dakota	..	3	3
Nebraska	1	7	23
Kansas	3	12	20
South Atlantic States			
Delaware	..	1	4
Maryland	2	2	23
District of Columbia	..	..	2
Virginia	8	13	27
West Virginia	4	7	9
North Carolina	13	23	43
South Carolina	2	11	21
Georgia	8	13	4
Florida	5	21	26
East South Central States			
Kentucky	3	15	26
Tennessee	5	14	20
Alabama	..	3	13
Mississippi	6	13	10
West South Central States			
Arkansas	8	11	10
Louisiana	19	36	16
Oklahoma	2	10	22
Texas	29	45	98
Mountain States			
Montana	..	2	9
Idaho	1	3	6
Wyoming	1	1	3
Colorado	6	11	17
New Mexico	3	6	5
Arizona	1	6	10
Utah	..	7	..
Nevada	..	..	1
Pacific States			
Washington	6	19	17
Oregon	4	7	14
California	43	65	71
Territories and Possessions			
Alaska	1	1	8
Hawaii	1	1	6
Puerto Rico	..	..	..
Total	390	904	2,148

Annual Clinical Conference.—The Kansas City Southwest Clinical Society will present its 34th annual Fall Clinical Conference Sept. 24-27 at the Municipal Auditorium, Kansas City, Mo. The fourth Edward Holman Skinner Memorial Lecture, "The Direction of Effort in Malignant Disease," will be delivered by Dr. Isidor S. Ravdin, Philadelphia, on the opening day. Other guest speakers and their first presentations include:

William A. D. Anderson, Miami, Fla., Tumors of Childhood.
B. Marden Black, Rochester, Minn., Continence-Preserving Procedures for Carcinoma of the Upper Rectum and R 'gmoid.
George Crile Jr., Cleveland, Carcin . 'reast—the Surgeon's Dilemma.

Urban H. Eversole, Boston, Safeguarding the Surgical Patient.
Edgar Hull, New Orleans, Emergency Use of Corticoids and Corticotropins.
Chevalier L. Jackson, Philadelphia, What Can the Broncho-Esophagologist Do for the General Practitioner?
Laurance W. Kinsell, Oakland, Calif., Observations on Use of the Insulin-Sparing Sulfonamides.
John M. Lyon, Denver, Diagnostic and Treatment Suggestions in Psychoneurotic Reactions.
Walter G. Maddock, Chicago, Differential Diagnosis of Jaundice
Carl V. Moore, St. Louis, Thrombocytopenic Purpura, Its Pathogenesis and Treatment.
LeRoy H. Sloan, Chicago, Bedside Neurology in Daily Practice.
E. Stewart Taylor, Denver, Cervical Carcinoma in Situ.
Don C. Weir, St. Louis, Accuracy and Limitations of Diagnostic Roentgenology.
Ben J. Wilson, Dallas, Texas, Treatment of Shock (Dangers and Complications of Nonspecific Therapy).

Panel discussions have been scheduled on Tumors of the Neck, Diagnosis and Management of Bone Disease. Recent Advances in Medicine and Surgery; Fluid and Electrolyte Balance, Common Types of Anemia; and Functional Gastrointestinal Disorders. Color television programs will be presented on Herniorrhaphy; Goiter Clinic; Caudal Anesthesia; Tracheotomy; Arthritis Clinic, Cesarean Section; Cholecystectomy; and Blood Transfusion. A clinical pathological conference is scheduled for Monday. Daily round-table luncheons have been scheduled with the distinguished guests. On Thursday Dr. Hubert M. Parker, Kansas City, Mo., will serve as moderator for a combined medical and surgical luncheon, closing with a panel discussion, "Recent Advances in Medicine and Surgery."

American Hospital Association.—The 58th annual convention of the American Hospital Association will be held at the International Amphitheatre in Chicago, Sept. 17–20. The Palmer House will be the headquarters hotel. The general sessions will open Monday afternoon with "What Are the Needs?" by Drs. Theodore G. Klumpp, New York, and Jack R. Ewalt, Boston. This presentation will be followed by "What Are the Resources?" by Dr. Lowell T. Coggeshall, special assistant for health and medical affairs to the Secretary of Health, Education, and Welfare, Washington, D. C., and Mr. George Bugbee, president, Health Information Foundation, New York. The president's reception and tea dance Monday, 6–9 p.m., will honor Dr. Albert W. Snoke, New Haven, Conn., president-elect. There is no charge, and everyone is welcome. At the federal luncheon Tuesday, 12:15 p.m., arranged for representatives of federal hospitals but open to all other convention registrants, the speaker will be Marion B. Folsom, Secretary, Department of Health, Education, and Welfare, Washington, D. C. Tickets are $3.50. The Conference on Hospital Planning Wednesday morning will be presented by the association in joint sponsorship with the American Association of Hospital Consultants, American Association for Hospital Planning, and American Institute of Architects. The general session Wednesday afternoon will be devoted to a program on "Meeting the Needs," which will have as participants Drs. Howard A. Rusk, New York, Joseph N. Schaefler, Peoria, Ill., Leonard O. Bradley, Winnipeg, Manitoba, Canada, and Daniel Blain, Washington, D. C. At the banquet Wednesday evening, presentation of the distinguished service award to Dr. Charles F. Wilinsky, Boston, will follow presentation of honorary memberships to Dr. George F. Lull, Secretary-General Manager, American Medical Association, Chicago, Dr. Theodore G. Klumpp, chairman, Hoover commission task force on medical services, and president, Winthrop Laboratories, New York, and Emory W. Morris, D.D.S., president and general director, W. K. Kellogg Foundation, Battle Creek, Mich. A session on planning for disaster will be held at the Stock Yard Inn Thursday morning. The general sessions will end Thursday afternoon with a program on Hospital Professional Relations at which Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will speak for the physician.

FOREIGN

Congress of the History of Medicine.—The 15th International Congress of the History of Medicine will hold its biennial meet- in Madrid and Salamanca in Spain, Sept. 21–28. The provisional program lists the following papers: "American Indian Medicine in North America," "Daniel Le Clerc's Histoire de la Medicine," and "Iconography of the Frontispiece to the Fabrica." Further information may be obtained from the Secretaria General, Instituto Arnaldo de Villanova, Duque de Medinaceli, 4, Madrid, Spain.

CORRECTION

Diagnosis of Islet-Cell Tumors of Pancreas.—The last word in the second line of the second paragraph of the abstract on diagnosis of islet-cell tumors of the pancreas, in The Journal, July 28, page 1328, should have been "hypoglycemia" rather than "hyperglycemia."

EXAMINATIONS AND LICENSURE

American Board of Anesthesiology: *Part I* Various locations, July 19 Final date for filing application is Jan. 19. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Dermatology: *Oral* St. Louis, Oct 12-15 Final date for filing applications was April 1. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine *Written* Oct. 15, 1956 Final date for filing application was May 1. *Oral* New York City, Sept 21-25 Final date for filing application was May 1. Exec. Sec., Dr. William A Werrell, 1 West Main St., Madison 3, Wis.

Subspecialties Cardiovascular Disease Chicago, Nov. 30. Final date for filing application was June 1. *Gastroenterology* Philadelphia, April 5-6 Final date for filing application is March 1.

American Board of Neurological Surgery Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six months before the examination time Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St Louis 10.

American Board of Obstretics and Gynecology *Part I* Various communities throughout the United States and Canada, Feb. 1. Candidates must submit case reports to the Office of the Secretary within 30 days of being notified of their eligibility to Part I. *Part II* Chicago, May 16-25 Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland

American Board of Ophthalmology. *Oral* St. Louis, Oct 20-24 *Written* Jan. 21. Final date for filing application was July 1. *Oral* New York, May 23-27; Chicago, Oct. 7-11. Sec., Dr Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral Part II* Chicago, January 1957. Final date for filing application was Aug. 15. Sec., Dr. Sam W. Banks, 116 South Michigan Ave., Chicago 3

American Board of Otolaryngology. *Written and Oral.* Chicago, Oct 8-11. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology. *Written for Pathological Anatomy and Clinical Pathology*, Oct. 4-6. Final date for filing application was Sept. 1. Sec., Dr. Edward B. Smith, 1040-1232 W. Michigan St, Indianapolis 7.

American Board of Pediatrics. *Oral. Part II.* New York City, Oct 12-14, and San Francisco, Dec. 7-9. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation *Parts I and II.* New York City, June 8-9. Final date for filing application is March 1. Sec., Dr. Earl C. Elkins, 200 First St, S W., Rochester, Minn

American Board of Plastic Surgery. Miami, Oct. 17-19. Corres Sec, Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8

American Board of Preventive Medicine. *Oral and Written Public Health.* Philadelphia, Nov. 8-10. Sec., Dr. Ernest L. Stebbins, 615 N Wolfe St., Baltimore, Md.

American Board of Proctology *Oral and Written* Philadelphia, Sept 29. Final date for filing application was Sept 1. Sec, Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

American Board of Psychiatry and Neurology. *Oral* New York, Dec 10-11 and New Orleans, Mar. 18-19 Final date for filing application is Sept 10. Sec, Dr. David A. Boyd, Jr., 102-110 Second Ave, S W, Rochester, Minn.

American Board of Radiology. Los Angeles, Sept 30-Oct. 4 Final date for filing application was June 1. Tampa, April 1-6 Final date for filing application is Jan 1. Washington, Sept. 23-28 Final date for filing application was June 1. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg, Rochester, Minn.

American Board of Surgery *Part I.* Various Centers Throughout the United States and in Certain Military Centers Abroad, Oct. 31 *Part II* Buffalo, Sept. 24-25, Chicago, Oct. 15-16, New Haven, Nov 19-20, Kansas City, Kan, Dec. 10-11, Los Angeles, Jan 14-15, San Francisco, Jan 17-18, Houston, Feb 18-19, Nashville, Mar. 11-12, Boston, April 8-9, and New York, June 10-11.

American Board of Urology. February 1957. Sec., Dr. William Niles Wishard, 1711 N. Capital Ave., Indianapolis 7.

Board of Thoracic Surgery *Written* Various centers throughout the country, Sept. 7. Final date for filing applications was July 1 A subsequent written examination will be held in February 1957, and the closing date for registration is Dec. 1, 1956. Sec., Dr. William M Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Russell, Nelson Gorham ⊕ Buffalo; born in New Market, Ontario, Canada, Aug. 26, 1872; University of Buffalo School of Medicine, 1895; joined the faculty of his alma mater as assistant in pathology, becoming assistant in medicine, professor clinical medicine, and professor of medicine; retired in 1937, on reaching his 65th birthday, and was named professor of medicine emeritus; specialist certified by the American Board of Internal Medicine; member of the American Association of Pathologists and Bacteriologists, American Clinical and Climatological Association, American Heart Association, American Association of the History of Medicine, American Trudeau Society, Society of Experimental Biology and Medicine, and the Buffalo Academy of Medicine; fellow and ex-governor of the American College of Physicians; veteran of the Spanish-American War; cited by General Pershing for "exceptionally meritorious and conspicuous services" during World War I; formerly chairman of the advisory health board; the Chancellor's medal of the University of Buffalo was presented to him on Feb. 22, 1945; in September, 1951, the annual bishop's award of the Episcopal Diocese of Western New York was presented to him for "outstanding service to the church"; the following year, at the annual dinner of the university's alumni board, received the Samuel P. Capen award for outstanding service to the university; consultant in medicine at the J. M. Adam Memorial Hospital in Perrysburg, Buffalo Columbus Hospital, and the Edward J. Meyer Memorial Hospital, where he formerly served as chairman of the board of managers; consulting physician and honorary vice-president and member of the board of trustees at the Buffalo General Hospital; died June 4, aged 83, of coronary occlusion.

Shepherd, Clara Sargent, Middleboro, Mass.; born in Valdosta, Ga., in 1889; University of Michigan Medical School, Ann Arbor, 1915; worked in the diabetic department at the Battle Creek (Mich.) Sanitarium; in 1919 went to China as the first woman physician to serve in the field of public health; worked with the National Council on Health Education, which was jointly sponsored by the Y. M. C. A. and the Y. W. C. A., and was on the faculty of the Women's College of Physical Education in Shanghai, which later became a department of Ginling Women's College in Nanking; for 20 years served as physician and public health director in the American Board of Missions at Shaowu and Foochow in Fukien; for a brief period was school physician at the Kuling American School; was evacuated from China just previous to Pearl Harbor, became health physician for the schools of Lansing, Mich., and later served as a physician on the staff of the outpatient department of Herman Kiefer Hospital in Detroit; retired from medical practice in 1952; assisted in writing textbooks on health for Chinese government schools and, with Dr. W. W. Peter, promoted public health campaigns in China's major coastal cities; died in St. Luke's Hospital July 1, aged 67, of cancer.

Davis, George G. ⊕ Anchorage, Alaska; born in Chicago in 1879; Rush Medical College, Chicago, 1904; at one time associate professor of surgery at the University of the Philippines College of Medicine in Manila; served on the faculty of his alma mater and the University of Illinois College of Medicine in Chicago; during World War I served as honorary lieutenant colonel with the Royal Army Medical Corps and chief of staff of surgical service in the Third General Hospital in France; after the war practiced surgery in Chicago until 1943, when he went to Anchorage as chief of staff of the Alaska Railroad Hospital from 1943 to 1945; served as medical officer of the Alaska Native Service from 1945 to 1955; chief surgeon of the Carnegie-Illinois Steel Corporation in the Chicago area from 1919 to 1937; member of the House of Delegates of the American Medical Association in 1950; member of the founders group of the American Board of Surgery; member of the Western Surgical Association and the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; on the staff of the Providence Hospital in Anchorage; died April 21, aged 77, of cerebral hemorrhage.

Cooke, Jean Valjean, St. Louis; born in Brownsville, Pa., June 19, 1883; Johns Hopkins University School of Medicine, Baltimore, 1908; instructor of pathology at the University and Bellevue Hospital Medical College in New York City from 1908 to 1910; instructor in pathology at the Tulane University School of Medicine, New Orleans, 1911-1912; from 1912 to 1917 associate in pathology and director of the laboratory at the University of California School of Medicine in San Francisco; professor emeritus of pediatrics at the Washington University School of Medicine, where he joined the faculty as assistant professor of pediatrics, later became associate professor and professor; specialist certified by the American Board of Pediatrics; during World War I served as consultant on epidemic diseases to the Secretary of War; member of the American Pediatric Society, which he served as president, and the Missouri State Medical Association; on the staffs of the St. Louis Maternity, St. Louis City, and St. Louis Children's hospitals; died in the Barnes Hospital June 29, aged 73, of lymphosarcoma.

Weld, Edward Howland ⊕ Rockford, Ill.; born in Stillman Valley March 5, 1881; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1907; entered the Mayo Foundation in Rochester, Minn., in February, 1916, and left June 1, 1919; member of the House of Delegates of the American Medical Association 1947, 1948, and 1949; for 12 years councilor of the first district of the Illinois State Medical Society, which he later served as president; past-president and vice-president of the Winnebago County Medical Society; charter member of the American Geriatric Society; member of the American Urological Society and the Industrial Medical Association; on the staffs of the Rockford Memorial and St. Anthony hospitals; died in Mayo Clinic, Rochester, Minn., July 6, aged 75, of leukemia.

Greenman, Lawrence ⊕ Pittsburgh; born in Brooklyn, N. Y., March 23, 1921; Yale University School of Medicine, New Haven, Conn., 1944; Renziehausen assistant professor of research medicine at the University of Pittsburgh School of Medicine; at one time on the faculty of his alma mater and Washington University School of Medicine in St. Louis; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; interned at the Grace-New Haven Community Hospital in New Haven, Conn.; served a residency at the Barnes Hospital in St. Louis, Grace-New Haven Community Hospital in New Haven, Conn., and the Presbyterian Hospital; on the staffs of the Children's Hospital, Presbyterian Hospital, and Woman's Hospital; died June 20, aged 35, of brain tumor.

Jones, William Harriman, Long Beach, Calif.; born in Battle Creek, Mich., in 1876; Cooper Medical College, San Francisco, 1899; member of the founders group of the American Board of Surgery; fellow of the American College of Surgeons; past-president of the California Public Health Association; at one time associate professor of gynecology at the College of Physicians and Surgeons, medical department of the University of Southern California in Los Angeles; first health officer; instrumental in organizing the Seaside Memorial Hospital, where for years he was chief of staff; on the staffs of the Long Beach Community and St. Mary's Long Beach hospitals; founder and medical director of the Harriman Jones Clinic and Hospital, where he died June 17, aged 80, of coronary occlusion.

Guedel, Arthur Ernest, Los Angeles; born in Cambridge City, Ind., June 13, 1883; Indiana University School of Medicine, Indianapolis, 1908; emeritus associate clinical professor of surgery (anesthesiology) at the University of Southern California

---

⊕ Indicates Member of the American Medical Association.

School of Medicine; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; veteran of World War I; from 1920 to 1928 lecturer on anesthesiology at his alma mater; for many years on the staffs of the Indianapolis General, St. Vincent's, and Protestant Deaconess hospitals in Indianapolis; served on the staffs of the Cedars of Lebanon, Queen of Angels, and California hospitals, and the Methodist Hospital of Southern California; died June 10, aged 72, of arteriosclerotic heart disease.

Wear, Thomas Ralph ⊕ Tuscaloosa, Ala.; born in Haleyville, Feb. 23, 1917; Washington University School of Medicine, St. Louis, 1942; interned at the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company in Fairfield, Ala.; formerly a resident at the Regional Hospital (U. S. Army) Aviation Cadet Center, San Antonio, Texas; veteran of World War II; practiced in Hamilton, where he was vice-president of the Marion County Medical Society, trustee of the local school board, and county health officer; on the staff of the Bryce Hospital; member of the American Academy of General Practice; died in the Wilson Hospital in Haleyville June 23, aged 39, of lymphocytic leukemia.

Capell, Clarence Swift ⊕ Kansas City, Mo.; born in Marietta, Ohio, Nov. 14, 1874; John A. Creighton Medical College, Omaha, 1902; specialist certified by the American Board of Urology; member of the American Urological Association and the Kansas City Southwest Clinical Society; past-president of the Jackson County Medical Society; president of the Kansas City Urological Society, 1951-1955; veteran of World War I; served as chief and president of the staff, St. Mary's and St. Joseph hospitals; for many years director and chief of the urologic service, Kansas City General Hospital; died June 24, aged 81, of coronary arteriosclerosis.

Hammond, Robert Bertine, Bradenton, Fla.; born in Amenia, N. Y., Feb. 3, 1883; Long Island College Hospital, Brooklyn, N. Y., 1908; member of the Medical Society of the State of New York and the American Society of Anesthesiologists; fellow of the American College of Anesthesiology, of which he was a founder; past-president of the American Regional Society of Anesthesiologists, New York Society of Anesthetists, and the Eastern Society of Anesthesiologists; an associate member of the American Medical Association; specialist certified by the American Board of Anesthesiology; for many years practiced in White Plains, N. Y.; served on the staffs of the Grasslands Hospital in Valhalla, N. Y., the St. Agnes Hospital in White Plains, N. Y., and the White Plains (N. Y.) Hospital, where he died May 31, aged 73, of arteriosclerosis.

Neilson, John Land ⊕ Captain, U. S. Navy, retired, Washington, D. C.; born July 31, 1880, Harvard Medical School, Boston, 1902; appointed assistant surgeon in the Navy in 1902; during his career of 43 years, served as commanding officer of naval hospitals in Guam, San Diego, Pearl Harbor, and Mare Island; served in the Philippines and Guam, at the Naval Training Station at Newport, R. I., at Mare Island, and aboard the USS Buffalo; served in the office of the Navy surgeon general, as flag surgeon of the U. S. Pacific Fleet, Destroyer Force, and aboard the USS California, and as a member of the Navy Retirement Board in Washington; retired Jan. 1, 1943; fellow of the American College of Surgeons; died June 14, aged 75, of myocardial infarction.

Kaufman, Charles J. ⊕ Castle Point, N. Y.; born in Brooklyn, N. Y., Jan. 29, 1897; Cornell University Medical College, New York City, 1921; served on the faculty of his alma mater; formerly associate professor of medicine (tuberculosis) at the University of Colorado School of Medicine in Denver; member of the American College of Chest Physicians and the American Trudeau Society; at one time medical director of the National Jewish Hospital in Denver and on the staffs of the Sea View Hospital in Staten Island and the Metropolitan Hospital in New York City; chief, tuberculosis service, Veterans Administration Hospital; died in the Presbyterian Hospital, New York City, June 15, aged 59, following a prostatectomy.

Singer, Karl ⊕ Chicago; Medizinische Fakultät der Universität, Vienna, Austria, 1927; specialist certified by the American Board of Internal Medicine; member of the Association of American Physicians; fellow of the American College of Physicians; at one time associate in physiology at his alma mater; served on the faculty of Tufts College Medical School in Boston, where he was a research fellow at the Beth Israel and Joseph H. Pratt Diagnostic hospitals; since 1947 director of the hematology department at the Michael Reese Hospital, where he died July 12, aged 54, of bronchopneumonia and carcinoma of the lung.

Abner, John W., Atchison, Kan.; Eclectic Medical University, Kansas City, Mo., 1914; died June 8, aged 88, of chronic aortitis.

Amos, William Frederick, Portland, Ore.; Willamette University Medical Department, Salem, 1890; Columbia University College of Physicians and Surgeons, New York City, 1892; at one time on the faculty of the University of Oregon Medical School; served as secretary of the Oregon State Medical Society; at one time an associate editor of Medical Sentinel; died June 25, aged 86.

Anderson, Raymond Ravenel, Jersey City, N. J.; Howard University College of Medicine, Washington, D. C., 1930, died in the Jersey City Medical Center June 22, aged 54.

Anderson, Richard Speight ⊕ Whitakers, N. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1924; veteran of World War II; for many years on the staff of the Rocky Mount (N. C.) Sanitarium; died in the Edgecombe General Hospital, Tarboro, June 6, aged 57.

Anrode, Ralph Austen ⊕ Davenport, Iowa; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, Germany, 1920; on the staffs of the Mercy Hospital and the St. Luke's Hospital, where he died June 29, aged 65, of coronary occlusion.

Armstrong, Frederic Clinton ⊕ Cascade, Iowa; John A. Creighton Medical College, Omaha, 1920; member of the American Academy of General Practice; veteran of World War I; died in the Veterans Administration Hospital, Iowa City, June 30, aged 61, of carcinoma of the lung with metastasis to the kidney.

Avery, Hiram Henry, Omaha; Kansas City (Mo.) Hahnemann Medical College, 1914; veteran of World Wars I and II; died in the Veterans Administration Hospital May 17, aged 65, of ruptured aortic aneurysm.

Bailey, Thomas B., Marshall, Texas; Baylor University College of Medicine, Dallas, 1916; died in the Kahn Memorial Hospital June 22, aged 71.

Bang, Sarah Allen, Havertown, Pa.; Temple University School of Medicine, Philadelphia, 1906; died in the Doctors Hospital, Philadelphia, June 15, aged 86, of ovarian tumor.

Barber, Edna Mabel, Alameda, Calif.; Oakland (Calif.) College of Medicine and Surgery, 1914; an associate member of the American Medical Association; died June 20, aged 71, of melanotic carcinoma with metastases.

Barber, William Jefferson ⊕ Butler, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1929; member of the American Academy of General Practice; medical superintendent and owner of the Barber Hospital; died in the Jefferson-Hillman University Hospital, Birmingham, June 11, aged 49, of obstructive jaundice and pancreatitis.

Barnes, Robert Wallace, Dallas, Texas (licensed in Texas under the Act of 1907); died June 19, aged 87.

Barnett, Thomas Rowland ⊕ Hillsboro, Texas; Baylor University College of Medicine, Dallas, 1926; member of the American Academy of General Practice; part owner of the Hillsboro Clinic-Hospital, where he was director of the staff, and where he died June 21, aged 57, of coronary occlusion.

Beare, John William ⊕ Chester, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1907; member of the board of health of Chester; on the staffs of St. Clement's Hospital in Red Bud and St. Andrew's Hospital in Murphysboro; died June 23, aged 75, of arteriosclerotic heart disease with coronary thrombosis.

Berke, Samuel David ⊕ Indio, Calif.; Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, Canada, 1926; veteran of World War II; on the staffs of the Casita and Coachella Valley hospitals; died in the Veterans Administration Hospital, Los Angeles, June 5, aged 52, of bronchiectasis and cor pulmonale.

Berry, Joseph Alonzo ⊕ Tuskegee, Ala.; Rush Medical College, Chicago, 1925; fellow of the International College of Surgeons; member of the American Society for Surgery of the Hand; on the staff of the Veterans Administration Hospital; died in New York City June 13, aged 60, of aortic aneurysm.

Bilstad, Gunerius Ellsworth, Cambridge, Wis.; Northwestern University Medical School, Chicago, 1898; died June 26, aged 82, of arteriosclerotic heart disease.

Binder, Israel ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1911; member of the American Academy of Pediatrics; on the staff of the St. Luke's and Children's Medical Center and the Olney Hospital and Lawncrest Diagnostic Clinic; died in Panama City, Fla., June 11, aged 65.

Blackburn, Cecil Howell ⊕ Conyers, Ga.: Washington University School of Medicine, St. Louis, 1941; member of the Medical Association of the State of Alabama: died June 4, aged 46.

Bostick, John Benton ⊕ Lieut. Commander, U. S. Navy, retired, Fresno, Calif.: College of Physicians and Surgeons of San Francisco, 1913; entered the U. S. Navy July 20, 1921; retired Sept. 1, 1939: veteran of the Spanish-American and World Wars; died June 6, aged 80, of cerebral vascular thrombosis.

Boswell, Harry Dillman ⊕ Henryetta, Okla.: Northwestern University Medical School, Chicago, 1912, died in the Haynes Hospital July 4, aged 73, of pneumonia and heart disease.

Breitenbach, Lawrence Prell, Detroit; Detroit College of Medicine, 1911; formerly on the faculty of his alma mater; served on the staff of St. Mary's Hospital; died June 12, aged 74, of arteriosclerosis.

Briggs, George Abiel ⊕ Sacramento, Calif.; Medical Department of the University of California, San Francisco, 1905; served overseas during World War I; past-president of the Sacramento Society for Medical Improvement; fellow of the American College of Surgeons; one of the founders, member of senior staff, and for many years secretary-treasurer of the board of trustees of the Sutter General Hospital, where he died June 10, aged 75, of carcinoma of the prostate with metastases.

Brown, John Charles, New York City; Albany (N. Y.) Medical College, 1892; died in St. Luke's Hospital June 14, aged 85, of pneumonia.

Bryan, William Juel, Jr. ⊕ Tulsa, Okla.; Baylor University College of Medicine, Dallas, Texas, 1921; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Diabetes Association; on the visiting staff of the St. John's Hospital; on the staff of the Hillcrest Medical Center, where he served on the governing board and later was named honorary board member; died July 4, aged 60, of cancer.

Bryant, Arthur Ralph, Beatrice, Neb.; Rush Medical College, Chicago, 1930; an associate member of the American Medical Association; past-president of the Gage County Medical Society; veteran of World War II; on the staffs of the Mennonite Deaconess Home and Hospital and the Lutheran Hospital, where he died June 15, aged 52, of pinealoma.

Budaeff, Ivan Titus ⊕ Daly City, Calif.; University of Oregon Medical School, Portland, 1930; member of the American Academy of General Practice; died June 12, aged 60, of carcinoma of the lung with metastasis.

Bussey, Benjamin Peyton, Cairo, Ga.; Medical College of Georgia, Augusta, 1954; interned at the Charity Hospital of Louisiana in New Orleans, where he served a residency; killed June 29, aged 28, in a plane crash.

Butler, Henry Anderson ⊕ Liberty, Miss.; University of Tennessee College of Medicine, Memphis, 1934; died July 4, aged 57, of heart disease.

Byrd, Emmett Earl ⊕ Jonesboro, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1912; veteran of World War II; served as director of the Washington County Health Department; retired from the Veterans Administration May 31, 1950; died in the Memorial Hospital, Johnson City, April 23, aged 65, of coronary disease.

Campbell, Clarence G., New York City: Bellevue Hospital Medical College, New York City, 1890; died June 16, aged 88, of bronchopneumonia, arteriosclerotic heart disease, and generalized arteriosclerosis.

Clarke, James Cunningham ⊕ La Grange. Ill.: Rush Medical College, Chicago, 1913: fellow of the American College of Surgeons: on the staffs of the Community Memorial General Hospital and the Hinsdale (Ill.) Sanitarium and Hospital, where he died July 12, aged 70, of a heart attack.

Cooper, Jesse Robert ⊕ New Castle, Pa.: Western Pennsylvania Medical College, Pittsburgh, 1894; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology: veteran of World War I; on the staff of the New Castle Hospital; died in the Jameson Memorial Hospital June 14, aged 84, of cerebral hemorrhage.

Darrah, John Russell ⊕ Colonel, U. S. Army, retired, Amarillo, Texas; University of Nebraska College of Medicine, Omaha, 1935; certified by the National Board of Medical Examiners; veteran of World War II; retired from the regular Army June 18, 1955; died June 6, aged 48.

Douglass, Henry Francis, Washington, D. C.; Howard University College of Medicine, Washington, D. C., 1938; interned at the Freedmen's Hospital, where he served a residency; died suddenly June 7, aged 42, of a heart attack.

Engel, Henry ⊕ Dover, Ohio; Ludwig-Maximilians-Universität Medizinische Fakultät, Munchen, Bavaria, Germany, 1907: died in the Mercy Hospital, Canton, June 5, aged 74, of infection following prostatic operation.

Farley, William Chase ⊕ Methuen, Mass.; Medical School of Maine, Portland, 1893; Hahnemann Medical College and Hospital of Philadelphia, 1894; on the courtesy staff of the Lawrence (Mass.) General Hospital; died June 14, aged 86, of intestinal and gastric carcinoma.

Freedman, Theodore Raphael, Far Rockaway, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York City, 1929; member of the Medical Society of the State of New York; died in St. Joseph's Hospital, New York City, June 18, aged 52, of pulmonary embolism and infarction, myocardial infarction, and coronary sclerosis.

French, William Oscar ⊕ Honolulu, Hawaii; Stanford University School of Medicine, San Francisco, 1926; served in France during World War I; in 1924-1925 was in the U. S. Army Reserve, from 1926 to 1928 in the regular Army, and from 1928 to 1932 in the National Guard; died April 11, aged 60.

Frey, Joseph Louis Edward ⊕ New York City; Georgetown University School of Medicine, Washington, D. C., 1907; died July 6, aged 71, of general and coronary arteriosclerosis.

Hankey, Stacy Marlin ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; specialist certified by the American Board of Urology; member of the American Urological Association; on the staffs of the Veterans Administration Hospital and the Passavant Hospital, where he died June 21, aged 82, of carcinoma of the stomach.

Hester, William Lee ⊕ Lubbock, Texas; Southern Methodist University Medical Department, Dallas, 1914; associated with the Regional Veterans Administration; died in St. Mary of the Plains Hospital in Lubbock May 30, aged 65, of bronchogenic carcinoma with cerebral metastasis.

Heyman, Ernest Fred ⊕ Red Bank, N. J.; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1923; died in the Monmouth Memorial Hospital, Long Branch, May 7, aged 55, of carcinoma of the prostate.

Hildebrand, William Owen ⊕ Topeka, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1905; died in the Elkhart (Ind.) General Hospital June 1, aged 80, of acute coronary occlusion.

Jenkins, Bertha Elizabeth, Oakland, Calif.; Oakland College of Medicine and Surgery, 1919; an associate member of the American Medical Association; died May 22, aged 70.

Kirkland, Benjamin Franklin, Long Beach, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; formerly member of the city council; died May 24, aged 86.

Komisar, Paul Stanislaw ⊕ Erie, Pa.; Tufts College Medical School, Boston, 1928; member of the American Academy of General Practice; served during World War II; on the staffs of the Hamot Hospital, where he interned, and St. Vincent's Hospital; died May 29, aged 57, of coronary thrombosis.

LeComte, John Radway, Albuquerque, N. M.; Columbia University College of Physicians and Surgeons, New York City, 1903; veteran of World War I; died in the Veterans Administration Hospital May 15, aged 76, of heart disease.

Laing, Stanley Glen ⊕ Kansas City, Kan.; St. Louis University School of Medicine, 1940; on the staffs of St. Margaret's Hospital, where he interned, and Providence and Bethany hospitals; died in Lakeview, Ark., May 26, aged 55, of acute coronary occlusion.

Lane, Louis Perpignan, Jr. ⊕ Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1913; served during World War I; on the staffs of Coney Island, Victory Memorial, and Harbor hospitals; died May 30, aged 68, of arteriosclerotic heart disease.

Levi, Albert Abraham ⊕ Minneapolis; Julius-Maximilians Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1908; member of the Illinois State Medical Society; died in Mount Sinai Hospital May 3, aged 72, of coronary thrombosis and hemiplegia.

Lhevine, Morris Boise, Tulsa, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1917; an associate member of the American Medical Association; member of the Radiological Society of North America and the American College of Radiology; specialist certified by the American Board of Radiology; for many years secretary of the board of directors of the Hillcrest Medical Center, where he was director of radiology and where he died May 19, aged 70, of arteriosclerotic heart disease.

Lofton, Frederick A. ⊕ Chicago; Harvey Medical College, Chicago, 1901; served on the staff of St. Bernard's Hospital, where he died June 9, aged 82, of arteriosclerosis.

Lynch, William Joseph ⊕ Weimar, Calif.; National University of Ireland, 1919; member of the American Trudeau Society; for many years on the staff of the Weimar Joint Sanatorium, where he died May 21, aged 58.

McCarthy, Patrick Henry, Cambridge, Mass. (licensed in Massachusetts in 1900); died in Arlington May 15, aged 82, of cerebral vascular accident.

McCarty, James Joseph, Jr., Chicago; Harvard Medical School, Boston, 1910; died May 28, aged 71.

McClellan, Ernest Edward ⊕ Huntington, W. Va.; Medical College of Virginia, Richmond, 1933; on the staff of the Memorial Hospital; died July 4, aged 49, of a heart attack.

McCloskey, Edward William, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1911; an associate member of the American Medical Association; fellow of the American College of Physicians; veteran of World War I; served on the staff of the Chestnut Hill Hospital; died in the Lankenau Hospital June 16, aged 71, of myasthenia gravis.

McDowell, Charles Albert ⊕ Covina, Calif.; University of Pittsburgh School of Medicine, 1925; died May 14, aged 55.

McNamara, John Francis, Chicago; Loyola University School of Medicine, Chicago, 1921; served as senior surgeon at the Mercy Hospital; died May 29, aged 67, of bronchopneumonia.

Magill, H. Kelvin ⊕ Lexington, Mass.; University of Colorado School of Medicine, Denver, 1937; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served on the staffs of the Sancta Maria and Cambridge City hospitals in Cambridge, Boston City Hospital, Winchester (Mass.) Hospital, and the Brooks Hospital in Brookline; died in the Massachusetts General Hospital, Boston, May 14, aged 46, of coronary thrombosis.

Mahoney, Roy Bernard ⊕ Chicopee Falls, Mass.; Georgetown University School of Medicine, Washington, D. C., 1925; veteran of World War I; school physician; physician for the Fisk division of the U. S. Rubber Company; on the surgical staff of the Mercy Hospital in Springfield; died May 26, aged 59, of diabetes mellitus.

Main, George Chrysup, Denver; St. Louis University School of Medicine, 1924; veteran of World War I; on the staffs of the St. Anthony and Presbyterian hospitals; died May 18, aged 58, of coronary occlusion and paralysis agitans.

Martin, Mary K., Los Angeles; Hering Medical College, Chicago, 1894; died in Verdugo City, Calif., April 16, aged 87, of virus pneumonia.

Mawhinney, Harvey Norton ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1920; specialist certified by the American Board of Radiology; member of the Radiological Society of North America, fellow of the American College of Radiology; past-president of the Pennsylvania Radiological Society and the Pittsburgh Roentgen Society; on the staffs of the Sewickley (Pa.) Valley Hospital, Suburban General Hospital in Bellevue, and the Homestead (Pa.) Hospital, where he died June 17, aged 63, of injuries sustained in an automobile accident.

Meeks, John Alexander, Kite, Ga.; Hospital Medical College, Eclectic, Atlanta, 1911; died May 5, aged 73, of myocardial infarction.

Minshull, Harold Frederick, New Lexington, Ohio; Eclectic Medical College, Cincinnati, 1918; member of the Ohio State Medical Association; secretary of the Perry County Medical Society; county coroner; health commissioner of Perry and Morgan counties; on the staffs of the Bethesda and Good Samaritan hospitals in Zanesville; died May 21, aged 59, of coronary occlusion.

Mitchell, Edward Francis ⊕ Clinton, Mass.; Harvard Medical School, Boston, 1922; served on the staff of the Clinton Hospital; died May 23, aged 70, of coronary thrombosis.

Mitchener, William Claude, Okmulgee, Okla.; Memphis (Tenn.) Hospital Medical College, 1902; an associate member of the American Medical Association; served as mayor; formerly on the board of the Okmulgee City Hospital; died in Oklahoma City May 24, aged 80, of myocardial degeneration, bronchopneumonia, and uremia.

Monteverde, Whitten Cantwell ⊕ Brentwood, Calif.; St. Louis University School of Medicine, 1929; formerly practiced in Pittsburg, where he was a member of the city council; on the staff of the Pittsburg Community Hospital; died May 23, aged 53, of coronary thrombosis.

Moon, James P. ⊕ Winchester, Tenn.; University of Nashville Medical Department, 1908; past-president of the Williamson County Medical Association; director of the Coffee and Franklin County Health Departments; served on the staff of the Mid-State Baptist Hospital, Nashville, where he died May 28, aged 74, of uremia.

Morden, Lucetta, Brooklyn, N. Y.; Trinity Medical College, Toronto, Canada, 1904; died in the Greenpoint Hospital June 2, aged 75, of heart disease, bronchopneumonia, and cancer of the gastrointestinal tract.

Munson, Henry Orson ✠ Rushville, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1890; on the staff of the Phelps Hospital in Macomb; died in Jacksonville July 14, aged 88, of coronary thrombosis.

Murphy, Edward John, Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York City, 1904; during World War II was associated with the U. S. Public Health Service, assigned to the Bureau of Printing and Engraving, Washington, D. C.; served on the staffs of the Rockaway Beach (N. Y.) Hospital, St. Joseph Hospital in Far Rockaway, and St. Mary's Hospital in Brooklyn; died in the Genesee Hospital May 24, aged 76, of carcinoma of the stomach.

Newsome, Levi J., Topeka, Kan.; Meharry Medical College, Nashville, Tenn., 1907; died in the Stormont-Vail Hospitals June 23, aged 82, of cirrhosis of the liver.

Newton, Herman Christian ✠ Chicago; Northwestern University Medical School, Chicago, 1905; also a graduate in dentistry; died in the Wesley Memorial Hospital July 1, aged 80, of a heart attack.

Nihart, Orrin H., Edon, Ohio; Starling Medical College, Columbus, 1898; served as coroner and as state legislator; affiliated with the Cameron Hospitals, Bryan; died in the Mound Park Hospital, St. Petersburg, Fla., May 29, aged 84, of ruptured aneurysm of the abdominal aorta and general arteriosclerosis.

Niven, Joseph Dougal, Tucker, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; University of Nashville (Tenn.) Medical Department, 1894; died in Little Rock May 17, aged 88, of carcinoma of the kidney.

Obers, Samuel Joseph ✠ New York City; New York University College of Medicine, New York City, 1937; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; served on the staffs of the Stony Lodge Sanitarium in Ossining, and the Beth Israel and Lenox Hill hospitals; died May 12, aged 42.

Peterson, Ralph Otto ✠ Racine, Wis.; Marquette University School of Medicine, Milwaukee, 1916; fellow of the American College of Surgeons; on the staff of St. Mary's Hospital; died June 6, aged 68, of cerebral hemorrhage.

Rowley, Antinous Gilbert, Middleton, Wis.; Rush Medical College, Chicago, 1899; served as health officer; died May 24, aged 81, of carcinoma of the prostate and essential hypertension.

Runkle, George Darius ✠ Stockton, Ill.; Northwestern University Medical School, Chicago, 1903; died July 3, aged 77, of abdominal carcinoma.

Sawyer, Dwight M. ⊙ Glens Falls, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1911; past-president and secretary of the Warren County Medical Society; member of the Glens Falls Academy of Medicine; consulting physician for the Glens Falls Hospital, where he was past-president, vice-president, and secretary of the staff; an examining physician for the draft board during World Wars I and II; died May 7, aged 73, of aneurysm of the aorta.

Schrader, Merlin Arthur, Melbourne, Iowa; State University of Iowa College of Medicine, Iowa City, 1940; member of the American Society of Anesthesiologists; died in the Skiff Memorial Hospital, Newton, July 2, aged 42, of injuries received in an automobile accident.

Silliman, George Stephen ✠ Roanoke, Va.; Albany (N. Y.) Medical College, 1908; associated with the Veterans Administration; died in the Veterans Administration Hospital April 19, aged 73, of coronary thrombosis.

Smith, Alfred Nelson ✠ Glasgow, Mont.; Northwestern University Medical School, Chicago, 1911; on the staff of the Frances Mahon Deaconess Hospital; died in Havre June 22, aged 73, of peritonitis, following a ruptured diverticulum.

Smith, Nina Ream, Monterey Park, Calif.; Sioux City (Iowa) College of Medicine, 1900; an associate member of the American Medical Association; died in the Collis P. and Howard Huntington Memorial Hospital, Pasadena, June 2, aged 88, of coronary thrombosis.

Steinfeld, Julius ✠ Des Plaines, Ill.; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1920; member of the American Psychoanalytic Association and the American Psychiatric Association; medical director and owner of the Forest Sanitarium; died in Zurich, Switzerland, June 27, aged 60, of coronary occlusion.

Sturm, Ellis A., Atlanta, Ga.; Eclectic Medical Institute, Cincinnati, 1895; died April 30, aged 87, of arteriosclerosis and uremia.

Thewlis, Malford Wilcox ✠ Wakefield, R. I.; Medical School of Maine, Portland, 1911; founder and secretary of the American Geriatrics Society; author of "The Care of the Aged (Geriatrics)"; served as associate editor of *Medical Times;* on the staff of the South County Hospital, where he died June 3, aged 66.

Waugh, Fred Duvall, Riverside, Ill.; Northwestern University Medical School, Chicago, 1908; died in the Research and Educational Hospitals in Chicago March 4, aged 86.

Wells, George Marion ✠ Bowling Green, Ky.; Loyola University School of Medicine, Chicago, 1916; veteran of World Wars I and II; since 1931 director of the Warren County Health Department; from 1952 to 1956 medical advisor at the Western Kentucky State Teachers College; for many years practiced in Lafayette, Ind.; died recently, aged 68, of coronary thrombosis.

Whitledge, Herbert Edwin, Evansville, Ind.; University of Louisville (Ky.) Medical Department, 1897; veteran of World War I; served in the U. S. Public Health Service Reserve and the Veterans Bureau; at one time associated with the Veterans hospitals in Camp Kearney, Calif., and Outwood, Ky.; died in St. Mary's Hospital May 5, aged 81.

Williams, Arthur Grady ✠ Florala, Ala.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; vice-president of the Bank of Florala; died May 16, aged 68, of coronary disease.

Wilson, Cas Pharaoh ✠ Sevierville, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1917; founder and medical director of the Wilson Hospital; died in the Fort Sanders Presbyterian Hospital, Knoxville, May 29, aged 64.

York, Marion Nicholas, Hawthorne, Calif.; University of Arkansas School of Medicine, Little Rock, 1920; died April 12, aged 63.

Young, Glyndon Angus, Minden, Nev.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1900; formerly practiced in Ponca, Neb., where he served as mayor and county health officer; served overseas during World War I; died June 28, aged 80, of carcinoma of the prostate.

Young, Lawrence Randolph, Mandeville, La.; Kentucky School of Medicine, Louisville, 1906; died June 18, aged 73.

Zaborowski, Francis Leo ✠ Philadelphia; Temple University School of Medicine, Philadelphia, 1926; fellow of the American College of Surgeons; an instructor in surgery at his alma mater; on the staffs of the Northeastern and Temple University hospitals; died in Fort Washington, Pa., June 6, aged 55.

Zawislak, Joseph John ✠ Lawrence, Mass.; Middlesex College of Medicine and Surgery, Waltham, 1936; served overseas during World War II; formerly physician for the social disease clinic of the Municipal Health Department; school physician; on the staffs of the Lawrence (Mass.) General Hospital and the Bon Secours Hospital in Methuen; died May 10, aged 47, of coronary thrombosis.

Zenner, Philip ✠ Cincinnati; Miami Medical College, Cincinnati, 1875; professor emeritus of neurology at the University of Cincinnati College of Medicine; member of the American Neurological Association; oldest retired staff member of the Jewish Hospital; died June 25, aged 104.

FOREIGN LETTERS

AUSTRIA

Meeting of Gynecologists.—The fourth Congress of Austrian Gynecologists met in Bad Ischl in June.

Uterine Prolapse.—Dr. T. Antoine of Vienna stated that in uterine prolapse operation should be performed, provided there are no general contraindications. Treatment with a pessary may be considered only in exceptional cases. The operative methods vary greatly and the choice depends on the preference of the operator, the degree of the prolapse, the patient's marital status, and the presence or absence of urinary incontinence. The simplest operation is colporrhaphy, by which satisfactory results are obtained in patients with moderate prolapse, when the operation is combined with restoration of the position of the bladder and the construction of a high perineum. Interposition is still an effective method in women of advanced age with large cystoceles. Its use is now greatly reduced by the Manchester operation, which also yields excellent results. Lifting up or fixation of the cervix may be obtained also by other operations such as Kjelland's or by shortening or fixation of the sacro-uterine ligaments at the cervix. Hysterectomy should be performed only exceptionally in patients with a normal uterus. Halban's operation, which consists of amputation of the cervix and obliteration of the vesico-uterine excavation with subsequent colporrhaphy, proved to be valuable in patients with lesser degrees of prolapse. In women of advanced age, one may perform a vaginal obliteration, with or without obliteration of the vulva, or simple obliteration of the vulva. The Spalding-Richardson operation consists of amputation of the body of the uterus and of the cervix, and in this operation only the supravaginal portion of the cervix is spared. It is supposed to provide better support to the vagina by preserving the cardinal ligaments. Other recent techniques include the cutaneous transplantation (Ruiz-Arce), the interposition-like technique (Thiessen), the insertion of tongues of cartilage into the interior vaginal wall (Gallo), and the sagittal gathering up of the vagina (Lorbeer). Only in rare cases is it necessary to perform a laparotomy in the course of operation for prolapse.

Vaginal Operation for Prolapse.—O. Kiser of St. Gallen reported a series of 872 vaginal operations for prolapse and 3 exohysteropexies. Ten patients with prolapse and severe general disease were treated with the aid of a pessary. Twenty per cent of the women operated on were over 60 years of age, the oldest being 90. In 63% an anterior and posterior plastic operation was performed, and in most of these the cervix was amputated and the cardinal ligaments were gathered up. In 37% the uterus was extirpated by the vaginal route, either because of climacteric hemorrhages or fibromyoma or because of extensive or total prolapse in patients of advanced age. In nearly 33% various additional operations were performed. No operative deaths (for up to 30 postoperative days) occurred. The most important postoperative complications were pyuria (20%), a febrile course (12%), thromboses (2.5%), and embolism (1.3%). The number of thromboembolisms was markedly reduced by systematic physical and chemical prophylaxis, but the incidence of hemorrhages (4.4%) was increased. Follow-up observations of 64% of the patients were made, and recurrences were observed in 12 patients (in 3 of them after additional deliveries). Incontinence of urine had been present in more than 50% of the patients; in 90% of these a complete recovery resulted from the operation, 7.5% were improved, and 1.8% were therapeutic failures.

Uterine Prolapse in Women of Advanced Age.—S. Kolonja of Klagenfurt reported on an operative technique that consists of anterior colporrhaphy, extensive colpoperineal repair, and obliteration of the vulva with construction of a high muscular perineum that extends to the opening of the urethra. A fourfold supportive effect is thus obtained. The last act of the obliterating operation, the establishment of a muscular plate that is able to provide support and which is obtained with the aid of the levator ani, the bulbocavernous muscles, and deep and superficial perineal muscles, is essential for a lasting good result. Ninety-eight women were operated on by this method, and, of these, 80 had had total prolapse and 18 partial prolapse. The age of the patients ranged from 55 to 83 years. All the patients obtained a satisfactory plastic result and were free of symptoms when they were discharged. There were no postoperative deaths. There were no recurrences in the 91 patients who could be followed up. Because the anatomic and functional results were highly satisfactory in all patients, the speaker felt justified in recommending this technique.

Pain-Relieving Operations.—Dr. Kruger of Bad Ischl stated that operations for relief of pain should primarily be limited to thoracic or, even better, perhaps, to cervical chordotomy. The pain with which the gynecologist has to deal is primarily caused by irritation of the lumbosacral plexus and the cervical plexus. Complete relief of pain may be obtained with chordotomy in the form of sectioning the spinothalamic tract. With correct technique, impairment of the pyramidal tracts and of the anterior spinal artery can be prevented. The results with high cervical chordotomy are generally excellent. A presumptive survival time of about three months must be required for considering this operation as indicated. The speaker advises against prefrontal leukotomy for relief of pain, because of the great psychic changes associated with its use and because the patients with pain are not as a rule mental patients. In patients who are expected to die within a few months, morphine is still the drug of choice.

Puerperal Mastitis.—P. Elsner and W. Thewanger, of Vienna, believe that the increased incidence of mastitis is related to the increasing and often ill-advised use of chemotherapeutic agents and particularly of antibiotics. Certain criteria, such as comparison of the total duration of the preoperative and that of the postoperative course and the rate of recurrences, suggest that treatment by conservative means (application of heat and withdrawal of milk by a breast pump) is to be preferred to the additional use of chemotherapeutic agents. These observations are supported by determinations of bacterial resistance and culture studies. In 93% of the patients Micrococcus pyogenes var. aureus was found to be the pathogen, and in 84% it was resistant to penicillin.

Metrorrhagia.—H. Zacherl of Vienna said the observation that the first hemorrhage associated with placenta previa is almost never fatal and that the same applies to subsequent hemorrhages, provided the hemoglobin level is normal, seems to suggest expectant treatment for patients in whom pregnancy has not yet progressed to full term. This procedure, however, depends on the existence of a well-organized blood bank and complete preparedness for surgical treatment. Thus, the high mortality rate among immature infants when the mother has placenta previa can be greatly reduced without endangering the life of the mother. Acquired hemorrhagic diathesis may be associated with certain complications such as ablatio placentae, severe toxicosis, missed labor, extensive Rh immunization, and amniotic fluid embolism. Such hemorrhages, which may be uncontrollable, depend on a fibrinogen deficiency, which is a rare occurrence. The mechanism of their production warrants the conclusion that a too active obstetric management may favor such hemorrhagic diathesis, and it should therefore be avoided.

Retention of the Placenta.—E. Leinzinger of Graz stated that, by filling the placenta through the umbilical vein with 70% iodopyracet injection, it has been possible for the first time to elucidate roentgenologically the causes of the placental retention in situ. In addition to abnormal structure and abnormal insertion of the placenta, mechanical impediments may also be responsible for

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

the retention of the partially detached placenta or for the incarceration of the detached placenta. Retention of the placenta is rare if methylergonovine tartrate is used as soon as the indications are clear. In one patient expression of the placenta was not performed at the optimal time, and incarceration of the placenta, recognizable in the roentgenogram, resulted.

Diabetes and Pregnancy.—G. Mestwerdt of Halle stated that the fertility of diabetic women can now be greatly increased (from 2 to 28%) and the mortality of mothers and infants could be decreased from 50 to about 1%. Early diagnosis and differentiation of pancreatic diabetes and hypophyseal diabetes are essential. It is difficult to influence the course of the latter form, which is responsible for infant death rates up to 50%. Since glycosuria is observed frequently in pregnant women, the diagnosis may be established only by an increased blood sugar level. Latent diabetes may frequently become manifest for the first time in pregnancy. A history of preceding stillbirth, malformations, and gigantic infants presents certain indications. Toxicosis is a frequent complication (30% more frequent when associated with diabetes). The incidence of malformed infants is about 10%. Pregnancy makes every patient with diabetes worse by disturbing the hypophyseal regulatory mechanism. While some stabilization may occur in the middle of the gestational period, the onset and the end of pregnancy are associated with great lability of the blood sugar level. Metabolic relationships between mother and fetus increase this lability. There is a changed responsiveness to insulin that frequently results in hyperglycemia. The hyperglycemic blood of the mother stimulates formation of insulin in the fetus. This does not pass the placenta but exerts an increased absorption effect on the sugar by a reduction of the fetal sugar in the blood. With too large a dose of insulin, hypoglycemia results in mother and infant, and the fetus may die. Strict and constant control is, therefore, essential. In the infants, control of the blood sugar level is of less importance, since it is highly labile even under normal conditions. Administration of glucose by mouth is indicated. Increase in weight occurs slowly in most patients because of the slow reduction of the edema. Birth trauma occurs frequently, and, therefore, cesarean section seems to be the best form of delivery, preferably in the 36th week of pregnancy. Extremely early section was abandoned because of increased mortality of the infants. The indications for cesarean section in these patients are: toxicosis, characteristic complications such as gigantic fetus, signs of fetal maturation despite short gestation (roentgenographic measurements of the fetal length), threatened psychoses of the mother at the end of pregnancy with risk of shock and coma, advanced age of primiparas, and history of several stillbirths.

Radioactive Isotopes.—E. Schwach of Vienna injected radioactive gold (Au^{198}) directly into the tumors of patients with still limited recurrences in the pelvic wall after hysterectomy for carcinoma of the uterus. In patients in whom intratumoral application was impossible, a strip saturated with the remaining portion of the isotope was placed on the carcinomatous focus, which had been made accessible by laparotomy. Temporary fixation was performed in order to obtain an optimum local irradiation effect. From 120 to 200 curies was applied per treatment. Despite the large dose, neither a carcinolytic irradiation effect in the recurrent tumor nor a growth-inhibiting effect on the carcinomatous spread was observed. The Au^{198} is distributed too rapidly within the body, and thus a low-dose local irradiation effect may be obtained, which causes temporary relief of pain in most cases. Appreciable rests of the isotope could still be demonstrated with the Geiger counter in the patient's body after two months, and they were stored in higher concentration in the spleen than in the injected pelvic organs. Because of these observations, the speaker refrained from further therapeutic application of Au^{198} in treating recurrent pelvic tumors.

Embryopathy Without Manifest Disease of the Mother.—E. Engelhart of Graz said embryopathies may be classified as viral, deficiency, toxic, and those caused by irradiation. An atypical form has also been observed. In contrast to the typical viral embryopathy, this was a viral embryopathy with no sign of infectious disease of the mother during early pregnancy. The patients had had the viral disease in their childhood and had acquired immunity. The malformations in their infants were caused by a viral disease of a child who lived in close contact with the pregnant woman during her early pregnancy. The woman during her early pregnancy acts as a carrier of the virus and transmits it to the embryo. The first case was that of a malformation and premature birth resulting from the mother's exposure, early in pregnancy, to German measles in an older child. There was no simultaneous disease in the mother, who had acquired immunity at the age of 3 years. The second case was one of intra-uterine fetal death and abortion after several children had had whooping cough without simultaneous disease of the mother during the early pregnancy. This mother had had whooping cough when she was 3 years old and was reexposed to the infection in the 20th week of her pregnancy. Miscarriage of the infant, who had died in utero, occurred after 25 weeks. In the third case the mother was in her fifth week of pregnancy when her first-born child got scarlet fever. She attended this child during the entire infectious period, and the fetus developed a severe cardiac malformation. It was concluded that this type of viral embryopathy will be the cause of malformations more frequently than that caused by German measles, because most women have acquired immunity to this disease in childhood. Furthermore, some of the unknown causes of congenital malformation, which cause to about 42% of the total, can be explained in this way. Protection can be obtained only by effective prophylactic treatment, which consists of separation of the mother in early pregnancy from her children with virus disease.

Thrombopenia During Treatment with Reserpine.—At the meeting of the Society of Physicians of Vienna on June 29, Dr. K. Schmidt reported the case of a 56-year-old patient in whom a hemorrhagic diathesis with thrombopenia developed during treatment with reserpine. There was an increase in thrombocytes and a disappearance of hemorrhagic diathesis after corticotropin was given in place of reserpine. The decrease in thrombocytes was by crisis, and hemorrhagic diathesis recurred after a small test dose of reserpine was given, symptoms being demonstrable after six hours. There was no retraction of the blood clot when reserpine was added in vitro to the patient's blood, and the retraction of the clot was poor without the addition of the drug. These manifestations disappeared after treatment with corticotropin, but the thrombocytes again decreased when treatment with corticotropin was discontinued, even though no more reserpine was given.

Eczema Herpetiforme.—At the same meeting, Drs. W. Lindemayr and C. Eberhartinger reported a series of nine patients with eczema herpetiforme. This disease is produced by the infection of the eczematous skin with the virus of herpes simplex and must be distinguished from similar lesions, particularly from eczema vaccinatum. The virus of herpes simplex could be demonstrated in all of the seven patients so tested. Three patients showed involvement of the cornea or the eyelids. The course was benign in all of the patients. To what extent this was the result of the use of the chlortetracycline given cannot be said because the condition tends to heal spontaneously.

Sudden Pressure Changes.—At the same meeting, H. Kolder reported experiments on explosive decompression carried out on rats in a glass the shape of a truncated cone. The immediate results of explosive decompression were investigated with pressures of 0.1 kg. per square centimeter and a pressure difference from 0.4 to 0.9 kg. per square centimeter with pressure equalization times of 1.3 to 15 milliseconds. Immediately after the decompression, respiration ceases and the electrocardiogram shows a decrease in frequency. Animals that had been subjected to vagotomy continued to breathe after the decompression, but after from 15 to 20 seconds even the vagotomized animals showed bradycardia together with electrocardiographic signs of a cardiac disorder induced by hypoxia. The instantaneous arrest of respiration and the bradycardia are caused by stimulation of the vagus nerve, which in turn is produced by the expansion of air in the dilated lung as the result of the decompression. The changes observed in the electrocardiogram after from 15 to 20 seconds, even in the vagotomized animals, are caused by arterial air embolism. Air bubbles can be demonstrated in the heart.

Artificial pneumothorax protects against the results of explosive decompression, that is, the arterial air embolism cannot have been caused by the liberation of gases in the blood. With the aid of high-speed photography, it was possible to follow the course of the expansion of the thorax after decompression. There was a noticeable outflow of air from the mouth after 3 milliseconds, and after 5 milliseconds the expansion of the thorax begins. This expansion is maximal at the end of 20 milliseconds, and, after from 60 to 70 milliseconds, the thorax again commences its contraction. The results of decompression depend on the outflow of the air that has expanded in accordance with the pressure decrease in the lung, and on the concurrent expansion of the thorax as a result of the decrease in pressure around the body. Exact values can be given for the pressure difference and decompression time that are just bearable. In the presence of a pressure difference of 0.9 kg. per square centimeter, for instance, the decompression time must be longer than 40 milliseconds in order to avoid the afore-mentioned results. Functional manifestations and autopsy findings indicate that the same process takes place during explosive decompression and in injuries produced by air blast.

Evaluation of Clinical Findings.—At the same meeting, E. Bukovics and F. X. Wohlzogen said that statistical analysis is difficult or impossible when clinical findings are not expressed in definite figures. This is particularly the case in the evaluation of a patient who is being treated with a new drug, the efficacy of which is unknown. In such cases there are only three criteria that can be applied to the evaluation: improved, unchanged, or made worse. The question arises whether it is possible to deduce the therapeutic efficacy from the number of improved patients in a group of patients who have received the same treatment. This problem was solved as follows. In accordance with the clinical findings, each patient was given a numerical factor, thus, +1 stood for improved, 0 for unimproved, −1 for made worse. These figures were added. A spot check of the factor n (number of patients) thus receives a certain value z (sum of evaluations). Assuming that, without the administration of the therapeutic substances to be tested, an equal number of patients would be improved, unimproved, or made worse (z=0), it is possible to compute exactly the probability of every fortuitous deviation of the value of z from 0.

ITALY

Infant Death Rate.—Recent statistical reports indicate that the deaths in the first year of life in Italy have decreased from 58.4 to 52.8 per 1,000. This is attributed to improved medical care, the use of new drugs, and improved living conditions. The number of accidental deaths due to such things as falls, drownings, and road accidents exceeds that due to disease.

Hereditary Tumors.—At the meeting of the Medical Academy of Pistoia in April, Professor Cianferrari stated that hereditary predisposition to formation of tumors exists in some persons. This is especially true in tumors of the stomach and breast. Those of the uterine cervix and of the bladder appear not to be hereditary, and tumors of the uterine fundus and of the prostate may or may not be inherited. The speaker emphasized the fact that, even though tumors may be considered biologically hereditary, the probability that such a tumor will develop in any given person is not much greater than the probability of formation of tumors in the general public.

PERU

Treponematosis.—Further evidence that treponematosis originated in the Americas is presented by Prof. Pedro Weiss (*Ginecologia y Obstetricia*, volume 2, number 1, 1956), who found in pre-Colombian cemeteries adults' bones with lesions identical to those now known to be caused by syphilis. There is further evidence that, of the three treponematoses (syphilis, yaws, and pinta), pinta arose first. Syphilis is an urban disease and does not need an insect vector, while yaws and pinta are rural diseases and are transmitted by insects. Since yaws and pinta have epidemiological features that render them likely to arise under the conditions found in the tropical jungle, they may be as old as the jungle, whereas syphilis requires concentrations of population such as were not found until agricultural cultures were formed many thousands of years later.

President-Elect of Peruvian Federation.—Dr. Froilán Villamón, president-elect of the Peruvian Medical Federation, in an address before the federation said that one of the most important problems in medical education is the creation of a code of medical ethics. There is also a great need to place medical research on a firmer scientific basis. Dr. Villamón pledged himself to fight for free choice of physician and clinic by beneficiaries of the social insurance agency.

The Menopause.—In *Ginecologia y Obstetricia* (volume 2, number 1, 1956), Dr. Normando Arenas and co-workers state that, in a series of 1,000 women in the menopause, the average age at menarche was 13 years 9 months and the average age at menopause was 48 years 8 months, giving an average of 34 years 11 months of potential child bearing. The fact that this figure is slightly less in women of European origin is explained by environmental rather than racial factors.

UNITED KINGDOM

BCG Vaccine.—Since 1949, when BCG vaccine began to be used on a large scale in the United Kingdom, the standard liquid BCG vaccine manufactured by the State Serum Institute of Copenhagen has been used. Although this vaccine has given a conversion rate of practically 100% within six to eight weeks, it has become clear that liquid BCG suspensions have certain disadvantages. These include the necessity for using them fairly soon after preparation, a tendency to the production of unsightly scars, and the inability to test them for their content of viable organisms because of the fact that the vaccine is released for use soon after preparation. A freeze-dried vaccine is now available in the United Kingdom, and Lorber and co-workers (*Tubercle* 37:187, 1956) have investigated its use in 276 newborn infants in Sheffield. They report that six weeks after vaccination the reaction to tuberculin was positive in only 80% of the vaccinated infants, but 12 weeks after vaccination it was positive in 94%. The local lesions produced by the freeze-dried vaccine were much smaller than those produced by the Danish vaccine and were neither painful nor disfiguring. They usually disappeared by 12 weeks after vaccination. Enlargement of the axillary lymph nodes was infrequent, and the nodes never discharged or suppurated. On the other hand, in 11 of the 106 infants vaccinated with the liquid vaccine, a large papule with a large central ulcer developed, axillary lymph-node enlargement was common; and the large lesions took many months to heal. The freeze-dried vaccines were kept at room temperature for 19 to 28 weeks without apparent loss of antigenicity.

Incidence of Circumcision, Tonsillectomy, and Appendectomy in Recruits.—The incidence of circumcision, tonsillectomy, and appendectomy among 1,434 Royal Air Force recruits, aged 17 to 24 years, was investigated by Stuart Carne (*Brit. M. J.* 2:19, 1956). Circumcision had been performed in 34.4% (less than 1.5% of the recruits were Jewish). The incidence was higher in those from "public" schools (41.9%) than in those from "elementary" schools (32.8%). The most striking difference, however, was the much lower incidence (25.5%) among the 137 recruits who came from Scotland. Tonsillectomy had been performed in 31.9% of the recruits, and nearly 67% of the operations had been performed when the subject was in the 4-to-8-year age group. There were no national differences, but the incidence was significantly higher among recruits from grammar and public schools (37%) than among those from elementary schools (28.9%). Appendectomy had been performed in 8.4% of the recruits.

Annual B. M. A. Meeting.—The annual representative meeting of the British Medical Association, held in Brighton, was enlivened by an introductory debate as to whether members should be allowed to smoke while the meeting was in session. Convinced that not only lung cancer but also coronary thrombosis and bronchitis are undoubtedly brought on by smoking, the meeting agreed that smoking should not be allowed during the meetings. A statement in its annual report that the council believes the National Health Service likely from time to time to be the subject of political controversy led to much discussion. One member said that if the health service were divorced from politics it need not annually cost 1.12 billion dollars. In his opinion the council could have called a conference of the political parties, approached the Prime Minister and the leader of the opposition, and informed the public that the profession was tired of being the football of the two political parties. A member of the council admitted that it was a bad thing that medicine should be to some extent bedeviled by politics, but so far the council had been unable to find any practical solution to the problem.

In a motion expressing alarm at the continued influx of immigrants found to be suffering from communicable diseases and recommending that appropriate action be taken, a member said that persons with tuberculosis were entering the country in far greater numbers than the Ministry of Health was willing to admit. At one clinic in London, of 78 beds provided for the treatment of pulmonary tuberculosis, 26 were permanently occupied by Irish immigrants. There appeared to be no effective statutory power to prevent the entry into the country of persons suffering from active pulmonary tuberculosis. Britain was almost alone in the Commonwealth in not requiring an examination and certificate of fitness from prospective immigrants before leaving the country of origin. Another member of the council said that all that stood between this resolution and its implementation was the ever-open-door policy to immigrants from practically all over the world to Britain.

The Oxford division moved that access to the National Health Service should not be available to foreign tourists in Britain except in the case of nationals of countries with which there are reciprocal arrangements. This motion did not apply to foreigners who were resident for a long period or who were studying in Britain. Another member stated that about 18 months ago six American women were taken into Southampton Hospital with fractured femurs due to a rough crossing of the Atlantic. Although one of them was fit enough to go home after an eight-weeks' stay in the hospital, she said she could not afford the treatment in the United States and remained in the hospital six more weeks. Other members took pride in being allowed to offer hospitality to those who come to Britain for any purpose. The motion was rejected by a vote of 155 to 135.

The meeting carried a motion expressing chagrin at the refusal of the Home Secretary to legalize the administration of morphine by competent nurses in serious industrial accidents. It was reported that some time ago a deputation from the Royal College of Nursing and the British Medical Association went to see the Home Secretary to request an amendment to provide that competent nurses employed in industry should be allowed to administer morphine in cases in which there was likely to be delay in getting a physician to the scene. The Home Secretary refused to agree to this, pointing out that the proper way to provide for a serious accident was to ensure that there were arrangements for securing the early attendance of a physician. In opposing the motion, a member from the Durham coalfield said that he did not consider it fair to put this extra responsibility on nurses. A patient in shock requires intravenous administration of morphine in many cases, and that is not a procedure for a nurse to carry out.

The Burst Abdomen.—At the annual meeting of the B. M. A., Mr. Harold Park reported that, in 10,166 laparotomies performed at three general hospitals in Brighton over a five-year period, wound dehiscence occurred in 140, or 1.3%. When appendectomies were excluded, the figure was 2.1%. Most bursts occurred about the fifth or sixth day, and upper abdominal incisions were more prone to rupture than those of the lower abdomen. The case fatality rate was about 30%. He distinguished two types. One occurred in debilitated patients, in whom the wound never showed any signs of healing. The other, and more important, type occurred in patients in good condition and was preceded by a serosanguineous discharge from the wound. This type occurred usually in patients in the fifth, sixth, and seventh decades, and more than a third were in patients with malignant disease. Catgut had been used in 72% of the bursts. A precipitating factor was always increased abdominal pressure, usually due to coughing, vomiting, or ileus. Mr. Selwyn Taylor, in discussing this second type, made a plea for a study of the bacterial flora of the serosanguineous discharge, which could appear as early as 24 hours after operation. It did not appear to matter what type of suture material was used. In experimental wounds the introduction of antibiotics had improved the tensile strength of sutures, which suggested that asepsis was important. The speaker could find no record of a burst following a transverse abdominal wound.

Cost of Health Service.—The Minister of Health stated that the cost of the health service per capita of civilian population in England and Wales, exclusive of that met by payments by persons using the services, was estimated for 1956-1957 to be nearly $34 for all services provided as part of the health service. The estimated total cost to the health service in the current fiscal year resulting from increases in the prices of food and other hospital purchases is about $10,920,000. The cost to the Ministry of Health of a full years' supply of welfare milk to an individual child was $23.37; but this increased to $25.53 on July 1, when the price of liquid milk was increased.

New Poliomyelitis-like Disease.—After reviewing several mysterious outbreaks of an illness akin to poliomyelitis, the *Lancet* of May 26 concludes that a new disease involving the central nervous system has made its appearance. It is characterized by symptoms and signs of damage to the brain and spinal cord, protracted muscle pain, and emotional disturbances in convalescence, but it has a relatively benign outcome. One outbreak occurred in northwest London last summer, the second involved young British soldiers stationed in Berlin, and a third occurred in Iceland.

National Versus White Flour.—The independent panel appointed by the government to study the nutritive values of flour supported the industry against the government's medical and scientific advisers. Millers and bakers had claimed that nutritional differences in composition between national flour of 80% extraction (produced when 100 parts by weight of uncleaned wheat have been milled to give 80 parts by weight of flour) and the prewar flour of 70 to 72% extraction, when the latter was enriched with vitamins and iron, were insignificant. The government's medical and scientific advisers and the Medical Research Council claimed that, if the extraction rate were lowered to 70%, and even if thiamine, nicotinic acid, and iron were restored by enrichment, a reduced intake of other vitamins might in some circumstances cause nutritional deficiences. Flour of 80% extraction is, however, unpopular with millers, because it tends to be grey. The panel was impressed by the evidence for the demand for white flour and white bread. The professional pride of the miller in producing as clean and white a flour as possible is one reason for this preference. The bakers prefer a low extraction flour because it is easier to handle and from it they can produce more appetizing bread, rolls, cakes, and biscuits. Even the public prefers bread and cake made with the whiter grades of flour. The scientific arguments by the experts and advisers were not disproved but merely gave way to a popular demand.

Twins Born Twelve Days Apart.—Twins have been born 12 days apart at the Bearsted Jewish Memorial Hospital, Stoke Newington. The mother went into the hospital on May 17, and the first of the twins, both boys, was born on May 18. The second arrived on May 30. Mother and twins are well. This is the longest gap between twin births in the history of the hospital.

the aid of high-speed photography, it was possible to follow the course of the expansion of the thorax after decompression. There was a noticeable outflow of air from the mouth after 3 milliseconds, and after 5 milliseconds the expansion of the thorax begins. This expansion is maximal at the end of 20 milliseconds, and, after from 60 to 70 milliseconds, the thorax again commences its contraction. The results of decompression depend on the outflow of the air that has expanded in accordance with the pressure decrease in the lung, and on the concurrent expansion of the thorax as a result of the decrease in pressure around the body. Exact values can be given for the pressure difference and decompression time that are just bearable. In the presence of a pressure difference of 0.9 kg. per square centimeter, for instance, the decompression time must be longer than 40 milliseconds in order to avoid the afore-mentioned results. Functional manifestations and autopsy findings indicate that the same process takes place during explosive decompression and in injuries produced by air blast.

Evaluation of Clinical Findings.—At the same meeting, E. Bukovics and F. X. Wohlzogen said that statistical analysis is difficult or impossible when clinical findings are not expressed in definite figures. This is particularly the case in the evaluation of a patient who is being treated with a new drug, the efficacy of which is unknown. In such cases there are only three criteria that can be applied to the evaluation: improved, unchanged, or made worse. The question arises whether it is possible to deduce the therapeutic efficacy from the number of improved patients in a group of patients who have received the same treatment. This problem was solved as follows. In accordance with the clinical findings, each patient was given a numerical factor; thus, +1 stood for improved, 0 for unimproved, −1 for made worse. These figures were added. A spot check of the factor n (number of patients) thus receives a certain value z (sum of evaluations). Assuming that, without the administration of the therapeutic substances to be tested, an equal number of patients would be improved, unimproved, or made worse ($z=0$), it is possible to compute exactly the probability of every fortuitous deviation of the value of z from 0.

ITALY

Infant Death Rate.—Recent statistical reports indicate that the deaths in the first year of life in Italy have decreased from 58.4 to 52.8 per 1,000. This is attributed to improved medical care, the use of new drugs, and improved living conditions. The number of accidental deaths due to such things as falls, drownings, and road accidents exceeds that due to disease.

Hereditary Tumors.—At the meeting of the Medical Academy of Pistoia in April, Professor Cianferrari stated that hereditary predisposition to formation of tumors exists in some persons. This is especially true in tumors of the stomach and breast. Those of the uterine cervix and of the bladder appear not to be hereditary, and tumors of the uterine fundus and of the prostate may or may not be inherited. The speaker emphasized the fact that, even though tumors may be considered biologically hereditary, the probability that such a tumor will develop in any given person is not much greater than the probability of formation of tumors in the general public.

PERU

Treponematosis.—Further evidence that treponematosis originated in the Americas is presented by Prof. Pedro Weiss (*Ginecologia y Obstetricia*, volume 2, number 1, 1956), who found in pre-Colombian cemeteries adults' bones with lesions identical to those now known to be caused by syphilis. There is further evidence that, of the three treponematoses (syphilis, yaws, and pinta), pinta arose first. Syphilis is an urban disease and does not need an insect vector, while yaws and pinta are rural diseases and are transmitted by insects. Since yaws and pinta have epidemiological features that render them likely to arise under the conditions found in the tropical jungle, they may be as old as the jungle, whereas syphilis requires concentrations of population such as were not found until agricultural cultures were formed many thousands of years later.

President-Elect of Peruvian Federation.—Dr. Froilán Villamón, president-elect of the Peruvian Medical Federation, in an address before the federation said that one of the most important problems in medical education is the creation of a code of medical ethics. There is also a great need to place medical research on a firmer scientific basis. Dr. Villamón pledged himself to fight for free choice of physician and clinic by beneficiaries of the social insurance agency.

The Menopause.—In *Ginecologia y Obstetricia* (volume 2, number 1, 1956), Dr. Normando Arenas and co-workers state that, in a series of 1,000 women in the menopause, the average age at menarche was 13 years 9 months and the average age at menopause was 48 years 8 months, giving an average of 34 years 11 months of potential child bearing. The fact that this figure is slightly less in women of European origin is explained by environmental rather than racial factors.

UNITED KINGDOM

BCG Vaccine.—Since 1949, when BCG vaccine began to be used on a large scale in the United Kingdom, the standard liquid BCG vaccine manufactured by the State Serum Institute of Copenhagen has been used. Although this vaccine has given a conversion rate of practically 100% within six to eight weeks, it has become clear that liquid BCG suspensions have certain disadvantages. These include the necessity for using them fairly soon after preparation, a tendency to the production of unsightly scars, and the inability to test them for their content of viable organisms because of the fact that the vaccine is released for use soon after preparation. A freeze-dried vaccine is now available in the United Kingdom, and Lorber and co-workers (*Tubercle* 37:187, 1956) have investigated its use in 276 newborn infants in Sheffield. They report that six weeks after vaccination the reaction to tuberculin was positive in only 80% of the vaccinated infants, but 12 weeks after vaccination it was positive in 94%. The local lesions produced by the freeze-dried vaccine were much smaller than those produced by the Danish vaccine and were neither painful nor disfiguring. They usually disappeared by 12 weeks after vaccination. Enlargement of the axillary lymph nodes was infrequent, and the nodes never discharged or suppurated. On the other hand, in 11 of the 106 infants vaccinated with the liquid vaccine, a large papule with a large central ulcer developed, axillary lymph-node enlargement was common; and the large lesions took many months to heal. The freeze-dried vaccines were kept at room temperature for 19 to 28 weeks without apparent loss of antigenicity.

Incidence of Circumcision, Tonsillectomy, and Appendectomy in Recruits.—The incidence of circumcision, tonsillectomy, and appendectomy among 1,434 Royal Air Force recruits, aged 17 to 24 years, was investigated by Stuart Carne (*Brit. M. J.* 2:19, 1956). Circumcision had been performed in 34.4% (less than 1.5% of the recruits were Jewish). The incidence was higher in those from "public" schools (41.9%) than in those from "elementary" schools (32.8%). The most striking difference, however, was the much lower incidence (25.5%) among the 137 recruits who came from Scotland. Tonsillectomy had been performed in 31.9% of the recruits, and nearly 67% of the operations had been performed when the subject was in the 4-to-8-year age group. There were no national differences, but the incidence was significantly higher among recruits from grammar and public schools (37%) than among those from elementary schools (28.9%). Appendectomy had been performed in 8.4% of the recruits.

Annual B. M. A. Meeting.—The annual representative meeting of the British Medical Association, held in Brighton, was enlivened by an introductory debate as to whether members should

Chiropody as Practice of Medicine and Surgery.—This is a declaratory judgment proceeding in which the plaintiff, Medical Care, Inc., seeks determination of the question whether it is required to pay, under its contracts, charges incurred by subscribers for treatments that they have received from certain practioners of chiropody. The trial court held that the plaintiff is obligated under its contracts with subscribers to pay for services rendered by chiropodists, provided such services consist of medical, mechanical, or surgical treatment of ailments of the human hand and foot with the use of local anesthetics. From this order the plaintiff appealed to the Supreme Court of Appeals of West Virginia.

The questions presented by the certificate of the circuit court, said the Supreme Court of Appeals, are (1) whether a chiropodist is a duly licensed physician within the meaning of the state's enabling act for medical care plans, and is eligible to participate in the medical service plan operated by the plaintiff, and (2) whether the plan operated by the plaintiff embraces within its scope or contracts treatment by a chiropodist and entitles him to payment by the plaintiff for such treatment according to its contracts with its subscribers and the schedule of payments provided in such contracts.

Under the contracts between the plaintiff and its subscribers, in consideration of certain dues paid by them, said the court, the plaintiff agrees to pay for certain medical and surgical treatment on the basis of a schedule of fees specified in the contracts for various medical and surgical services. A physician can become a participant in the plan by agreeing to comply with the specified schedule of fees. If the medical services are furnished to subscribers by a physician who does not participate, the plaintiff agrees to pay 75% of the fee specified in the schedule. The contracts do not expressly cover services furnished by chiropodists, and services by them were not taken into consideration when the rate of the dues required to be paid by subscribers was fixed by the plaintiff and approved by the insurance commissioner. The plaintiff asserts that if its plan should be extended to cover treatment by chiropodists it will be necessary to revise the rate of the dues in order to preserve the financial solvency of the plan as presently operated by it.

A consideration of the applicable statutes, said the court, indicates clearly that a duly licensed physician or surgeon is authorized to treat any human ailment or infirmity by any method and that a duly licensed chiropodist, though authorized to treat medically, mechanically, and surgically without the use of anesthetics other than local, the ailments of the hand or foot, except the amputation of the foot, hand, toes, or fingers, and to fit and recommend appliances for correction or relief of minor foot ailments, is limited to those areas and those ailments in the practice of medicine and surgery. A duly licensed physician and surgeon is authorized to engage in the practice of chiropody, but a duly licensed chiropodist may not practice medicine and surgery except within the limits expressly imposed by the statute.

The statutes relating to the licensing of chiropodists exclude chiropodists from the category of duly licensed physicians and surgeons by forbidding chiropodists to use the title "doctor" except in connection with the word "chiropody or chiropodist." The statute broadly defining the practice of medicine and surgery as the treatment of any human ailment or infirmity by any method, expressly states that its provisions shall not apply to regularly licensed or registered chiropodists.

It is clear, concluded the Supreme Court of Appeals, that a duly licensed chiropodist is not a duly licensed physician within the meaning of the West Virginia statutes and is not eligible to participate in the plan of a medical service corporation for medical and surgical care furnished by duly licensed physicians to its subscribers under the terms of their contracts with such corporation. A medical service corporation is authorized to contract with the public and duly licensed physicians only for such medical and surgical care as may be furnished by duly licensed physicians and for the payment for such service as may be specified in the contracts made by its subscribers with such corporation, and the exclusion from such contracts of any charge made by a duly licensed chiropodist for treatment which he has furnished to any of the subscribers of such corporation is proper. Accordingly the order of the trial court in favor of the defendants was reversed. *Medical Care, Inc. v. Chiropody Association of West Virginia et al.; 93 S. E. (2) 38 (W. Va., 1956).*

MISCELLANY

This is the first part of a two-part article. The second part will appear in a subsequent issue of The Journal.—Ed.

SOCIAL IN-SECURITY—THE TRAP AWAITING THE YOUNG M.D.

DON'T MISDIAGNOSE THIS SOCIAL DISEASE, IT'S CATCHING!

Richard C. Webster, M.D.
and
Richard J. Coffey, M.D., Brookline, Mass.

Is your wife attractive? Do you love your children? Are you unhappy about higher income taxes? If your answers are "Yes," then you should invest the time to read on. Some scraps of paper and a pencil will allow you to determine for yourself whether social security will be a good value for you—or just an expensive delusion.

The authors of this paper are young men, one 34 and the other 37 years old. We have tried to answer for ourselves the following questions: 1. Would social security be good for my wife? 2. Would social security be good for my children? 3. Would social security be good for me?

We have searched for, found, and put together the figures necessary to allow us to make our decisions. We think that the formulas that we employed can be used by other physicians in making their own decisions about the prices or costs for them of social security and the possible values of it in their family planning.

Table 1.—*Social Security Taxes with Tax-Base of $4,200*

3% of $4,200 each year from 1956 through 1959 (4 years) 0.03 × $4,200 $126 × 4	$504.00
3¾% of $4,200 each year from 1960 through 1964 (5 years) 0.0375 × $4,200 $157.50 × 5	$787.50
4½% of $4,200 each year from 1965 through 1969 (5 years) 0.45 × $4,200 $189 × 5	$945.00
5¼% of $4,200 each year from 1970 through 1974 (5 years) 0.0525 × $4,200 $220.50 × 5	$1,102.50
6% of $4,200 each year from 1975 on 0.06 × $4,200 $252 yearly	Variable amount depending on how many years you keep earning

Guaranteed Costs—Social Security Taxes

At the time of writing, Jan. 12, 1956 (it is necessary to state the date for accuracy's sake, because both the social security tax rate and the social security tax base can be raised any day by Congress), you, as a self-employed physician, if you came under social security, would pay 3% on the first $4,200 of your yearly income for your social security taxes.

The social security tax rate has been set by law as follows: 1956 through 1959, 3%; 1960 through 1964, 3¾%; 1965 through 1969, 4½%; 1970 through 1974, 5¼%; 1975 on, 6%. If the tax base figure stayed at $4,200, you would pay the amounts shown in table 1 in social security taxes.

There are some facts you must know about the social security taxes under the present laws if you are to make decisions based on knowledge rather than on hope or faith. You must report your earnings and pay your tax each year when you file your individual income tax return. The money you pay the federal government in social security taxes is not a deduction as far as your income tax is concerned. In other words, if your net income was $4,200, you would pay income tax on the $4,200 and you also would be required to pay your social security tax on the same amount. There are no deductions allowing you to reduce your social security taxes. As long as you earn over $400 a year, you must pay social security taxes. This applies even after you are 65 years old, even after you are 72.

Possible Costs—Probable Increases in *Social Security Tax Base* and Tax Rate

One fact that is not advanced with the claims by the advocates of extension of social security to include physicians *should* give you real cause for concern. The social security tax base figure has risen 40% in just five years. In 1950, the maximum earned income you paid social security taxes on was $3,000. By 1955 it was up to $4,200. A proposal now before Congress would raise it to $4,800 this year. Absolutely nothing in the laws prohibits Congress from raising this figure each year.

Each physician should ask himself the following questions: 1. If I were a politician anxious to please the largest number of voters, would *I* favor raising the social security tax base figure so that more benefits can be promised? 2. How many votes will I lose by antagonizing those with incomes over $4,200? Over $4,800? Over $6,000? Over $10,000? 3. If I can promise more benefits to the lower income groups, how many votes can I pick up? 4. Since well over half of the voters earn less than $4,200 a year, isn't my course of action as a politician perfectly clear? The answers to these questions, and recent history, give you the probable, not just possible, future trend of the social security tax base figures.

You have no guarantee that the social security tax rate will not increase beyond the figures provided by the present laws. In fact, the Cooper bill, which promises increased benefits and which shot through the House of Representatives in 1955 by a vote of 372 to 31, would change the social security tax rates as shown in table 2.

Put yourself in the politician's shoes. This year, 1956, is an important election year. You read in the American Federation of Labor's *American Federationist* that the first real political test for the newly merged CIO and AFL labor giant will come on H. R. 7225, the Cooper bill. How would you vote? Can you think of any good political reasons for not increasing the social security tax rates even beyond the Cooper bill changes?

TABLE 2.—*Social Security Tax Rates at Present and as Proposed in the Cooper Bill*

Present Law		Cooper Bill
Yr	Rate, %	Rate, %
1956-1959	3	3¾
1960-1964	3¾	4½
1965-1969	4½	5½
1970-1975	5¼	6
1975 on	6	6¾

We could not. Therefore, in our *determination* of social security costs for the physician, we came *to these conclusions:* 1. The present laws *guarantee that the* social security tax rate will increase. (It was revised upward as recently as 1954, by the way.) 2. The 40% rise in the social security tax base in the last five years sets the historical pattern for similar increases of the tax base in the future. 3. *Political* expediency *demands* further increases in both the social security tax rates and tax base figures. 4. We're goin' to get 'em, sure as shootin'!

How high will they go? Your guess is certainly as good as ours; but, on the basis of a $1,200 rise in five years, the tax base figure would be $9,000 by 1975. Six per cent of that would equal a social security tax of $540 per year. Six and three-quarters per cent of $9,000 would be $607.50 per year. If you figure a 40% rise from the previous social security tax base figure every five years, your tax base figure would be $22,588.61 by 1979. Six per cent of $22,588.61 would equal a social security tax of $1,355.32 per year. If the tax rate had risen to 10% by then, the tax would be $2,258.86 per year.

A third way to estimate future costs, based on recent social security history, would be to add $600 each year to the tax base figure. In 1954, the first $3,600 of income was taxed. In 1955, $600 was added. A *proposal* before Congress now would add another $600 in 1956. Using this progression, the tax base figure would be $7,200 in 1960, $10,200 in 1965, $13,200 in 1970, and $16,200 in 1975. Six per cent of $16,200 would equal a social security tax of $972.

We all should recognize that the taxes may not be as high as these figures indicate—or that they might be higher. What the figures do show beyond a question of a doubt is that you cannot make any plans based on costs. And no one in the world can be certain of more accuracy in predicting the future social security tax rates or tax base figures or what you will actually pay in social security taxes each year than you can right now!

It should be recognized that a radical change has taken place in political thinking in the last few years. What applied in the early history of social security no longer can be used as the basis for future thinking. What was originally set up as a plan to provide a minimum of protection for the poor is now being extended into all phases of our social and economic body. The guiding principle in the 1930's was that social security should furnish a basic floor of protection against want in old age or in the survivors in the case of premature death of the breadwinner. Today, an enormous number of people whose chances of benefiting from the social security plan are essentially nil are paying compulsory taxes into the plan, and its proponents wish to extend its purse power into many other fields. In 20 years, coverage has increased from 33 million to 70 million people. New groups are being added, new promises are being made, and new taxes are following.

Lest you say that the costs cannot reach dangerously high levels, think of these facts. The "Minimum Standards of Social Security" convention, adopted by the International Labor Organization several years ago with the support of the labor and government delegates from the United States, includes greater old-age and survivors' benefits than we now have, disability *benefits such as those proposed in the Cooper bill*, weekly benefits for unemployment for any reason, *benefits for maternity* leave from the job, lump-sum job separation pay, and—compulsory health insurance.

Estimates indicate that such a program in this country would cost a minimum of 30% and as much as 40% of payroll. What is 40% of your net income before income taxes? The rate is 35% of much of France's payroll now. Some South American countries that have adopted just parts of the International Labor Organization's program have taxes running as high as 25% today.

It can happen here!

Possible Value of Social Security for the Younger Physician

Social security benefits have been touted to us, the younger men, in glowing terms. We have been told, "You can't buy cheaper *life insurance*," "*Everybody else is on* the gravy train, why shouldn't we hop on?" "*Those old fogies in the* A. M. A made their bundles when they could salt it away; now they're the ones who are keeping us out." If ever physicians missed the boat on a diagnosis, we believe that this is it.

We think you will sense the injustice to our older colleagues as you read on. First, however, we must break the benefits into two main categories. You pay taxes toward both; but you or your family, in essence, can only collect one kind. For simplicity's sake, allow us to call them survivors' benefits and retirement benefits.

Survivors' Benefits—Are You Sure This "Cheap Life Insurance" Is Inexpensive?

We have heard repeatedly that, when we join the social security club, we get almost $37,000 of life insurance coverage Perhaps you have been told the same thing. Were you also told that, to qualify for this maximum family coverage with the least expense, you first must pay maximum social security taxes for 18 months? The next day your wife must give birth to twins and you must die. Even the shock of twins is unlikely to cause this sudden demise on your part, but let us pretend that it does.

Your widow and twins would be paid survivors' benefits of $200 per month for 18 years, or $36,920. Unfortunately, there is some fine print. Your widow has to apply for the survivors' benefits. She may be attractive enough to remarry; but, if she does, she becomes ineligible to receive benefits. If either child marries, he gets no benefits. As soon as your twins become 18 years old, all benefits to them and to your widow stop. She gets nothing, then, until the age of 65, when she might become eligible to receive $81 per month.

If either child or your widow earns more than $1,200 per year, maximum benefits drop. If she or either of the twins earns $2,080.01 or more per year, no survivors' benefits will be paid to the earner. If any one of the three earns over $400, he must pay social security taxes, though. Some other limiting "clauses" will be mentioned later, but let us get on with a cost comparison.

Most self-employed physicians earn at least $5,000 per year. *Therefore, it is quite likely that you would have paid the maximum social security taxes for the 18 months before you died and the twins arrived.* Using present figures and pretending that you came under social security at the beginning of 1956, you would pay $126 in 1956 and half of $126, or $63, in the first half of 1957. This would mean a "premium" paid of $126 plus $63, or $189, before your family could become eligible to receive any survivors' benefits. If the tax base figure is raised to $4,800 and the tax rate to 3¾%, as is likely to happen this year, your "premium" would be $4,800 × 0.0375 = $180 for 1956 and half of $180, or $90, for the first half of 1957, a total of $270.

As a young physician, you can buy much better, guaranteed coverage for your family from private insurance companies. This you can do by purchasing decreasing term insurance (family income rider) without any other life insurance to guarantee your family $200 per month for 18 years. This maximum coverage goes into effect with the payment of your first premium. The yearly premiums would be $92 if you are 25 years old, $120 if you are 30 years old, and $164 if you are 35 years old.

An editorial in the Nov. 26, 1955, issue of The Journal of the American Medical Association cites premiums even lower than the figure we obtained. Their figures follow: $65 if you are 25 years old, $85 if you are 30 years old, and $115 if you are 35 years old. These figures from The Journal are the yearly premiums to establish monthly benefits of $200 for 20 years, 2 years more than the best that social security could do for your widow and twins. Here, these premiums would be in addition to those paid on a $20,000 ordinary life insurance policy. So few fathers are over 40 years of age when the last child is born that "a more realistic counterpart to the survivorship benefits for a widow with minor children" would be a 10-year "family income" clause for a physician 40 years old. The annual premium would be about $60. For a 45-year-old, the yearly premium would be only $83.

Thus, the twins that are born the day you die and your widow can qualify for maximum survivors' benefits if you have paid a minimum of $189 in social security taxes. Take your age and see what you would have to pay as your first premium for better coverage with private insurance companies. Should you really envy those already "lucky enough" to be in the compulsory social security plan?

Suppose, under either plan, social security or private insurance, you live until the twins reach age 18—and then you die. Unless your wife is 65 or over by that time, neither your wife nor your children would receive any payments in return for the money you have put in. How much would you have paid into the two systems during the period that they did have theoretical coverage?

Giving every possible benefit of the doubt to social security, saying that there will be no increases in the tax rate or tax base beyond those already certain under the old law, let us see what 19½ years of social security taxes add up to. Pretend that in the middle of 1956 doctors come under the social security system on a compulsory basis. You will pay $63 for half of 1956, $126 from 1956-1959 (in 1958 you become eligible and your twins are born); $157.50 from 1960-1964; $189 from 1965-1969; $220.50 from 1970-1974; and $252 in 1975. If you die at the beginning of 1976, your absolute minimum social security tax will have been $3,528.

With private insurance, according to our figures, which are less favorable than those cited in The Journal, your costs would be 18 × $92, or $1,656, if you became 25 years old the day the twins were born, 18 × $120, or $2,160, if you became 30 years old on that day, and 18 × $164, or $2,952, if you became 35 years old on that day. Note that the younger you are the less you pay.

According to the figures given in the editorial in The Journal, your costs, according to your age the day the twins were born, for 20 years of guaranteed coverage of $200 per month (2 years or $4,800 more coverage than social security offers) would be 20 × $65, or $1,300, if you were 25 years old the day the twins were born; 20 × $85, or $1,700, if you were 30; 20 × $115, or $2,300, if you were 35; and 20 × $166, or $3,320, if you were 40. Compare these figures with the $3,528 you know you would have to pay under social security (remember that this is the absolute minimum, not the much more likely higher figures). Does social security "insurance" sound so inexpensive now?

Before we leave this "twin situation," please let us indicate the further cost of one of the hidden factors in social security. Bear in mind that the private insurance costs end 18 or 20 years after the twins are born. It is crucially important to remember that your social security taxes continue each year that you earn over $400. *Since only one doctor out of seven between the ages of 65 and 75 is retired, it is unlikely that you will retire.* In fact, as you will see later, it may be impossible for the younger physician to retire. If you earn over $2,080, you can get no retirement benefits until you are 72 years old. So let us take the case of the *young physician* who had the twins and who lives to age 72, and then dies. He has a 6/7 chance of having earned until he dies and hence a 6/7 chance of paying social security taxes until then.

Again using the unlikely but most favorable social security figures without the *expected rise in tax rate or tax base figures beyond those of the present law, let us see what his social security taxes would be.*

Pretend that the twins were born at the beginning of 1958 and that the physician has been paying taxes into social security for 18 months. This year of 1958 is picked to slant the figures in favor of social security, *since the taxes are lower in the earlier years.*

If he were 25 years old the day the twins were born, he would have paid a total of $3,528 plus $7,308, or $10,836, in social security taxes. For that amount of money, he could have bought over six times as much private insurance *for his wife and twins,* or over $1,200 per month guaranteed income for them. These amounts are arrived at using our figures for the insurance premiums, not the more favorable ones from The Journal.

If the physician were 30 years old the day the twins were born, he would pay social security taxes of $3,528 plus $6,048, or $9,576. With that he could have bought four times as much private insurance coverage for his wife and twins, or over $800 per month of guaranteed income for them for 18 years. The figures for age 35 are $3,528 plus $4,788, or $8,316. With that he could have bought over two and one-half times as much coverage, or over $500 per month of guaranteed family income.

On the basis of the figures from The Journal for the insurance premiums, the physician, age 25, would pay $1,170 in 18 years. *He could have stopped his payments at the end of 18 years.* Under the social security system, he would have been taxed a minimum of $10,836 by the time he was 72. For that amount he could have bought over nine times as much coverage for his family.

According to premium figures in The Journal again, the physician, aged 40 at the time the twins were born, would pay $2,988 for 18 years of family income protection. At age 72 he would have paid, under the social security system, $7,056. He could have bought two times as much protection for his family *using available private insurance plans.*

We have spent all this time comparing private insurance premium costs and social security tax costs for the unlikely twin situation because it is only under these conditions that you could get the maximum coverage from social security. This is the bonanza that seems so attractive to many of the younger doctors.

From a practical point of view, there is almost no chance for your family to collect the theoretical maximum benefits described so far. Your chances of dying just 18 months after you begin paying social security taxes and of your wife's having twins on that same day are about nil. It is time now to get into the realm of the more likely situations. How, then, would you determine comparable costs and possible values of the two systems under your own, actual, personal family circumstances?

No matter what your family circumstances, *once you come* under compulsory social security, you pay the taxes. Pretend that the starting day was the beginning of the second half of 1956. You will pay the taxes, as mentioned previously, until the beginning of 1958 before you become eligible for survivors' benefits. If you have paid and continue to pay maximum social security taxes, your youngest child, your next-to-the-youngest child, and your widow might be paid $200 a month of survivors' benefits until your next-to-the-youngest child reaches age 18. The social security maximum coverage per dollar put in by you that they could get would be paid if you died at the beginning of 1958. Determine for yourself the age of your next-to-the-youngest child at the beginning of 1958. Subtract that age from 18. This will give you the number of years of possible $200 monthly payments.

Now determine the age of your youngest child at the beginning of 1958. Subtract this age from the age of your next-to-the-youngest child at the *beginning of 1958*. This figure will tell you the number of years that your widow and youngest child might be paid a maximum of $162.80 per month after your next-to-the-youngest child became age 18 and the $200 monthly payments stopped.

You now have the means of determining what your maximum family coverage might be. Take the number of years of $200 monthly payments and multiply this figure by 12 times 200. Now add the number of years of $162.80 monthly payments by 12 times 162.80. The sum is the maximum family coverage that you can hope for from social security.

Divide this figure by the number of years that would elapse between the beginning of 1958 and the time when your youngest child becomes 18. This will tell you what your family might receive per year until your youngest child becomes 18. Divide this figure by 12 and you will have their possible *monthly income* from social security survivors' benefits, should you die at the beginning of 1958. Now call your insurance man and ask him what comparable private insurance coverage under a family income rider would cost you. We think you will be *pleasantly* surprised.

You can get a rough idea if you know the following: For 18 years of private guaranteed coverage for your family, your yearly premiums per $1,000 of initial coverage beginning at age 25 would be $2.50. At age 30, your yearly premium per $1,000 of coverage would be $3.25. If you started with this 18-year plan at age 35, you would pay $4.43 per $1,000 of coverage. At age 40 you would pay $6.40 per $1,000 of coverage. You do not have to have any other life insurance to get these premium figures.

Obviously, most of you will find that you will not want 18 years of coverage or, at least, that social security would not give you 18 years of coverage, because your youngest child would be older than one day at the beginning of 1958.

The figures cited in THE JOURNAL indicate that, to get $200 coverage a month, a physician beginning a 10-year family income clause at age 40 would pay an annual premium of $60. At age 45, a 10-year guaranteed $200 monthly income for your family would cost $83 per year. Thus, for $24,000 of initial coverage beginning in these age groups, the yearly premiums would be $60 and $83 respectively. The yearly premium per $1,000 coverage would be $2.50 for the 40-year-old physician. For the 45-year-old physician, it would be $3.46.

Having derived a rough estimate of your yearly premium, or an exact one from your insurance man, compare your premium *costs with your costs in the* social security scheme (the tax figures mentioned earlier in this article). The observation is apparent immediately that the younger you are, the more you have to lose by being forced into the compulsory social security system!

Hidden Hookers in Social Security Survivors' Benefits

You must die in either the private insurance plan or the social security survivors' benefits plan for your family to collect any benefits. But in most respects, the resemblances end here. We have mentioned that your wife cannot remarry. Your children cannot get married before age 18. As soon as the youngest child becomes 18 years old, all payments under social security stop. Your widow would not get anything until age 65, when she might become eligible to receive $81.40 per month. None of the three can earn more than $1,200 per year without a drop in the maximum benefits. No one can earn over $2,080 if he or she is to receive any survivors' benefits.

Keep in mind that a compulsory social security system for physicians *would force* all physicians to pay social security taxes. The taxes would be the same whether you had any dependents or not. If you are unmarried, a dependent parent aged 65 or over could receive social security survivors' benefit payments after your death. The maximum monthly payment to a dependent parent, age 65 or over, is $81.40. If your wife survives you and you have no children, she is entitled to no survivors' benefits until she reaches age 65. Some doctors' wives have careers of their own. If so, they are probably ineligible for survivors' benefits; and, in fact, they almost certainly would continue paying social security taxes. In brief, you would pay the social security taxes whether you had any chance to benefit from the payments or not. No matter how your family circumstances change, you still pay the compulsory tax.

It should be noted that these are just some of the limitations. There are others, but you need to be a lawyer to dig them all out. The benefits are not paid automatically on your death. The beneficiary must know he is a beneficiary and must apply for benefits. It is interesting to note that many possible beneficiaries never get around to applying for the benefits.

The amount of the benefit payment is determined in each case by various formulas. For those who earn something, the following directions are printed in a social security booklet "simplifying" the laws for the layman: "There is no single rule for determining whether a person is performing substantial services in self-employment. There are many factors to be considered for different kinds of trades and businesses. The social security administration will make decisions based on the particular facts in each case." Does this sound exact enough for you to bank on in planing your family security? What does your widow do when she runs into the "fine print"?

Retirement Benefits—What They Are and How You Become Eligible for Them

If you retire at age 65 or thereafter and are eligible, you and your wife may be paid retirement benefits. You must survive to collect. If you are eligible, alive, retired, age 65 or over, and have paid maximum social security taxes long enough, you can receive $108.50 per month under the old-age benefits. You and your wife, if she is alive and age 65 or over, can receive $162.80 per month. If your wife survives you, and she is age 65 or over, she can be paid $81.60 per month. These are the maximum figures.

To become eligible, you must fit into any one of these three categories: 1. You must have worked under social security and paid taxes for a total of at least 10 years. 2. All the months that you have worked under social security at any time, when added together, must equal at least half the time between Jan. 1, 1951, and the date you reach age 65. 3. You must have worked steadily under social security through every quarter from Jan. 1, 1955, to the date you reach age 65.

For most young physicians, the requirement of import would be that they work under social security for a total of at least 10 years. However, if compulsory social security for physicians began in the middle of 1956, obviously most would work a good many more than 10 years under social security before reaching age 65. In fact, most who survive to the "golden age" will continue working. If they earn over $2,080, they will not be eligible to receive retirement benefits until age 72. Then, whether they retire or not, they are eligible to receive the benefits. But, if they continue earning over $400 a year beyond age 72, they pay social security taxes on their earnings.

Retirement Benefits—What Is the Young Doctor's Chance of Collecting?

The young doctor's chance of collecting retirement benefits is very poor!

You must survive to age 65. To collect maximum monthly retirement benefits, you and your wife both must survive and you must both be 65 or over. To collect any retirement benefits, you must earn less than $2,080.01 a year—at least until you reach age 72. To collect maximum retirement benefits, you must earn less than $1,200 a year until age 72.

How likely are you to survive to age 65? If you are 20 years old now, your chance of surviving to age 65 is 61%. If you are 25, your chance is 62%. If you are 30, your chance is 63%. If you are 35, your chance of surviving to age 65 is 64%. If you are 40, the figure is 65%. If you are 45, your chance is 68%.

Thus, the odds are that, of three younger physicians (under 45 years of age), one will never reach 65. Your wife's chances are about the same. But the chances are much less than two to three that you and your wife will both reach 65. In fact, they are less than 50%.

The younger you are, the less chance you have. Again, we see that the older physicians have less to lose or more to gain than the younger man. A man age 55 has a 77% chance of reaching 65. A man age 60 has an 85% chance of reaching 65. Have our older colleagues really been misleading us? So far, the figures do not bear out the charges.

Now, let us pretend that you are in the lucky two-thirds. You reach age 65. The most recent figures show that only one doctor in seven in the age group 65-75 is retired.

If you are willing to accept these figures, you have about 2/3 x 1/7, or 2/21, or less than a 10% chance of collecting any retirement benefits from social security before age 72. To collect the maximum retirement benefits of $162.80 per month, both you and your wife must survive. You and your wife have about 2/3 x 2/3 x 1/7, or 4/63, or less than a 7% chance of collecting the maximum monthly benefit.

You could say that the number of doctors retired today has no bearing on the percentage that will retire in the future. However, the chances are that, the younger you are now, the more difficult it will be for you to retire in the future, even if you wanted to retire at age 65. The younger you are, the longer your training has taken. The younger you are, the more dollars your training has cost. We all know the history of income and other taxes. How do you, the young physician, get enough money put aside to retire on? Can you say that $162.80 per month will suffice to keep you and your wife comfortable 40 years from now (if you are age 25 now), 20 years from now (if you are age 45 now)? Remember that one dollar 20 years ago is today worth only about 50 cents. What will $162.80 be worth 20 years from now? Forty years from now? If $162.80 per month is not enough to keep you and your wife comfortable when you reach age 65, you may have to stay in practice. How do you, in practice, keep your earnings under $2,080 per year? If you don't, you won't get any social security retirement benefits.

Almost every indication is that, with increasing lengths of time required in training, the physician's earning years will be shorter in the future. Thus he will have to earn more per year. If he earns more, graduated income taxes take bigger bites. If the income tax rates rise, and there are reasons, as you will see later, to suspect that they will, then the tax bite will be greater still. If living costs rise, money left over for the future retirement will be harder to come by. If the dollar continues losing its value (inflation), any money you can manage to put aside will purchase less at retirement age. With these factors in mind, what do you think about your chances for retirement? Will they be greater or less than those of the physicians age 65 or over today?

If you do not retire, you will be paying the social security taxes, whatever they might be by then, long after most formerly employed people in other occupations have stopped paying them and have started collecting their retirement benefits.

In essence, that part of your social security tax dollar going toward retirement benefits, with today's figures (favorable to social security), would be split about like this: over 90 cents of it is likely to go to pay for other peoples' retirement benefits; you are likely to get back less than 10 cents.

Costs for Retirement Benefit Coverage

Earlier in this article we indicated the tax costs of social security coverage. These figures apply to retirement benefits, also. Again we find that, the younger the physician, the higher the costs are likely to be. The doctor, age 55 at the beginning of a compulsory social security system for physicians, would only have to pay the social security taxes for 10 years before reaching age 65. The younger you are at the beginning of a compulsory system, the more social security tax years you face before you reach age 65. The present laws guarantee a rise of the social security tax rates and of the tax base figures. We have indicated that the known figures are likely to be raised well beyond the presently known rates of increase. If you will look at the earlier figures, you will find that they support these statements. Suffice it here to say that the greatest costs will be inflicted on the younger physicians.

To be realistic, in comparing costs of social security and of private retirement plans, you, as a young doctor, should decide what your chances for actually retiring are. We believe your chances of retiring are less than one in seven, for reasons just mentioned. However, let us pretend that they are one in seven. Since private plans guarantee payments whether you are retired or not, they are seven times more valuable to you; or, said another way, social security is one-seventh as valuable as far as retirement benefits go. Now let us look for costs of a private plan that would pay benefits equaling one-seventh of the theoretical maximum social security retirement benefits. To get the maximum social security retirement benefits, both you and your wife must be age 65 or over. Therefore, in deriving the figures to be listed for the private plan, let us assume that you and your wife are the same age.

Annual premium payments for a private annuity deferred to age 65 providing a monthly income of one-seventh of $162.80 while both you and your wife are living, one-seventh of $108.50 per month while you alone live, and one-seventh of $81.50 per month while only your wife lives would be $60.52 if you are 25 years old at the start, $74.05 if you are 30, $92.59 if you are 35, $119.24 if you are 40, $160.27 if you are 45, and $230.29 if you are 50.

The one-in-seven thinking no longer applies after age 72. Then, if you have made maximum contributions to social security for the required time, you and your wife, both age 72, can collect maximum social security retirement benefits. A telephone call to your insurance man will get you the annual premium figures for you and your wife at your own present ages for an annuity deferred to age 72 paying benefits comparable to those that social security promises. Believe us when we say that this premium figure will be less than seven times the annual premium figures mentioned just before. Yet for six-sevenths of the doctors this is the cost figure that should be of most interest in comparing real values of the two systems. This is the figure that should be compared with what you guess your total social security taxes will amount to in the years ahead until you reach age 72. This is the time to go back to the earlier figures relating to social security taxes and the observations connected with them.

While we are still on the subject of taxes, you might be interested in knowing that once under compulsory social security, the physician and his wife could only arrange a maximum tax-free yearly income, after age 65, of $5,503.59. As long as you can stay out of the social security system, you and your wife can arrange a maximum yearly tax-free retirement income, after age 65, of $18,148.48. This you can do with retirement income policies and stocks paying dividends.

Retirement Benefits Versus Survivors' Benefits—One at the Expense of the Other

While you still have a choice about compulsory inclusion of physicians under social security, it behooves you to think clearly about costs and values. If you are an insurable younger physician, you probably are much more interested in getting protection for your wife and children in case of your early death than you are in the retirement benefit parts of social security.

We have shown previously that you can buy much more insurance for family protection from private insurance companies than you can get from social security for the same amount of dollars contributed in the form of social security taxes. Remember, you have no cash value to tap for family or personal emergencies in social security as you do with many kinds of insurance. Since so much of your social security tax dollar goes toward retirement benefits, your goal of family protection becomes harder to achieve, not easier.

You might justify this in your mind by saying that part of your family goal is to arrange things so that you and your wife will not be dependent on your children in your old age. With such a small chance that the money you are putting into social security will ever be used for your retirement, with a greater than 90% chance that it will be used for other peoples' retirements, are you really looking out for your family properly?

Remember, you cannot collect both survivors' benefits and retirement benefits. It's one or the other—and because you are a physician, it is likely to be neither!

1101 Beacon St. (46) (Dr. Webster).

THE LEISURE CORNER

THE DOCTOR WRITES A LETTER

Although doctors have at all times incurred the abuse of nonmedical people, they have also received almost extravagant praise. Much truth has been said in jest—and much untruth as well. Still, no other group of professional men and women can show a greater personal sacrifice, a greater devotion to duty, and a sounder consideration for the welfare of humanity. Throughout the centuries, evidence of this has been expressed in personal letters written by doctors to their colleagues, their patients, and to organizations with which they have been affiliated, whether professional, social, or political. Many well-known doctors, whose medical achievements are unrivaled during a busy professional life, often fail to contribute their experiences to the general medical literature. However, they do sometimes sit down and write to a colleague a revealing letter, the kind that makes medical history. In this connection, the first mention of the use of the stethoscope by Rene Laënnec was made in a letter to his cousin. "My cylinder is a real find," he wrote. "Too bad it wasn't hit upon by certain people who would have known how to make a lot of money out of it. As for me, I'm only a fool in such matters, and I will not get more out of it than a little smoke which, to my further detriment, I will not estimate for more than it is really worth." Twenty years later Laënnec was acclaimed for his contribution to medicine.

The decision of a doctor to retire from medical practice has much to do with the state of his physical and mental powers as well as with his individual needs and circumstances. To set an age limit for retirement may seem a little absurd in view of the past accomplishments of older men and women in the practice of medicine. There is no doubt that for originality and vigor younger physicians hold an advantage, but for wisdom and judgment, mature age often holds a distinct advantage. When a doctor reaches the age of retirement, he, like others, would like a feeling of security, with the knowledge that many of the pressing difficulties of life have been overcome. Despite this objective, it may be difficult to know precisely when to reach a decision for voluntary retirement. On the other hand, it is painful and somewhat tragic to witness the slow disintegration of those who have hung on too long in medical practice. Harvey Cushing, the great brain surgeon, once wrote a letter to his friend Dr. Henry Christian of the Peter Bent Brigham Hospital, Boston, expressing some thought on the subject of retirement among doctors.

"Why not put the surgical age of retirement for the attending surgeon at sixty, and the physician at sixty-three or sixty-five, as you think best? I have an idea that the surgeon's fingers are apt to get a little stiff and thus make him less competent before the physician's cerebral vessels do. . . . Then, of course, many of us get, vascularly speaking, a little inelastic well on the side of sixty, or may remain in this respect as youthful at seventy as others are at fifty. This is all a lottery of inheritance and habits, and I shall be very glad, for one, to have legislated to stop active work at sixty."

While many doctors carry on a medical practice at the age of 70, they usually do so on a limited scale. They are philosophical about their semiretirement, knowing there is little point to cracking hazel nuts with dentures. Semiretired physicians do not dislike the world they live in, nor do they assume an attitude of indifference. This point of view was effectively stated in a letter written by Dr. Frederic C. Sharpless to the editor of THE JOURNAL of the American Medical Association a number of years ago: "It is my impression that few doctors retire voluntarily, and, of those who do, few live happily ever after. The usual pattern is that the doctor, if he lives long enough, does not give up his patients; the patients give up their doctor. . . . At the same time he must be aware of the let-down that will come when he is deprived of the daily interest and sense of importance that medical life so abundantly provides."

If doctors have interests outside of the field of medicine and if, through necessity or training, they are able to apply their talents as did Anton Chekhov in his brilliant literary accomplishments, it is always of great interest to learn just what started them off in the new fields of endeavor. Anton Chekhov loved to write letters to his friends. In fact, many of them, aware of his great literary talent, urged him to give up the practice of medicine and to devote all his time to literary work. Chekhov, however, realized that his medical background played an important role in making him an effective writer. He always liked to think that he had two professions at his command—medicine and literature. In a letter to a friend he stressed how important his medical background had been to him as a writer: "I have no doubt that the study of medicine has had an important influence on my literary work; it has considerably enlarged the sphere of my observation, has enriched me with knowledge the true value of which for me as a writer can only be understood by one who is himself a doctor. It has also had a guiding influence, and it is probably due to my close association with medicine that I have succeeded in avoiding many mistakes."

Among the factors that make some people turn away from intelligent physicians and place their trust in imposters is the delusion that physicians know everything and should effect cures immediately, like a magician. Again, some lay people hold that physicians should always use pleasant methods of treatment, procedures that are not at all times and in all cases possible. As patients are educated to obtain a reasonable understanding of disease, it has been the hope of most physicians that a better informed public would eventually grasp the essence of fake practices in medicine. Years ago Oliver Wendel Holmes wrote a letter to the New York Academy of Medicine about the intrusion of the quack into medical practice and the apparent willingness of some of the public to fall into his hands.

"The public is so ready, so eager to be deceived and the traders in deceptions are so willing, so hungry to deceive those who will listen to them that it needs a solid wall of resistance, a close united phalanx of men of recognized sense, knowledge and character to stand against them. . . . The Medical Profession will always have to fight against the claims of wrong-headed, and too often dishonest individuals and "schools" as they call themselves. . . . Long may it be before the wholesome barriers are weakened that separate the thoroughbred and truly scientific practitioner from the plausible pretender with his pseudopathy and his pseudotheraphy."

When a patient is sick and dispirited, a malignant disease is a very bitter pill to swallow. There have been several schools of thought as to whether patients should be told that they are suffering from an incurable disease. Times like these are also most difficult and trying for a physician. With respect to the problem, Dr. Johann Stieglitz, a highly respected German physician, wrote to a young medical friend in the early part of the 19th century:

"One can frequently hear people say that they do not fear death but are afraid of dying. . . . I have often thought it would be important to instruct physicians how to behave in cases of incurable disease, not so much to tell them what to do, but what not to do.

"I am often outraged when, in cases of large tumors, of carcinoma, of unquestionable protracted glaucoma and in innumerable instances, I see elaborate therapeutic plans being developed when no one can doubt that the disease is uncurable. . . . The patient often wishes to be told clearly whether he must be expected to die and whether death now be inevitable.

"Reasons are offered to show how important it would be to have this information and to prove with what fortitude and resignation he would be able to accept it. The physician may never take away all hope. . . . Man doesn't want others to inequivocally express even what is perfectly clear to him if it is of evil nature and affects him. He still wants to be able to believe that the contrary may be possible."

Many patients have been offered valuable medical advice in letters written to them by their doctors. Over a span of two and a half centuries, letters written by doctors have clearly reflected the existing status of medical practice. The complete evolution of medicine as known today can be traced through letters only because physicians enjoyed the personal pleasure of putting their experiences down on paper.

Letter sequences can be as exciting as sonnet sequences and a great deal more revealing. By reading letters written by physicians, it is possible to trace both the medical annals of the past and medical history in the making. In their letters, physicians frequently reveal sources of deep emotions, hidden up to that time from the public eye. Actually, it is only in a personal letter that the hidden springs of conduct may be revealed. A doctor will live in his letters as only a doctor likes to think he can live—a life of challenge and a life of critical self-examination.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Treatment of Chronic Congestive Heart Failure with Neohydrin for from Eight to 65 Months. G. C. Griffith, S. P. Dimitroff and M. C. Thorner. Ann. Int. Med. 45:7-13 (July) 1956 [Lancaster, Pa.].

Chlormerodrin (Neohydrin) has been described as one of the most efficient organomercurial diuretics available for oral administration. The authors evaluate its effectiveness in patients who received the drug daily for periods of up to 65 months. In view of the widespread belief that the principal toxic effects of organomercurial diuretics appear in the kidney, special attention was directed to this organ for evidences of injury. Twenty-three patients who had had chronic congestive heart failure for from 7 months to 18 years were studied. They were seen in the adult outpatient cardiac clinics of the Los Angeles County Hospital and also in private practice. More than half were over 60 years old. Arteriosclerotic heart disease was the most common entity, although a significant number had inactive rheumatic heart disease. Hypertension and cor pulmonale were also represented. The patients were given Neohydrin tablets, each containing the equivalent of 10 mg. of organic mercury. The daily dose varied from one to three tablets. Other indicated medication, such as digitalis preparations, low-sodium diet, and, occasionally, aminophylline, was included in the therapeutic regimen along with Neohydrin.

Observations on these patients confirmed the efficacy of the drug. Histological study of the kidneys was possible in one patient who initially had severe congestive heart failure with albuminuria and high nonprotein nitrogen values. He had received two tablets of Neohydrin daily for nine months. The congestive symptoms were controlled, and the renal abnormalities disappeared. He suddenly died of acute right heart failure. Postmortem examination showed normal kidneys except for passive congestion. There was no tubular damage. Thus albuminuria and high nonprotein nitrogen values are not necessarily a contraindication to treatment with this oral organomercurial diuretic. Neohydrin, however, is definitely contraindicated in the presence of primary renal disease. Active digestive tract disease and allergy are the other contraindications. The authors conclude that patients without primary renal disease but with albuminuria and high nonprotein nitrogen due to congestive circulatory changes can be adequately and safely treated with Neohydrin for long periods of time.

The Effectiveness of an Oral Vitamin K_1 in Controlling Excessive Hypoprothrombinemia During Anticoagulant Therapy. S. W. Cosgriff. Ann. Int. Med. 45:14-22 (July) 1956 [Lancaster, Pa.].

During the last year Vitamin K_1 in tablet form has become available for oral use. This drug, in doses of 2.5 to 20 mg., was administered to 75 patients in whom excessively elevated prothrombin-time values were produced by anticoagulant therapy. The coumarin or indandione drugs must be used in sufficient amounts to prolong the prothrombin time into the therapeutic range wherein an antithrombosing effect is produced but in which there is little risk of hemorrhagic complications, i. e., "safe but adequate" anticoagulation. At the laboratory of the author the therapeutic range for treatment of a patient with an acute thromboembolic problem is considered a prothrombin time between 22 and 35 seconds. It has been demonstrated that no further beneficial antithrombosing influence accrues when the prothrombin time rises above 35 seconds. Moreover, the majority of hemorrhagic complications occur in association with prothrombin-time values above this level. Consequently, it seems advisable to reduce a prothrombin time that has been elevated above 35 seconds as soon as possible to the safe therapeutic level, even though no bleeding has occurred. It has been customary at the author's clinic to administer water-soluble vitamin K parenterally or vitamin K_1 orally whenever the prothrombin time rises above 35 seconds.

In 63 of the 75 patients who were given vitamin K_1 in tablet form, the prothrombin time returned to the safe range (35 seconds or less) within 12 hours after oral administration and in all but 2 of the patients within 24 hours. The prothrombin time fell below the lower therapeutic level of adequate anticoagulation in 11 of the patients at 12 hours after the administration of vitamin K_1. Under such circumstances the administration of heparin ensured a continuing antithrombotic effect until subsequent doses of a coumarin or indandione agent again produced an adequate hypoprothrombinemia. Vitamin K_1 tablets for oral use provide an additional safeguard in coumarin and indandione therapy.

Postcardiotomy Syndrome in Patients with Rheumatic Heart Disease: Cortisone as a Prophylactic and Therapeutic Agent. D. T. Dresdale, C. B. Ripstein, S. V. Guzman and M. A. Greene. Am. J. Med. 21:57-74 (July) 1956 [New York].

In 33 (39%) of 84 patients with rheumatic heart disease who underwent cardiac surgery, a syndrome developed that was characterized by fever and, in descending order of frequency, chest pain of a pleuropericardial nature, congestive heart failure, pleural effusion, polyarthritis, arrhythmia, abdominal pain, and subcutaneous nodules. Laboratory evidence indicative of a nonspecific inflammatory process was frequently present. This increased the immediate postoperative morbidity and also that at a later date, at which time it usually incapacitated the patient. Death occurred in two patients; one died shortly after the intravenous administration of morphine, and the immediate cause of death was not clear. Autopsy did not reveal any evidence of rheumatic activity. Florid rheumatic myocarditis was revealed by autopsy in the other patient. Terms such as postcommissurotomy syndrome, reactivation of rheumatic fever following mitral commissurotomy, and postvalvulotomy syndrome have been used by other workers to describe this syndrome, but the authors prefer the designation "postcardiotomy syndrome in patients with rheumatic heart disease" because they observed the syndrome in a patient in whom only cardiotomy was performed and mitral valve surgery was omitted because of technical difficulties. It seems, therefore, that mitral commissurotomy is not necessary for the development of the syndrome. It is suggested that the postcardiotomy syndrome occurs in patients with rheumatic heart disease because of trauma to the heart or pericardium, which was the site of rehumatic activity at some time in the past.

For the purpose of studying the prophylactic use of cortisone postoperatively, the 84 patients were divided into two groups. Fifty-eight patients received cortisone within the first two postoperative days and were maintained on cortisone for from three to eight weeks thereafter. Doses of cortisone ranged from 150 to 300 mg. daily for the first two weeks and from 75 to 150 mg. for the next one to six weeks. The remaining 26 patients were not given cortisone postoperatively and served as controls. Cortisone had a definitely suppressive effect on the postcardiotomy syndrome. Eight (31%) of the 26 patients who did not receive cortisone prophylactically during the immediate postoperative period had the postcardiotomy syndrome during the initial three to eight weeks after the surgical intervention. In only 4 (7%) of the 58 patients who received cortisone prophylactically did the syndrome develop during a similar period while they were taking cortisone. The incidence of the postcardiotomy syndrome, however, was similar in both groups (8 [31%] of the 26 patients, and 17 [29%] of the 58 patients) after the initial postoperative

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1947 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

period of from three to eight weeks, when cortisone was withdrawn in the 58 patients. The immediate postoperative course of patients who received cortisone prophylactically was less stormy than that of those who did not. As a therapeutic agent, cortisone was superior to salicylates, aminopyrine, and antibiotics, none of which had a favorable effect on the clinical manifestations of the postcardiotomy syndrome. Cortisone in doses varying from 50 to 300 mg. daily, depending on the individual patient, caused a dramatic remission of symptoms and fever in the postcardiotomy syndrome. Because of the decreased immediate postoperative morbidity when cortisone was given prophylatically, and because corticotropin (ACTH) had an effect similar to that of cortisone on the symptoms of the postcardiotomy syndrome, the authors recommend that corticotropin (ACTH) be given prophylactically for two days preoperatively and for 8 or 10 days postoperatively to patients with rheumatic heart disease who are undergoing mitral valvulotomy.

Early Diagnosis of Bronchial Carcinoma. H. W. Knipping, E. Liese and A. Schmutte. Munchen. med. Wchnschr. 98:937-941 (July 13) 1956 (In German) [Munich, Germany].

The authors, who reported in 1951 on early signs of bronchial cancer in 150 patients, present here observations on 180 additional patients. Early recognition is the crucial point in bronchial cancer, because long-term therapeutic results have remained unsatisfactory despite the great advances in thoracic surgery. A series of special examinations must be carried out whenever there is even the slightest suspicion of bronchial cancer. These examinations include bronchoscopy, bronchography, cytological tests, and exploratory thoracotomy. However, suspicious signs are frequent in persons of certain age groups, and those who have them often regard them as trifling and refuse to submit to the rather exhausting examinations; at any rate, they are not inclined to submit to them repeatedly, the less so since only a small proportion of those who exhibit the early suspicious signs actually have bronchial cancer. For this reason, methods are required that can be carried out without causing too much inconvenience, so that the patient will submit to them repeatedly. In patients in whom bronchial cancer seems highly probable and in whom a surgical intervention is planned, bronchoscopy and bronchography should always be employed.

The authors feel that the most important method of preliminary examination is body-section roentgenography (tomography), particularly with the improvements they have introduced. The newest form of this body-section roentgenography is simultaneous multilayer tomography, which is explained with the aid of a diagram. This improved method can now be employed for routine examinations. Other diagnostic methods are bronchography with the aid of either radioactive iodine-alkyl or with radioactive xenon. These methods have proved useful in routine clinical work. Another important development in the early diagnosis of bronchial carcinoma is bronchography on the basis of the visualization of the distribution of radioactive xenon in the blood vessels and air passages. This method also enabled the authors to accomplish a direct demonstration of the moving heart (in situ and in vivo) without the aid of the roentgen apparatus (angiocardiography with the aid of isotopes). They also describe further improvements and developments aimed at the development of isotope bronchography. The use of isotopes, particularly of radioactive xenon, as employed by the authors in the diagnosis of cardiac and pulmonary disorders involves no inconveniences for the patients.

The Early Diagnosis and Natural History of Chronic Lymphatic Leukemia. C. Hougie. Ann. Int. Med. 45:39-55 (July) 1956 [Lancaster, Pa.]

Chronic lymphatic leukemia may run a long and practically asymptomatic course. The classic picture of splenomegaly, lymphadenopathy, anemia, and a very high leukocyte count is probably only a late phase in its natural history. The nine patients with chronic lymphatic leukemia described here were all first seen with presenting symptoms not attributable to leukemia and are of interest because of the light they throw on the natural history of the disease. Three of these patients died from causes unrelated to the leukemia shortly after the diagnosis of chronic lymphatic leukemia was established. Autopsies were performed on two of these. The lymph nodes in both patients showed no histological changes suggestive of leukemia, although well-marked lymphocytic infiltration of the portal tracts of the livers and extensive lymphocytic infiltration of the bone marrows were present. The spleen was not enlarged and showed no abnormal histological changes apart from congestion. Lymph node biopsy was performed at a relatively early stage of the disease in three of the remaining patients; these nodes showed no leukemic changes, while a splenic biopsy performed in one of the patients showed no leukemic changes. Lymph node biopsy is apparently of no value in the diagnosis of early chronic lymphatic leukemia. The leukocyte counts were below 45,000 per cubic millimeter in all but one of these patients. From other early cases described in the literature it appears that the leukocyte count usually remains low for several years and that anemia and thrombocytopenia are late manifestations of chronic lymphatic leukemia.

It is postulated that there are no signs or symptoms in the first stages of chronic lymphatic leukemia and that this "silent" phase of the disease lasts many years. It is succeeded by a phase, also of many years' duration, in which there are signs of the disease but no symptoms. The classic picture of the disease, with anemia, gross splenomegaly, lymphadenopathy, thrombocytopenia, and a very high white cell count, is considered to be only the terminal phase of a disease that usually runs a course lasting from 10 to 20 years.

Which Nodular Goiters Should Be Removed? M. Perlmutter and S. L. Slater. New England J. Med. 255:65-71 (July 12) 1956 [Boston].

The authors present a physiological plan for the diagnosis and treatment of nodular goiter. A review of the literature indicates that clinically palpable thyroid nodules are present in from 4 to 12% of the population of the United States. The incidence of cancer in unselected nodular goiters may be as high as 2 to 5%; in surgically treated multinodular goiter it is 3 to 10% and in uninodular goiter 9 to 33%. Most evidence indicates that benign thyroid nodules rarely undergo malignant transformation, and therefore surgical therapy as a prophylaxis against carcinoma is not indicated. Excisional therapy is indicated for nodules that are considered likely to be carcinomatous. Evaluation of thyroid nodules for malignancy or benigancy is performed on patients of the endocrine clinic of the Maimonides Hospital who have nodules that are clinically benign by means of laboratory determination of the total 24-hour uptake of radioactive iodine (I^{131}) by the thyroid gland. In patients with uninodular goiters (and those with masses restricted to one lobe), directional counts are made over the various parts of the gland, and the uptake over the nodular area is compared with that over the presumably normal parts of the gland. By definition, a "hot" (very probably benign) nodule is one that concentrates at least 125% as much I^{131} as the non-nodular portion of the gland. A nodule that concentrates less than 125% is considered "cold" (possibly malignant). In a multinodular gland with predominant nodules, directional counting is also done. Whereas 23% of the physiologically hypoactive nodules have been found to be malignant, the hyperactive nodules are uniformly benign. These nodules may successfully be treated medically.

The Prognosis of Patients with Intermittent Claudication. W. B Spaulding. Canad. M. A. J. 75:105-111 (July 15) 1956 [Toronto, Canada].

One hundred one men and seven women with intermittent claudication were studied in an attempt to learn what facts are of aid in making a prognosis concerning the patient's life as well as the affected extremities. Thirteen patients died within three years of the onset of the disease and 22 died within five years, but not all the patients were followed up for this length of time. Patients in whom the onset of the disease occurred early in life lived longer, on the average, than patients with a later onset. Normotensive patients had a better prognosis regarding life than those with hypertension. The group with unilateral claudication had a somewhat lower mortality rate than the group with pain in both lower extremities. Manifestations of cardiovascular disease were common in the patients during their lifetime, and atherosclerosis played a striking role in causing death. The incidence of cardiovascular disease was higher in patients with hypertension than in normotensive patients. Amputations were performed in 27 patients (25%). The first amputation was usually carried out within five years of the onset of intermittent claudication. Amputation was performed more often in patients with unilateral claudication than in those with bilateral claudication, but it was required less frequently in those with hypertension than in those with normal blood pressure because ischemic complications occurred less frequently in hypertensive than in normotensive legs.

Portal Hypertension Due to Chronic Occlusion of the Extrahepatic Portion of the Portal Vein: Its Relation to Ascites. A. H. Baggenstoss and E. E. Wollaeger. Am. J. Med. 21:16-25 (July) 1956 [New York].

From 215 autopsy patients with the anatomic diagnosis of occlusion of the portal vein the authors excluded all those with ascites in whom any coexistent lesion, such as concomitant cirrhosis of the liver, peritoneal carcinomatosis, chronic peritonitis, renal disease, congestive heart failure, obstruction of hepatic veins, Meigs' syndrome, myxedema, or obstruction of the inferior vena cava above the liver, which might by itself have been responsible for ascites, was found. This method of selection uncovered 15 cases of ancient thrombosis of the portal vein uncomplicated by any other condition that might cause ascites. In 10 of these cases no ascites was present; in 5 ascites was present and was of long standing. In addition to the pathological findings, the clinical findings and the course of the disease were studied in these 15 cases. In the group with portal obstruction without ascites there were five men and five women and their average age was 30 years. In the group of portal obstruction with ascites there were two men and three women and their average age was 45 years. Clinical and pathological evidence of portal hypertension was found in all 15 cases. Attempts to produce ascites in experimental animals by obstruction of the portal vein alone have for the most part been unsuccessful. Contrary to the results of these experiments, the authors' observations in five cases of chronic occlusion of the portal vein in which ascites could be attributed solely to this lesion emphasize the role of portal hypertension *per se* as an important contributing factor in the pathogenesis of ascites, even in the absence of hypertension of the intrahepatic portal system.

Comparison of the two groups of patients, those in whom ascites was present and those in whom it was absent, revealed that in the group without ascites the mean age was lower, the occurrence of better-developed accessory portal veins (hepatopetal circulation) was more frequent, and the degrees of enlargement of the spleen and of atrophy of the liver were less. Although no great significance can be ascribed to these differences because of the small number of cases in the two groups, these findings suggest that inadequate development of the hepatopetal collateral circulation may be a determining factor in the development of ascites in some cases of chronic occlusion of the portal vein.

Treatment of Addison's Disease. K. Emerson Jr. A.M.A. Arch. Int. Med. 98:100-105 (July) 1956 [Chicago].

When the diagnosis of adrenal insufficiency is made in a patient who is critically ill with the vascular collapse characteristic of an Addisonian crisis, a continuous intravenous infusion of from 2,000 to 3,000 ml. of 5% dextrose in isotonic sodium chloride solution containing 100 mg. of dihydrocorticosterone per liter should be started at once. The total volume of fluid must depend on the degree of shock and dehydration and the state of the cardiovascular system. The amount of hormone given should never be less than 200 mg. in the first 24 hours. Intravenous therapy should usually be continuous during the first 24 hours, because the patient may relapse into shock within 4 to 6 hours after its discontinuance unless he is supported by oral or intramuscular administration of hormone. Oral therapy is preferable to intramuscular because absorption is faster by the oral route and higher blood levels are obtained. Another 1,000 to 2,000 ml. of 5% dextrose in saline containing a total of 100 mg. of dihydrocorticosterone should be given on the second day over an 8-to-12-hour period. Frequent feedings with a bland high-carbohydrate diet may be started unless contraindicated by the condition precipitating the Addisonian crisis, such as a surgical operation. At least six hours before the end of this infusion, oral therapy with 25 mg. of cortisone every six hours should be begun. Most patients, by the third day, will be able to consume a normal diet and be maintained on cortisone given orally in doses of 25 mg. every six hours. This dose can be reduced subsequently by 25 mg. each day to the final maintenance level of 12.5 mg. twice daily by the end of a week.

When the diagnosis of Addison's disease has been established by the appropriate diagnostic procedures in a patient in whom the onset of symptoms has been gradual and who is not critically ill, oral therapy may be started at once according to the following regimen: 25 mg. of cortisone or 20 mg. of hydrocortisone is given on arising and again after 6 to 12 hours for one week or until distinct improvement in strength, appetite, and sense of well-being is observed. The dose is then reduced to 12.5 mg. of cortisone or 10 mg. of hydrocortisone given twice daily. The introduction of fludrocortisone, a potent hormone capable of supplying adequate salt retention in doses varying from 0.1 to 0.2 mg. per day, has simplified the management of patients with Addison's disease. Although it is necessary to continue the use of cortisone or hydrocortisone in combination with the fluorine-containing compound, it is becoming apparent that in some cases adequate maintenance can be achieved with only one-half of the previously indicated quantity of the glucocorticoids, namely, 12.5 mg. of cortisone or 10 mg. of hydrocortisone once daily. In a certain proportion of patients, especially those with relatively long-standing adrenal insufficiency, a period of several months may elapse before the full beneficial effect of replacement therapy will become evident. Eventually, however, by the proper adjustment of dosage, the patients with Addison's disease can be restored to normal health and activity.

Cortisone Test in Adrenal Hyperplasia and Adrenal Tumor. S. Wais. Medicina 16:1-10 (Feb.) 1956 (In Spanish) [Buenos Aires, Argentina].

The cortisone test for differentiating adrenal hyperplasia from adrenal tumor was performed in eight women ranging in age from 17 to 46 years. The group included three patients with bilateral adrenal hyperplasia, three with Cushing's syndrome, and two normal women. The Cushing's syndrome was due to bilateral adrenal hyperplasia in one patient and to unilateral adrenal tumor (adenoma and carcinoma respectively) in two patients. The test was made by Jailer's technique, which involves determination of the urinary 17-ketosteroids before and during administration of cortisone intramuscularly in daily doses of 200 mg. for three or four consecutive days up to a total of 600 or 800 mg. The urinary 17-ketosteroids greatly diminished by the end of the treatment in all four patients with bilateral adrenal hyperplasia, whereas the figures did not change after the treatment in the two patients with adrenal tumors. In the patient with carcinoma the urinary 17-ketosteroids increased during the administration of the hormone. In the two normal women, the urinary 17-ketosteroids diminished after administration of the hormone. The test is reliable for differentiating adrenal hyperplasia from adrenal tumor.

Smallpox in France: Recent Epidemiological Data. R. Crosnier. Semaine hôp. Paris 32:2198-2203 (June 22) 1956 (In French) [Paris, France].

One of the epidemics of smallpox in France during the period 1954-1955 occurred in the Morbihan department. There were 73 cases and 16 deaths. Special reference is made to the pulmonary forms presenting noninfectious labile infiltrate and to the pure febrile forms. Mass inoculation has occasioned skin conditions similar to those encountered during the epidemic at Marseilles in 1952. There is a close relation between vaccinal ectodermotrope virus and other equally ectodermic viruses. If dermatosis appears, it will occur generally between the 8th and the 13th day at the time of the maturity or at the beginning of the decline of the vaccinal lesion. After 15 days the complication will not appear.

The increasing role of allergy is discussed. Jennerian vaccination can reveal allergic processes that are homologous or foreign, unsuspected or latent, and confer on certain substances an accidental skin tropism in making them true reactogens. Their clinical consequences are frequently dependent on the character and degree of the vaccinal reaction. Whatever the criticism, Jennerian vaccination never proved ineffective in the contaminated area. Antivariolic vaccination has been regarded as a factor in the genesis of acute coronary thrombosis (eight cases with five deaths between the 7th and the 14th day). Contraindications to antismallpox vaccination are very limited, although some of them are absolute and permanent, for example, leukemias and diabetic states. In many circumstances allergy in a large and general sense plays an undeniable part in contraindication. In addition, although observed clinical conditions have until now seemed to result only from the infectious disease process, at present the allergic phenomenon must also be considered in the course of the development of certain smallpoxes. A late vaccination that is given after smallpox contagion and is therefore not inhibitive of the disease may produce allergic phenomena in certain cases. These phenomena should be investigated and dissociated from the true disease state. Contraindications must not be carelessly multiplied. There are certain cases where precautions and preventive measures are necessary with regard to Jennerian vaccination. However, in spite of possible but rare untoward side-effects or late effects, Jennerian vaccination remains indisputably the one irreplaceable and efficient prophylactic weapon against smallpox. Performance of mass vaccinations and revaccinations should be carried out without delay, not only locally but also in surrounding areas, in the event of an outbreak. Every certain or possible contact demands immediate vaccination.

Clinical Diseases of Adults Associated with Sporadic Infections by APC Viruses. E. Jawetz, L. Hanna, S. J. Kimura and P. Thygeson. A.M.A. Arch. Int. Med. 98: 71-79 (July) 1956 [Chicago].

Adenoidal-pharyngeal-conjunctival (APC) viruses are widely accepted at present as important causative agents of epidemic respiratory disease in military recruits and in children. An attempt was made by the authors to throw light on the role of these pathogenic agents in the causation of sporadic illness in adults. Five cases are described in men between the ages of 26 and 50 years, illustrating infection with adenoidal-pharyngeal-conjunctival viruses of types 2, 3, 6, 7, and 8. The illnesses ranged from simple mononuclear conjunctivitis without fever or respiratory symptoms to a severe influenza-like systemic disease, necessitating prolonged hospitalization. Types 2, 3, 6, and 8 of the APC viruses were isolated from the eyes in 9 of 22 patients whose clinical picture strongly suggested causation by these pathogenic agents. Involvement of the eye was observed by the authors in most of the proved sporadic APC virus infections in adults. In some the eye was the only site of manifest viral activity; in others it was associated with systemic or respiratory symptoms. The constancy of eye involvement suggests the role of the eye as a probable portal of entry and a site of major manifestations of APC virus infection.

The Use of Corticosteroids in Combination with Isonicotinic Acid Hydrazide in the Treatment of Advanced Bilateral Progressive Cavitary Pulmonary Tuberculosis. A. E. Handley. South African M. J. 30:605-606 (June 30) 1956 [Cape Town].

This is a preliminary report on a three months' trial of prednisone (Meticorten) and isoniazid (isonicotinic acid hydrazide) in the treatment of 23 Bantu females varying in age from 12 to 45 years. All had bilateral, advanced, progressive pulmonary tuberculosis with cavitation and with gross secondary pulmonary sepsis; they had had at least six months' hospital treatment (some had had previous admissions dating back to 5 or 6 years); their conditions were deteriorating under routine treatment; they were gravely ill with prognoses varying from poor to extremely bad; and they were obviously unsuitable for any form of operative procedure. Isoniazid was given in daily doses of 15 mg. per kilogram of body weight, as the only antituberculous drug. Antibiotics and sulfonamides were given in accordance with the response of secondary organisms cultured from the sputums. Complications such as amebiasis were treated as indicated at weekly examinations. The hospital diet was supplemented with extra protein in the form of a broth of protein hydrolysate, vitamin-B complex concentrate, and vitamins C and D. Hemopoietic substances and blood transfusions were given as indicated by blood investigations. Up to this point, treatment consisted of what might have been given under routine hospital procedure.

Prednisone (Meticorten) was given in daily quantities of 15 mg., subdivided in three doses, regardless of the weight of the patient. At the end of three months this dose was gradually reduced, while corticotropin was administered in increasing dosage as an adrenocortical stimulant. No patient died during this therapeutic trial, although a fatal outcome would have been anticipated in the majority of cases of this type. All patients exhibited marked clinical improvement. All but one showed satisfactory weight gains. On independent radiological assessment no patient showed further deterioration and five actually showed slight improvement; however, tubercle bacilli were always present in the sputum.

Oral Treatment of Diabetes Mellitus with Invenol: Indications and Contraindications; Insulin-Resistant and Invenol-Resistant Diabetes: Factors Causing a Renal Effect. J. Bloch and A. Lenhardt. Wien. med. Wchnschr. 106:594-598 (July 7) 1956 (In German) [Vienna, Austria].

Highly satisfactory results were obtained with Invenol, a proprietary preparation of carbutamide, in 400 patients with diabetes mellitus. Treatment was started with a daily dose of 4 or 3 gm. After a few days the dose of the drug was reduced to 2, 1, or 0.5 gm., and that was used as the maintenance dose. Undesirable side-effects consisted of anorexia, stomach-ache, and heart-burn in 2 patients and of a toxic morbilliform or urticarious rash in 10. The rash subsided within a few days after withdrawal of the drug. The drug did not cause any damage to the liver, kidneys, nervous system, or morphological elements of the blood, particularly the leukocytes.

Carbutamide therapy is indicated in patients with diabetes mellitus who are sthenic in type, with a tendency to obesity, and of middle or advanced age, i. e., in patients with "diabetes with insulin resistance." Carbutamide therapy is contraindicated in hyposthenic patients with "insulin-deficiency diabetes," i. e., diabetes with resistance to carbutamide. It is contraindicated in children and adolescents with diabetes mellitus, in pregnant women at least during the last months of pregnancy, in patients with intercurrent disease, and in those with acidosis. Surgical intervention or the preoperative period are contraindications to carbutamide therapy. From one-third to one-half of the patients with diabetes mellitus may be treated successfully with carbutamide. Insulin remains fully effective after the withdrawal of carbutamide. The positive effect of carbutamide can be reproduced at any time. Carbutamide is not a substitute for insulin but it either stimulates the beta cells or increases, by enzymatic action, the effect of the endogenously produced insulin. Two observations were made that suggest that the mechanism of action of carbutamide differs from that of insulin. Old insulin frequently causes a rapid decrease in the excreted amount of urine, whereas carbutamide causes polyuria. Insulin causes a simultaneous decrease in the blood sugar level and in the amount of sugar excreted in the urine. Glycemia may be restored to normal by carbutamide, but increased glycosuria may persist. It is suggested that carbutamide exerts an influence on the tubular reabsorption of water and sodium and perhaps also on that of sugar.

The Problem of Chronic Liver Disease in Young Women. A. G. Bearn, H. G. Kunkel and R. J. Slater. Am. J. Med. 21:3-15 (July) 1956 [New York].

This report deals with 26 young adult patients with cirrhosis of the liver whose symptoms and signs differed from those of patients with the more comon type of cirrhosis. The predominance of women in this group was striking, since only 3 of the 26 patients were men. The average age of the patients at the onset of the disease was 15 years. Delayed menstruation or amenorrhea before or coincident with the onset of symptoms related to liver disease occurred in 15 of the 23 women. In four patients acne, hirsutism, pigmented striae, obesity, and moon facies were also noted before the recognition of liver disease. In some patients transient rashes similar to those seen in erythema multiforme were observed early in the course of the disease. The well-nourished and relatively healthy appearance of these patients belied the seriousness of their disease. As the disease progressed, the classic signs of hepatic cirrhosis became increasingly apparent. The spleen was usually considerably enlarged and was frequently palpable at the earliest recognizable stage of the disease. Spider angiomas and liver palms developed in most of the patients. Clinical ascites, in sharp contrast to the findings in many patients with Laennec's cirrhosis, was relatively uncommon in these patients in the early stages of the disease. In 10 patients obscure febrile episodes sometimes associated with respiratory or cardiac symptoms occurred at some time in the course of the disease. Numerous blood cultures were performed in an attempt to isolate a causative agent, but in none of the patients was a positive blood culture obtained. Eleven patients (42%) complained of joint pains of varying degree. These symptoms usually occurred early in the course of the illness and in some patients were accompanied by an acute non bacterial febrile attack associated with a temporary exacerbation of the liver disease.

Twelve patients died as a direct result of the disease process, of either esophageal hemorrhage or progressive hepatic coma. The average duration of the disease in these patients was about seven years. The mean duration of the disease in those still living is five and a half years. Striking improvement followed the use of cortisone in some patients. Continued use of small doses of cortisone may be of some value but there is as yet no conclusive evidence that cortisone has modified the disease process or that it will alter the eventual outcome. Laboratory studies in the acute stages of the disease usually revealed an extremely high serum gamma globulin level and an increase in the plasma cells of the liver. The possibility that specific endocrine influences, present in young women, may modify the usual course of infectious hepatitis has been discussed. In most of the patients the causation of the disease process was uncertain.

SURGERY

Complications of First Rib Fracture, Including One Case Each of Tracheoesophageal Fistula and Aortic Arch Aneurysm. T. W. Holmes Jr. and R. E. Netterville. J. Thoracic Surg. 32:74-91 (July) 1956 [St. Louis].

Seventeen (10%) of 170 patients who were hospitalized between Jan. 1, 1947, and Dec. 31, 1954, with a diagnosis of fractured ribs, had fractures of one or both first ribs, isolated or in addition to other rib fractures. All of these fractures, with the exception of those in one patient, were produced by closed chest trauma, in most cases by sudden deceleration in an automobile accident in which the chest sharply struck the steering wheel. Severe mediastinal complications occurred in 2 of the 17 patients with first-rib fracture; in one patient an esophageal diverticulum with tracheoesophageal fistula was diagnosed six months after the injury, and in the other patient a fusiform aneurysm of the aortic arch was diagnosed more than two years after the injury. The tracheoesophageal fistula was successfully repaired by direct division and suture. The aneurysm, which was entirely asymptomatic, was covered with reactive polyethylene and responded well to this conservative surgical treatment. Other complications in the patients with first-rib fracture included injury to the brachial plexus and stellate ganglion and an unusual obstruction of both subclavian veins from the pressure of excessive callus about the healing bilateral fractures. Remaining complications in this group of patients were the common sequelae of pleural puncture by the rib fragments.

As a result of their experience and a survey of the world literature concerning first-rib fractures, traumatic tracheoesophageal fistula, and traumatic aneurysm, the authors state that trauma sufficient to produce fracture of a first rib by indirect force is capable of causing injury to mediastinal soft parts. Lesions of lesser magnitude than complete disruption of the tracheobronchial tree or great vessels may be considerably delayed in development or in producing diagnostic symptoms or signs. In patients with closed thoracic injuries, especially those produced by high-speed automotive accidents, one must search carefully for evidence of first-rib fracture, which may be easily overlooked before callus formation begins. Patients with such fractures without early manifestations of mediastinal lesions must be thoroughly examined at frequent intervals for at least two years after the injury. Each examination should include a roentgenogram of the chest. Widening of the superior mediastinal shadow in the vicinity of the aortic arch following chest injury should be considered a sign of possible incomplete rupture of the aorta or other great vessel from which an aneurysm may develop.

The Physiologic Effects of Fibrothorax and the Functional Results of Surgical Treatment. A. A. Siebens, C. F. Storey, M. M. Newman, and others. J. Thoracic Surg. 32:53-73 (July) 1956 [St. Louis].

Eleven patients, 10 of whom were men less than 35 years old, required pleural decortication of either a tuberculous or a nontuberculous pleural peel. The right side of the chest was the site of the disorder in five patients and the left side in six. The duration of the disorder varied from 2 months to 13 years. The patients were evaluated from a respiratory point of view both before and after the operation. The tests performed pertained to unilateral and bilateral ventilation and total lung volumes, intrapulmonary mixing of respiratory gases, ventilation-perfusion relationships, and relative dimensions of the diffusing surface (maximum diffusing capacity).

The preoperative deficit usually consisted of impaired ventilation, diminished lung volumes, and a reduction in the dimensions of the alveolar capillary bed. Defects in the mixing of gases within the lung and in the relationship between ventilation and perfusion were uncommon. Pleural decortication was usually followed by improved ventilation, increased lung volumes, and restoration of alveolar-capillary units. Among the most constant effects of the operation in these patients was an increase in residual volume, a change that could be attributed to the removal of a noncommunicating intrathoracic mass and to the release of retracted parietes. Associated roentgenographic findings were the elimination of density between the lungs and thoracic wall and the widening of the intercostal spaces, which was frequently seen postoperatively. This increase in residual volume, either absolute or relative to the total lung capacity, should not be identified with "overdistention" and construed as detrimental to function. The functional residual capacity was also commonly augmented by the operation, and the reasons for this increase paralleled those cited for the changes in residual volume. Comparison of tuberculous and nontuberculous groups indicated no striking differences with respect to the patients' postoperative respiratory status. Duration of disease, parenchymal involvement, postoperative complications, and the degree of preoperative functional impairment were factors contributing to the extent of recovery. Protracted disease did not preclude improvement.

Despite postoperative improvement, no patient was fully restored to normal by operation. The period of convalescence before the postoperative study was three months or less in most of the patients. This short postoperative interval accounted in part for the limited recovery. No gross deficit occurred as the direct result of surgery. Consistently with the essentially mechanical nature of the impairment imposed on the lungs by pleural envelopment, the physiological abnormalities produced were reversible to varying degrees by surgical removal of the confining structures.

Surgery of Eventration of the Diaphragm. E. F. Chin and R. B. Lynn. J. Thoracic Surg. 32:6-14 (July) 1956 [St. Louis].

Eventration of the diaphragm, a congenital, abnormally high position of the intact diaphragm, was observed in 18 male and 19 female patients between the ages of 13 and 72 years. Five of the 38 patients were treated successfully by surgery. Four of these patients had symptoms, including epigastric pain, flatulence, belching, and severe melena, that required surgical treatment. The fifth patient, a 13-year-old boy, had no symptoms, but it was felt that the extensive defect warranted repair. A careful dissection around the chest wall and the pericardium is imperative, mobilizing the muscular portion of the diaphragm to its fullest extent. This muscular portion is often well hidden and appears almost to be covered by its own membrane. Once it is fully mobilized, the affected portion of the diaphragm can be resected and muscle-to-muscle suture performed. In none of the patients was it difficult to obtain muscular apposition, and postoperative roentgenologic examination showed an intact diaphragm with limited but normal movement on respiration. No reinforcement, such as tantalum mesh or fascia lata grafts, was necessary.

The Nonoperative Treatment of Traumatic Chylothorax. J. V. Maloney Jr. and F. C. Spencer. Surgery 40:121-128 (July) 1956 [St. Louis].

The increasing number and scope of intrathoracic surgical procedures has been accompanied by a rise in the incidence of chylothorax, and the mortality rate of this surgical complication has been found to be as high as 50%, although this rate has shown a progressive decrease during the last 10 years. The trend toward the early surgical treatment of chylothorax by ligation of the thoracic duct is now well established. The purpose of the present discussion is to temper the current enthusiasm for early operative intervention. Thirteen patients with chylothorax were treated without morbidity or mortality. Eleven of these responded to the simple expedient of multiple thoracenteses. Two patients were subjected to a second operation, but on the basis of their present knowledge the authors feel that in these patients closed catheter drainage could have been tried before operation. They are convinced that persistence with nonoperative treatment by thoracenteses or closed catheter drainage will be rewarded with a high degree of success.

Esophageal Dystonia. R. H. Schug. West. J. Surg. 64:391-393 (July) 1956 [Portland, Ore.].

Esophageal dystonia is the author's choice of the four terms that have been applied to a noninflammatory, non-neoplastic constriction of the lower esophagus. The other three terms are cardiospasm, achalasia, or megaesophagus, the latter term referring to the enlarged esophagus proximal to the constriction. The condition is due to a localized defect in autonomic innervation. Several medical and surgical treatments have given poor long-term results. The author describes a surgical method that neither produces a sliding hernia nor damages the diaphragmatic crura. A transthoracic approach is used, and, if a sling type of hernia exists, it can be visualized and repaired.

After the chest is opened through the bed of the eighth rib, the phrenic nerve is anesthetized and a radial incision is made in the dome of the diaphragm at a distance from the esophageal hiatus, care being taken not to interfere with the sphincter action of this hiatus. Through the opening in the diaphragm a high gastrotomy is carried out, and the index finger is inserted through it into the esophagus. With the finger in this position and under direct vision, the pleura over the esophagus is incised and an anterior, extramucosal myotomy is carried out. The incision is made long enough to open the entire constricted area, but does not extend more than 2 cm. beyond it at either end. The esophagus is not dissected from its bed and is disturbed as little as possible. After the myotomy, a Levin tube previously introduced into the dilated portion of the esophagus is threaded through into the stomach. The tube may be removed and fluids and food may be given as early as 48 hours after the operation. Two illustrative case histories are presented. An extramucosal esophageal myotomy is a safe and simple method that will produce cure. The procedure minimizes the possibility of postoperative regurgitation. Severe esophageal dystonia requires prompt surgical treatment.

Pulmonary Resection as an Adjunct in the Treatment of Pulmonary Tuberculosis. J. W. Gale, H. Dickie, J. Rankin and A. R. Curreri. Am. Rev. Tuberc. 74:29-41 (July) 1956 [New York].

The authors present observations on 1,165 patients in whom resection was carried out as an adjunct to the treatment of pulmonary tuberculosis during the 10-year period ending in May, 1954. There was a sharp increase in resections after 1950, because under the influence of long-term chemotherapy surgical resection became possible at a better than reasonable cost in terms of operative mortality and postoperative complications. The general goal of drug therapy was the attainment of maximal resolution of reversible disease and the closure or eradication of open lesions. Persistent necrotic lesions, which often harbored viable bacilli, were then resected. In this way it was possible to restrict the extent of resections and preserve pulmonary tissue. The optimal time for surgical intervention varied considerably, depending on the extent and severity of the disease, the age of the patient, and the presence of complications such as endobronchitis. On the average, a patient received antimicrobial therapy for from 9 to 15 months prior to resection. Bronchoscopy was performed several days before resection in nearly all patients. If any evidence of endobronchitis was present, surgical intervention was delayed. In some instances the addition of oxytetracycline to the antimicrobial therapy cleared the minor endobronchitis. The greatest therapeutic challenge, however, was the patient with persistent cavitation and endobronchitis whose tubercle bacilli had lost susceptibility to streptomycin and isoniazid. Pulmonary resection in these patients was hazardous because of the greatly increased risk of bronchopleural fistula. Prevention of the development of resistance to drugs is of primary importance in these patients.

At present the tendency is to resect a cavitary lesion at an earlier period rather than to wait for reversal of infectiousness and cavitary closure to occur, if this has not been accomplished after a four-to-six-month period of treatment. If either streptomycin or isoniazid has not been used, it is added to the drug regimen. If surgery is regarded as feasible, the resection is planned within the four-to-six-week interval after the addition of the streptomycin or the isoniazid. However, if, in spite of roentgenographic evidence of residual cavitation, the sputum no longer contains tubercle bacilli on microscopy or culture, the period of preoperative chemotherapy may be extended if the extent of removable pulmonary tissue can thus be significantly decreased. The authors were able to obtain information on 1,115 patients who were followed for from 1 to 10 years. The operative mortality was 3%. An additional 3% of the patients have died in the intervening years from various causes, including active pulmonary tuberculosis. Two per cent of the patients still have active tuberculosis, but 1,015 (91%) of the 1,115 who could be traced are clinically well and are classified as having inactive tuberculosis.

Evaluation of Vagotomy and Pyloroplasty in the Treatment of Duodenal Ulcer. H. E. Dorton. J. Kentucky M. A. 54:602-609 (July) 1956 [Louisville, Ky.].

Dorton reports on vagotomy combined with a drainage procedure in 151 patients with duodenal ulcer. Early in their use of vagotomy they found that symptoms of mechanical pyloric obstruction would sometimes develop and be troublesome. A drainage procedure was added in order to overcome this difficulty. Pyloroplasty was done, because it would allow confirmation of the diagnosis, removal of the scarred area, and restoration of the anatomy to a more natural state.

At operation the diagnosis is first confirmed by inspection of the region or, if necessary, by opening of the pylorus and of the first part of the duodenum. Then subphrenic vagotomy is carried out, great care being taken that no branches of the nerve are overlooked. A complete vagotomy is more readily carried out if the esophagus is drawn well down into the abdomen so that the two main trunks of the nerve are reached rather than the arborization further down. Then attention is given to the drainage problem. In all but five of the 151 patients it was possible to perform a pyloroplasty. The simplest type, that of Judd or Mikulicz, was used 125 times. It consists of a linear incision of the pyloroduodenal junction so that two fingers can be inserted into the duodenum and up into the stomach. The ulcerated area is trimmed away and the opening is closed transversely. A neat closure is almost always followed by a smooth convalescence and a good result. Rough handling or inversion of too much tissue is likely to interfere with drainage and jeopardize the result. When the ulcer is located on the posterior-superior or the posterior-inferior duodenal wall, the area is wedged out. The resulting V-shaped defect is closed side-to-side and the remainder of the closure is the same as for simple anterior-pyloroplasty. This has been used 14 times in this group. These simple procedures are inadequate when the duodenum is greatly distorted or the ulcer is deeply embedded in the pancreas. In these patients, the author cuts across the duodenum just distal to the area and across the pylorus just proximal to the sphincter and discards the intervening unhealthy tissue. The stomach is then joined to the open end of the duodenum in a simple end-to-end anastomosis as in the Billroth I operation. This procedure was used seven times in this series.

A short-loop posterior gastroenterostomy was necessary in five of the patients. There were two deaths in the 151 patients; satisfactory results were obtained in 91% of the cases. The average hospital stay after surgery was a little over eight days. The effect of the procedure on the patient's weight was very encouraging. The author concludes that vagotomy and pyloroplasty is a satisfactory method for treating nearly all types of complicated duodenal ulcer. Bleeding ulcer is amenable to the same treatment provided the ulcer is removed. The ability to eliminate side-effects appeared to be directly proportional to the ability to restore the pyloroduodenal outlet to as nearly normal size and contour as possible. A patient who has obtained a good result usually remains well.

Colon Polyps and Unexplained Rectal Bleeding. G. C. Tyler. West. J. Surg. 64:374-376 (July) 1956 [Portland, Ore.].

In the absence of an obvious carcinoma, bleeding from the rectum that is not explained by anorectal lesions is frequently due to polyps of the colon and their sequels. Approximately 10% of patients over the age of 40 have adenomas or polyps of the colon. Bleeding occurs when these lesions reach a diameter of about one-half inch, so that the passage of feces causes ulceration. The clue therefore is bleeding. Diagnostic routine involves, in the order named, rectal examination and sigmoidoscopy; barium enema; air-contrast barium enema; and exploration of the abdomen and colposcopy. Forty-one cases are renewed. The presence of a polyp was verified by laparotomy in all 41 patients. The author stresses the fact that if in the presence of bleeding from the rectum a lesion cannot be found by repeated sigmoidoscopy and if repeated x-ray studies are inconclusive, then laparotomy and direct sigmoidoscopic visualization of the colon are imperative. Operative mortality and morbidity are so low as to be almost never a contraindication to laparotomy.

The Ulcerogenic Tumor of the Pancreas. E. H. Ellison. Surgery 40:147-170 (July) 1956 [St. Louis].

Ellison is concerned with a new clinical entity consisting of a fulminating and frequently fatal peptic ulceration associated with a non-insulin-producing islet cell tumor of the pancreas. A review of the clinical records and autopsy protocols of all patients admitted to the Ohio State University Medical Center during the past 10 years with the diagnosis of peptic ulceration and/or pancreatic tumor disclosed five patients with this disorder. These five cases bring the total of reported "ulcerogenic tumors" of the pancreatic islets to 24. Although 19 of the 24 islet adenomas were malignant, the rate of growth was slow and peptic ulceration remained the predominant manifestation in nearly all of the patients. Only 11 of the 19 malignant tumors had spread beyond the confines of the pancreas.

This new clinical entity is characterized by excessive gastric secretion and rapidly progressive, atypically located ulcers recurring despite adequate medical or surgical therapy. The associated tumor remained unrecognized until autopsy in nine patients, who underwent 23 operations for 35 primary and recurrent marginal ulcerations and who died of ulcer with an average survival time of 17 months. The tumor was removed at operation in 11 patients with complicated ulcer disease, and of these, 5 are living. Three patients died of ulcer, and in each instance overlooked islet tumors were found in the pancreatic remnant. The remaining three patients succumbed to recurrent tumor. The average survival time in the six fatal cases was 6.6 years, which represents a considerable improvement over results obtained in the patients in whom the pancreatic tumor was overlooked. Furthermore, the improved results indicate the importance of the tumors in the pathogenesis of this invariably fatal ulcer disease.

Documented observations of the return of gastric secretions to normal levels after resection of a non-insulin-producing islet cell tumor of the pancreas in a patient with hypersecretion and recurrent marginal ulcerations suggest that a hormonal or chemical factor arising in the pancreatic tumor is capable of stimulating the gastric glands to secrete and may be the causative agent of the ulcer disease. Until such time as better methods of diagnosis are available, it seems reasonable to suggest that a careful search of the pancreas should be made in all patients operated on for peptic ulcer. This is particularly important in patients with atypically located primary ulcer or those operated on for recurrent marginal ulceration. The surgical attack should include removal of the tumor, combined with some standard ulcer procedure designed to protect the patient in the event of recurrent or residual tumor. Finally, the difficulties encountered in palpating a small pancreatic adenoma suggest that resection of the body and tail of the pancreas may be advisable before subjecting a patient to total gastrectomy as a final heroic method of controlling the acid factor.

Carcinoid (Argentaffin) Tumors of the Gastrointestinal Tract. W. G. Diffenbaugh and R. E. Anderson. A. M. A. Arch. Surg. 73:21-37 (July) 1956 [Chicago].

Diffenbaugh and Anderson review the records of all patients with carcinoid tumors found in the files of St. Luke's Hospital. Chicago. Langhans described a carcinoid tumor as early as 1867, although he did not recognize it as such. Lubarsch in 1882 first used the term "little carcinomas," and Oberndorfer designated these tumors as "carcinoids" in 1907. The term "argentaffin" was first applied to them by Gosset and Masson, who found that cells within these tumors took a silver stain. It is now generally accepted that carcinoid tumors arise from the Kulchitsky cells of the crypts of Lieberkühn of the gastrointestinal tract. Carcinoid tumors have been reported as occurring in the stomach, gallbladder, duodenum, small intestine, Meckel's diverticulum, appendix, ileocecal valve, cecum, colon, rectum, and in the gastrointestinal components of teratomas of the ovary. Nearly 75% of the 51 carcinoid tumors in the files of St. Luke's Hospital were appendiceal in location.

Grossly, carcinoid tumors are light yellow in color, probably because of their high lipoid content. They are usually antimesenteric and submucosal in location in the intestinal wall. The typical cell is a small epithelial cell with an oval or round nucleus that has a well-defined nuclear membrane and a fine stippling of chromatin. The cytoplasm is palely acidophilic, small in amount, vacuolated or granular. The cells are in columns, nests, coils, or masses. Tumor cells in the metastatic foci may look benign by the usual histological criteria of malignancy. Frequently the cells in the metastatic deposit may take on an entirely different histological arrangement from that seen in the primary tumor. The carcinoids of the small intestine may manifest themselves by an acute obstruction due to intussuception of a polypoid tumor. This obstructive feature, as well as various other aspects of carcinoids of the small intestine, such as their multiplicity and their association with liver metastases, are illustrated on the basis of case histories. Liver metastases from carcinoid tumors of the small intestine may be associated with cyanosis, peripheral vasomotor symptoms, pulmonic stenosis, and tricuspid regurgitation without septal defects. The vascular lesions are presumably secondary to the prolonged action of serotonin, secreted by the tumor tissue. That carcinoid tumors may be functioning neurocrine tumors related to pheochromocytomas has been suggested in several reports.

Carcinoid tumors may appear anywhere along the gastrointestinal tract from the stomach to the anus. Histologically, the appendiceal carcinoids show frequent invasion of the muscle and serosal layers of the appendix, even though evidence of lymph-node metastases is infrequent. This type of tumor, wherever located, is malignant. The incidence of metastases of these tumors in various areas of the gastrointestinal tract usually parallels the stage in time at which the tumor is detected.

Treatment of Arteriosclerotic Occlusive Disease in 101 Lower Extremities by Arterial Homografts. E. S. Crawford, O. Creech Jr., D. A. Cooley and M. E. De Bakey. South. M. J. 49:665-670 (July) 1956 [Birmingham, Ala.].

Results from the conventional surgical therapy of arterial insufficiency in the lower extremities (sympathectomy and amputation) have been disappointing. In spite of sympathectomy, approximately one-third of these extremities ultimately required amputation. Fortunately, many arteriosclerotic occlusive lesions are segmental in character and an unobstructed distal segment is often satisfactory for anastomosis, permitting effective treatment with restoration of circulation distally. This paper is concerned with the use of lyophilized arterial homografts in the treatment of 101 extremities with arteriosclerotic occlusive lesions located distal to the level of the aortic bifurcation. The primary objective of operation is to restore normal pulsatile blood flow into the distal arterial bed and simultaneously to minimize the tendency to recurrence of the occlusive process and to impose minimal risk on the existing circulation in the event of failure. When arterial homografts were first used by the authors, the short, discrete, occlusive segment was completely excised and replaced by a homograft sutured end-to-end to the host artery; this was done on 26 extremities. More recently, however, no attempt has been made to excise the involved vessel, the occluded segment being by-passed by an arterial homograft sutured end-to-side into the artery proximal and distal to the block, as suggested by Kunlin. Thus, in 75 cases the by-pass procedure was used.

Restoration of circulation distal to the occlusion, as determined by arteriography or by the presence of pulses, was accomplished in 92 of the 101 extremities treated. Among 12 patients with femoral occlusion treated by excision and end-to-end grafting there were 3 unsuccessful results, but the same procedure was performed on 14 patients with iliac obstruction without a failure. Failures followed the by-pass procedure in 3 of 29 patients with femoral occlusion and in 3 of 46 with iliac occlusion. In general, failure occurred in borderline cases in which the distal segment was sclerotic and out-flow from the graft was poor. It is estimated that amputation was prevented in 18 cases.

Thyroidectomy and the Recurrent Laryngeal Nerves. A. D. Roy, R. H. Gardiner and W. M. Niblock. Lancet 1:988-990 (June 23) 1956 [London, England].

To ascertain the frequency, cause, and results of damage to the recurrent nerves during operations on the thyroid, Roy and associates examined the records of 300 patients operated on for nonmalignant conditions of the thyroid. All 40 patients showing damage to the recurrent nerve were followed up for at least a year. In 22 patients the right recurrent nerve was damaged, in 17 the left nerve, and in one patient both nerves were damaged. Complete recovery resulted in 18 of the patients, in 6 of whom the initial lesion was partial, manifesting itself as sluggishness and weakness in adduction of the vocal cord. Only two of these patients noticed any change in their voices. In 11 patients there was initially complete paralysis of a cord in the paramedian position midway between adduction and abduction, and in one patient the paralysis was partial within six days of operation and complete a month later. Movement of the vocal cord was not restored in 22 of the patients, including the one with bilateral lesions.

As regards the cause of damage to the recurrent nerves, in 19 patients difficulties were met with at operation. Emphasis is placed on the danger to the nerves at a low level in the neck in the presence of lower-lobe adenomas and in retrosternal prolongations. The nerves are also highly vulnerable where they are crossed by, or mingle with, the branches of the inferior thyroid artery. No operative difficulty was noted, and yet one of the nerves was damaged in 21 of the 40 patients. In 14 of these recovery resulted; presumably, the nerve was either stretched or caught in a hemostat in these patients. The prognosis of damage to the recurrent nerve is good. The recovery rate is high, and in patients in whom the nerve does not heal, compensation by the other vocal cord is usually good and functional recovery rapid and often complete. An accurate estimate of the frequency or extent of damage to the recurrent laryngeal nerves can only be obtained if the vocal cords are examined both preoperatively and postoperatively.

Late Results of Resections for Tuberculosis of the Upper Lobe. E. Hoffman. Thorax 11:160-162 (June) 1956 [London, England].

Hoffman reviewed the results of 100 resections for pulmonary tuberculosis of the upper lobe from one to six years after operation. The radiological appearances, sputum-conversion rate, complications, respiratory function, and working capacity were investigated. Serious postoperative complications (bronchopleural fistula, spread of disease) occur mainly in the first 12 months after the operation. There were no deaths in the late follow-up period. The majority of patients showed no clinical evidence of impaired respiratory function, and a large number were able to return to a normal working life. Primary resection of upper lobes was occasionally followed by poor results. This was the case in patients with large apical cavities and bilateral fibrocaseous disease, particularly when disease had at some time been present in the lower parts of the lung. Thoracoplasty still remains the procedure of choice for these patients. The reason for the decline in the popularity of this operation in some centers is the respiratory inefficiency that follows an extensive thoracoplasty. With present-day chemotherapy, the removal of more than five ribs should rarely be necessary. In extensive unilateral disease where the volume of the residual lung would not be sufficient to fill the space, thoracoplasty should be done as well as resection. This may be done either as a combined procedure or with the thoracoplasty as a preliminary operation. Resection has proved to be a satisfactory operation (1) in residual caseous foci, (2) in chronic fibrocaseous disease of segmental or lobar distribution, particularly if some degree of atelectasis is present, and (3) when thoracoplasty has failed.

The Surgical Treatment of Esophageal Stricture. L. D. MacLean and O. H. Wangensteen. Surg. Gynec. & Obst. 103:5-14 (July) 1956 [Chicago].

Eighteen patients with esophageal stricture have been treated by a surgical procedure designed to decrease acid-peptic irritation of the lower esophagus. Fifteen of them underwent subtotal gastrectomy, and in three hiatal-hernia repair accompanied by a Heineke-Mikulicz pyloroplasty was performed. In all 18 patients, complete disappearance (13 patients) or substantial improvement (5 patients) in dysphagia occurred. The period of observation after operation ranged from 4 months to 16 years. Gastric resection was carried out in one patient with an extensive corrosive stricture of the esophagus, with but slight improvement. An accompanying gastric or duodenal ulcer was observed in six patients; both duodenal ulcer and hiatal hernia were present in seven patients; both duodenal ulcer and hiatal hernia in one patient; and in four patients no concomitant anatomic abnormality was detected. Reestablishment of a fairly normal esophagogram after gastric resection was observed in even the most deformed and strictured esophagi in the follow-up roentgenograms, which were taken over a period of months. The esophageal lumen size, estimated by the size of the dilator that traverses the strictured area, increased markedly in the immediate and early postoperative period. Preliminary microscopic studies suggest that the depth of the esophageal lesion in acid-peptic esophageal stricture involves primarily the superficial layers of the esophageal wall (mucosa and submucosa) as contrasted with the stricture that results from the ingestion of corrosive caustic agents, in which the entire esophageal wall becomes involved in the fibrotic process. Gastric-acid production frequently is elevated in patients with esophageal stricture. Esophageal resection with intrathoracic or cervical esophagogastrostomy is recommended for lye or concentrated acid stricture. Two patients who were incapacitated and without lasting benefit from dilations have been restored to full health after resection of the esophageal stricture.

Carcinoma Associated with Ulcerative Colitis. R. H. Thorlakson Surg. Gynec. & Obst. 103:41-50 (July) 1956 [Chicago].

Twelve cases of carcinoma of the colon and rectum found in 182 consecutive colectomies performed for ulcerative colitis at St. Mark's Hospital in London, England, were reported. Eight of the 12 cases were diagnosed as malignant before operation Carcinoma associated with ulcerative colitis occurred from 10 to 15 years earlier than in the general population. The incidence of carcinoma in patients affected by ulcerative colitis for 10 years or more was much higher than in patients of the same age and sex who had not had it. The policy of earlier colectomy adopted in recent years has improved the prognosis of patients with ulcerative colitis who develop malignant growths in the colon or rectum. The presence of adenomatous polyps might well be added to the criteria to hasten the decision for radical surgery before the onset of malignant change. "Stricture" areas in chronic cases should be closely watched because strictures may prove to be the earliest evidence of malignant change. A carcinoma could easily be mistaken for an inflammatory stricture, and it is frequently difficult to distinguish the two. Multiple carcinomas are frequently found in cases of malignant tumor associated with chronic ulcerative colitis. Contrary to reports that cancerous tumors associated with the disease are frequently atypical, the characteristics of carcinoma in this series tended to take on the general pattern of ordinary carcinoma of the rectum and colon. Malignant changes often appeared first in the quiescent stage of ulcerative colitis, when clinically the patient seemed to have improved.

Analysis of Five Year Survival in Carcinoma of the Rectum and Rectosigmoid. C. W. Mayo and O. A. Fly. Surg. Gynec. & Obst. 103:94-100 (July) 1956 [Chicago].

A comparison of the survival rates of 1,146 patients with carcinoma of the rectum and rectosigmoid is presented, with emphasis on the three operative procedures (anterior resection, one-stage combined abdominoperineal resection, and posterior resection) with which they were treated at the Mayo Clinic. The results of these survival studies in the controversial groups, that is, patients whose lesions are located between 6 and 15 cm. from the dentate margin, indicate that a sphincter-preserving procedure, such as anterior resection, is as curative as is one-stage combined abdominoperineal resection or two-stage posterior resection. No criticism can be made of the selection of a sphincter-sacrificing technique for lesions in the region of the anus and in the distal 5 cm. of the rectum. The grade of malignancy of the lesion was not a significant factor in this analysis, as the distribution was essentially the same in each group studied. There was no significant variation in the number of patients with or without nodal metastasis in the various segments of the rectum and sigmoid studied. The level of the lesion in relation to the peritoneal reflection has little influence on the survival rates.

Congenital Arteriovenous Fistulas in the Extremities: An Analysis of Sixty-Nine Cases. G. Coursley, J. C. Ivins and N. W. Barker. Angiology 7:201-217 (June) 1956 [Baltimore].

The authors define an arteriovenous fistula as "a vascular abnormality in which there are one or more direct or indirect communications between an artery and a vein without any intervening capillary bed." Such fistulas may be classified as either "acquired" (traumatic) or "congenital" in origin. Congenital arteriovenous fistulas may be located in almost any part of the body, but they are found most commonly in the extremities. The present paper is concerned only with congenital arteriovenous fistulas of the extremities, the treatment of which is known to be difficult and generally unsatisfactory. The clinical, laboratory, and therapeutic aspects of congenital arteriovenous fistulas seen at the Mayo Clinic in 69 patients during a 19-year period were evaluated. The arteriovenous shunts, invariably multiple, may be localized or, more commonly, diffuse. Excision of localized fistulas often produces good results, whereas it is very difficult or even impossible to eradicate diffuse fistulas and still preserve the limb. Associated involvement of bone results in recurrences of the fistulas after surgical treatment and frequently necessitates a major amputation of the affected limb. Partial surgical excision may alter the local hemodynamics so that actual or potential arteriovenous shunts open up at a more proximal level, giving rise to a recurrence, which necessitates further surgical treatment and very frequently leads to loss of the limb because of inability to preserve function in the limb.

Results of Surgical Treatment of Peptic Ulcer in Municipal Hospital of San Juan. R. Arredondo. Bol. Asoc. méd. Puerto Rico 48:162-168 (April) 1956 (In Spanish) [San Juan, P. R.].

Two hundred fifty-one patients with peptic ulcer were observed in the Municipal Hospital of San Juan from 1946 to 1955. In 63 patients an exploratory laparotomy was performed within the first five hours after the perforation of a gastric ulcer. The operation consisted of gastrorrhaphy or duodenorrhaphy in 55 patients and of subtotal gastrectomy in 5. Antibiotics and intravenous fluid were administered. A recurrence took place in four patients during the first six months. The patients had either a gastrectomy or a gastrorrhaphy. Fatal complications occurred in one. Follow-up observations were made on 43 patients, of whom 24 had no symptoms and 19 required a more definitive operation after failure of the treatment. Gastrectomy was performed on 188 patients of an average age of 48 years. Roentgen examination and an exploratory laparotomy revealed a duodenal ulcer in 146 patients, pyloric ulcer in 17, and gastric ulcer in 25. Subtotal gastrectomy was performed in 174 patients, total gastrectomy in 10, tubular gastrectomy in one, and gastroenterostomy with vagotomy in 3. Blood transfusion, intravenous fluid, and antibiotics were given these patients. Immediate complications were leakage from the duodenal stump in two patients, postoperative hemorrhage in seven, subphrenic abscess in one, phlebitis in four, hypostatic pneumonia in nine, and obstruction of anastomosis in three. There were no deaths. Late complications were marginal ulcer in three patients and late obstruction in nine. There were no late deaths. A follow-up study was made in 136 cases. The results of the operation were satisfactory. The following complications were observed: dizziness, perspiration, and general debility, which were transient; hypochromic anemia, which appeared in 9 patients and was controlled by drugs; and urgent defecation within 30 minutes after ingestion of food, which appeared in 17 patients and spontaneously disappeared within four or six months without any treatment. The patients gained weight (between 2 and 7 kg. [4.5 and 15.5 lb.]) after the operation.

Thromboangiitis Obliterans in Women: Gangrene; Blood Vessel Graft. T. Hiertonn, F. Lund and J. Philipson. Angiology 7:233-242 (June) 1956 [Baltimore].

Thromboangiitis obliterans is very rare in women. While the literature contains reports on thousands of men with this disease, only about 60 women with this disease have been reported. This paper presents observations on a 43-year-old woman with symptoms considered typical of thromboangiitis obliterans. She had severe peripheral arterial insufficiency and necrosis of the toes of the right foot. Amputation above or possibly below the knee joint was considered. Arteriography revealed a 10-cm. arterial obstruction in the femoral popliteal artery. Local resection and reconstruction of the arterial pathway with a venous graft led to rapid regression of the severe signs of ischemia and healing of the ulcers. The formerly incapacitated woman was in very good condition three and one-half years after the operation. In order not to overlook the possibility of this type of surgical therapy, it is important that a careful analysis of the arterial network be made in cases of peripheral arterial insufficiency. The result in this case demonstrates the importance of reconstruction of the main artery even in the presence of areas of occlusion in medium-sized and small distal arteries.

Treatment of Low-Back and Sciatic Pain by the Injection of Hydrocortisone into Degenerated Intervertebral Discs. H. L. Feffer. J. Bone & Joint Surg. 38A:585-592 (June) 1956 [Boston].

The local anti-inflammatory action of hydrocortisone and its value in reversing or blocking the inflammatory process in degenerative joint disease, tendinitis, tenosynovitis, and related conditions having been verified, it was deduced that hydrocortisone should have a like beneficial effect when injected into the acutely swollen intervertebral disk, if the process had not become irreversible; that is, if complete rupture had not occurred. Only one injection was made. The hydrocortisone solution and an iodopyracet solution were combined so that a nucleogram could be made at the same time the therapeutic solution was injected. The nucleogram served a dual purpose; the immediate condition of the disk was determined and the nature of the ensuing clinical response to the hydrocortisone could be evaluated and related to the state of degeneration of the disk. The patient lies in the flexed position on his side on the x-ray table, and the disk under investigation is centered for a lateral roentgenogram. The disk is punctured by inserting a 4-in., 22-gauge regional block needle through an anesthetized area 1.5 cm. lateral to the upper margin of the spinous process of the subjacent vertebra. Entrance into the annulus fibrosus is accompanied by a sensation of rubbery resistance; after piercing the annulus, the needle is inserted about one more centimeter. The two lower lumbar disks are punctured routinely unless there is a definite reason for not puncturing one in particular and unless there is a reason for puncturing one at a higher level. With the needles in place, a lateral roentgenogram is made and the accuracy of the position of the needles for injection is verified. The material to be injected is made up in a syringe by mixing 3 cc. of a 35% solution of iodopyracet with 1 cc. of a solution containing 50 mg. of hydrocortisone. Each interspace is injected under moderate pressure, and the needles are withdrawn. Trunk movements are made to help diffusion of the solution.

The author presents the results obtained in the first 60 patients. The maximum follow-up period was eight months. Nucleograms of 55 patients demonstrated pathological lesions of the intervertebral disks. Thirty-seven patients experienced rapid remission of symptoms after injection of hydrocortisone; 18 failed to respond. Surgical exploration of the involved disks in 16 of the 18 failures demonstrated irreversible changes. These results suggest that the method not only permits rapid arrest of an acute intervertebral disk herniation but also demonstrates early which disks will require surgical intervention. This would prevent morbidity and economic loss.

The Osteogenetic Phases of Regeneration of Bone: A Historical and Experimental Study. W. Axhausen. J. Bone & Joint Surg. 38A:593-600 (June) 1956 [Boston].

During the early investigations of the regeneration of bone, there was a conflict between the osteoblastic theory and the induction theory. The work of Orell and Levander contributed evidence to both theories. In the experiments described in this paper, the osteogenetic significance of the soft-tissue components of bone—periosteum, marrow, and living cells of the bone canals—was established anew. Even in adults, the latent osteogenetic cells were brought to proliferation and function within several days by the activating influence of bone necrosis. In order to clarify the effect of the nonspecific connective tissue of bone substance, autogenous frozen-bone grafts covered with periosteum were transplanted into dogs. Up to the 14th day no evidence of bone formation could be found on histological examination. Histological evidence of necrosis of the periosteum is proof of the fact that the osteogenetic tissue was completely killed by freezing. Since new bone formation and delayed bone regeneration of the graft took place after some time (even up to 53 days), a transformation of the nonspecific connective tissue of the host into osteogenetic tissue must have taken place. Consequently, the osteoblastic and induction theories are combined into a unified concept. Bone regeneration occurs in two osteogenetic phases. The first and, physiologically, most important phase originates in the preexisting specific cells and begins after several days. The inception of the second phase, however, originating in the nonspecific connective tissue, requires several weeks. Both phases are stimulated by the activating influence of the bone necrosis.

Skeletal Cryptococcosis (Torulosis): Report of a Case and Review of the Literature. H. R. Gosling and W. S. Gilmer, Jr. J. Bone & Joint Surg. 38A:660-668 (June) 1956 [Boston].

The most common form of torulosis (cryptococcosis) in human beings is chronic meningoencephalitis with fatal termination. Infection of the skeletal system by this fungus is rare. The authors found records of 24 patients with the skeletal form of torulosis, but in 4 of these patients only the skull was infected and in 3 of these the involvement was secondary to the primary disease of the brain and meninges. Primary skeletal torulosis was confirmed in 18 patients. The authors report a new case of torulosis in a 10-year-old Negro boy who had injured his left knee in a fall from a bicycle two weeks before he was hospitalized. Greenish-yellow purulent material was repeatedly aspirated from the knee-joint. Penicillin, streptomycin, and hyaluronidase were injected locally. Several weeks later the patient began to complain of pain in the right elbow, and a swelling of the right sternoclavicular joint was noted. Roentgenographic examination revealed bone destruction in the medial end of the clavicle and an osteolytic lesion in the neck of the right radius. The diagnosis based on the pathological findings was chronic granulomatous osteomyelitis, probably torulosis (cryptococcosis). Cultures and animal inoculations corroborated this diagnosis. The boy recovered after surgical and antibiotic treatment of the bone lesions.

The authors gained the impression that the prognosis for patients in whom skeletal torulosis (cryptococcosis) is associated with "generalized" or meningeal involvement is poor. There have been no recorded survivals of such patients in spite of therapy. The prognosis for patients with localized bone lesions is good regardless of the therapy employed; however, surgical removal of the diseased bone will enhance healing and will lessen the possibility of dissemination of the disease.

Hypertension After Nephrectomy and After Intervention on the Extrarenal Urinary Region. G. Rallo. Clinica 16:165-175 (No 3) 1956 (In Italian) [Bologna, Italy].

The author believes that surgical intervention is indicated in hypertensive patients with kidney affections. The operation should be performed as soon as possible in order to avoid irreversible kidney lesions. Nephrectomy was performed in 50 patients with hypertension and kidney lesions. Fifteen had tuberculosis, 12 hydronephrosis, 12 neoplasia, and 11 kidney calculosis. Results were good in 16 patients, or 32%, fair in 6, or 12%; and negative in 28, or 56%. The age and sex of the patient have no effect on the hypotensive results of nephrectomy. A drop in pressure, unless dependent on other causes, occurs only in those patients whose remaining kidney is free of lesions. Fifty hypertensive patients with extrarenal disease were also studied. Twenty had a prostatic tumor, 15 had calculosis of the urinary bladder, and 20 had pyeloureteral calculosis. Results were good in 63.6% of the patients, fair in 9.06%, and negative in 27%. Results were best when the damage to the kidney was in its acute stage. Obstruction that has existed for a long time creates an irreversible lesion in the adrenal parenchyma, and the arterial pressure does not drop even after the removal of the obstruction. In such cases and in cases of unilateral lesion, hypotension can be obtained by a nephrectomy.

Solitary Eosinophilic Granuloma of Bone. T. Hunter. J. Bone & Joint Surg. 38B:545-557 (May) 1956 [London, England].

Hunter reports on eight patients with solitary eosinophilic granuloma of bone. The fact that three were observed in one hospital during the past year indicates that the lesion is not extremely rare. Although the condition was established as a pathological and clinical entity in 1940, its etiology has not been clarified. It occurs chiefly in children and young adults, and, although the sex incidence in this small series of cases was equal, as a rule it occurs more often in males. The skull, ribs, femur, vertebrae, pelvis, mandible, humerus, and clavicle are most commonly involved. The main histological characteristics—sheet-like formation of histiocytes ("the basic component"); more or less conspicuous numbers of eosinophilic cells, especially of eosinophilic leukocytes; and actively phagocytic multinuclear giant cells—were observed in seven of the eight patients. In the remaining patient, eosinophilic cells were a less conspicuous feature, but their presence in focal collections against a background of fibroblasts and pale-staining cells with abundant vacuolated cytoplasm was sufficiently diagnostic of the eosinophilic granuloma group.

Clinically, eosinophilic granuloma may be a completely silent lesion. In three of the eight patients, symptoms were first noticed after an injury. None showed any significant systemic disturbance. Local pain is usually the presenting symptom, and swelling may occur if the lesion is in the long bones. Laboratory studies are of slight importance for the diagnosis, except that leukocytosis is occasionally detected; the erythrocyte-sedimentation rate may be raised, and eosinophilia has been recorded as an occasional finding but was not found in the present cases. Radiographically, the lesion presents as an area of endosteal destruction, irregular in outline, or with a smooth contour producing a "punched out" effect. As it enlarges, it eventually erodes the cortex, a section of which may disappear completely or partly. Subperiosteal new bone formation is regarded by most authors as unusual. When it occurs, it is said to be associated with perforation of the cortex. Four of the present patients showed subperiosteal new bone formation. The radiographs in one patient in particular showed well defined "onion-skin" layers resembling the classic description of

Ewing's tumor. Cortical perforation into the overlying soft tissues was observed at operation in only one of these patients, but all four showed radiographic evidence of complete destruction of parts of the original cortex.

As regards complications, the author says that the fracture occurring in one patient does not entirely merit such a description, since it occurred soon after a biopsy operation during which part of the femoral cortex had been removed. The radiographs of a second patient showed a crack fracture through the site of a clavicular lesion. The involvement of the nerve roots in a patient with profound motor weakness is of interest chiefly because of the rapidity of the disappearance of the paralysis. The prognosis of eosinophilic granuloma is favorable in that complete and spontaneous recovery of a lesion has been observed in patients with multiple foci. In view of the lack of specific diagnostic criteria short of biopsy, however, it follows that solitary eosinophilic granulomas of bone, once demonstrated radiographically, are likely to be explored. To curettage is then attributed the subsequent healing of the lesion. Diagnostic considerations and healing apart, curettage appears to fulfil an additional function in rapidly relieving the pain, probably by decompression of the lesion. Since resolution may occur either spontaneously or after curettage, the place of radiotherapy in the treatment of eosinophilic granuloma is difficult to assess. It was employed originally as an empirical measure, and, although most writers agree that it is successful in relieving pain, there is some doubt as to its actual effect on the pathological process.

NEUROLOGY & PSYCHIATRY

Cystic Astrocytoma of the Cerebellum, an Anatomoclinical Study of Forty-Four Cases with Operative Results. P. Wertheimer and M. Corradi. Semaine hôp. Paris 32:2179-2188 (June 22) 1956 (In French) [Paris, France].

The authors studied 44 cases of cystic astrocytoma of the cerebellum. The radiological, ventriculographic, and electroencephalographic characteristics of these tumors allow the diagnosis to be made before the occurrence of complications due to intracranial hypertension. Eighteen astrocytomas occupied the left lobe, 14 occupied the right lobe, 5 were in the vermis, 5 occupied both the vermis and a hemisphere, and 2 were limited to the fourth ventricle. The average duration of preoperative development was eight or nine months. Signs of intracranial hypertension are early symptoms. Signs of irritation of the centers of the floor of the fourth ventricle are less frequent. Headache, vomiting, vertigo, and disturbance of balance are frequently but not necessarily present. In 38% of these patients headache alone, almost always of an intermittent and paroxysmal nature, appeared in the beginning. Several of the patients were symtom-free for from three to four weeks up to several months.

At the height of the disease, headache, vomiting, and vertigo are paroxysmal but on a continuous basis. At this stage, when vomiting is present in 90% of the cases, signs of intracranial hypertension are confirmed by neurological examination and standard radiographs. Confusion is not an indispensable corollary of intracranial hypertension; only 3 of the 44 patients were confused. In 55% of the cases there were clinical signs of obstruction to the cerebrospinal fluid flow, notably collateral venous circulation in the forehead and upper eyelids. Hypotonia, a major sign (found in 18% of the patients), is almost always homolateral in relation to the lesion and is frequently localized in only one member. Signs of cerebral incoordination are always homolateral in relation to the lesion and occur most frequently in the lower members. Bilateral papillary edema was present in 27 patients. Stasis was almost always accompanied by a diminution of visual acuity, generally between ⅔ and ⅓. This examination is very important, but the absence of papillary edema does not eliminate possibility of a neoformation of the cerebellum. Labyrinthine symptomatology is especially evident in anterolateral cerebellar lesions compressing the nuclei or the vestibular roots. These signs, although disharmonious, must frequently be credited to a syndrome of intracranial hypertension. They rarely clarify the nature or extent of the causal lesion. The slow development of cystic astrocytomas and the frequency with which they appear in young subjects usually lead to changes in the cranium that make it possible to detect intracranial hypertension on radiological examination. The younger the patient and the slower the development, the clearer will be the signs of hypertension.

An electroencephalographic examination was made of 16 patients. Three kinds of signs were distinguished: false, suggestive in view of the clinical picture, and characteristic. The last-named type (25% of the cases) includes slow occipital unilateral waves not always on the side of the tumor and sometimes associated with slow bifrontal waves provoked by hyperpnea. Ventriculography permits confirmation of the clinical diagnosis of tumor of the posterior cerebral cavity. It frequently indicates exactly the hemispheric or vermian seat of the lesion and improves diagnosis by giving information concerning the general state of the ventricular system. Clinical forms of astrocytoma may be subdivided into those of the child and the adolescent as opposed to those of the adult. The child or the adolescent is in good condition. If obnubilation exists, it is light. There are episodes of vomiting and headache. The cranium is slightly enlarged in volume, the posterior cavity may rise a little, the nape is stiff, and moving the head is painful and produces vertigo; pains, especially in the nape, radiate dorsally. Neurological examination shows a disharmonious cerebellar vestibular syndrome with cerebellar incoordination, often unilateral, accompanied by a paralysis of certain cranial nerves, especially of the sixth and seventh pair, and signs of moderate compression of the motor pathways with beginning papillary stasis.

Of the 44 patients operated upon at Lyon from 1932 to 1955, 7 died in the first days after the intervention. In two of these the tumor had invaded the cerebral trunk. In the following three months, nine died, five in a state of profound cachexia and four from respiratory disturbances. Fifty-six per cent of the patients operated on during the 12 years from 1932 to 1943 died, whereas, during the 12 years from 1944 to 1955, only 14% died. This illustrates the improvement of surgical technique and enrichment of experience. Neurological examination in 20 of the surviving patients is at present completely negative. Six recurrences at intervals of from 1 to 11 years after the first excision were reported.

Acute Hemorrhagic Encephalitis. K. Kristiansen, W. Harkmark and M. M. Cohen. Neurology 6:503-509 (July) 1956 [Minneapolis].

Kristiansen and associates discuss observations on five patients with acute hemorrhagic encephalitis who were observed in the seven-month period ending June, 1954, at a hospital in Oslo, Norway. The series included three men and two women ranging in age from 31 to 51 years. Headache or elevation of temperature preceded the neurological symptoms in most of these patients; in two a productive cough indicated a preceding upper respiratory infection. Symptoms of nervous system involvement then appeared and were often localizing. Hemiparesis and stupor were most common; hemihypesthesia, quadriplegia, central facial palsy, papilledema, nuchal rigidity, confusion, disorientation, hallucinations, diplopia, and dysphasia were less frequently observed. The results of laboratory tests were rather inconstant. The angiographic findings generally suggested a space-occupying lesion. The focal cerebral symptoms together with evidence of increased intracranial pressure and angiographic abnormalities led to surgical procedures in all five cases. Craniotomy and cerebral biopsy were performed in four patients in whom angiography exhibited displaced vessels. Three patients died during the acute disease and two survived. One surviving patient now presents only an incomplete left-sided hemianopsia despite his early hemiparesis, diplopia, disorientation, and stupor. The second survivor exhibited little improvement after the acute stage of illness. Progressive mental deterioration, disorientation, and confusion necessitate institutionalization.

The term acute hemorrhagic encephalitis was suggested by Strumpell in 1891 to describe a condition characterized pathologically by necrosis, hemorrhage, and demyelination in the cerebral white matter. In subsequent reports elaborating the pathological features of this disorder, the lesions were often noted to be asymmetric, with one hemisphere exhibiting more severe damage than the other. Although the pathological changes have been adequately described in fatal cases, the pathogenesis and the etiological agent remain unknown. This hemorrhagic encephalitis has been known to occur in conjunction with viral infection, allergic reaction, and intoxication. The fact that the five cases presented in this paper occurred within a brief period of seven months suggests the possibility of toxic or infectious causation.

Current Status of Chlorpromazine and Reserpine in Psychiatric Practice. B. C. Schiele, R. W. Anderson and W. Simon. Journal-Lancet 76:179-185 (July) 1956 [Minneapolis].

Reserpine and chlorpromazine are the most widely used of the so-called "tranquilizers." These drugs induce a state of quietude with little or no clouding of consciousness, an effect that makes them the most useful preparations available for the management of acute states of excitement. Their use has resulted in a reduction of electroshock and insulin shock treatments and of lobotomy. These tranquilizers are less effective in the treatment of office than of hospitalized psychiatric patients. They facilitate psychotherapy, but they are not a substitute for it. Some patients do not obtain beneficial effects even when the drugs are given in large doses. While most patients tolerate either or both without difficulty, annoying side-reactions may occur, particularly with chlorpromazine. The action of reserpine appears to be slower, less potent, and less toxic. Chlorpromazine is preferred in the treatment of excited patients when rapid action is required. Neither drug seems to ameliorate states of depression. While many psychiatric patients have improved and some have been discharged, a large-scale emptying of state hospitals has not occurred. The drugs are more effective in acute than in chronic disorders. Although the fact that pharmacological agents are now available that relieve distressing symptoms for so many patients is very encouraging, the authors cannot conceive of any drug that will alter basic personality structure.

Diagnostic Suitability and Limits of Complement-Fixation Reaction in Patients with Poliomyelitis. E. Berger and M. Vest. Schweiz. med. Wchnschr. 86:776-778 (July 7) 1956 (In German) [Basel, Switzerland].

Complement-fixation tests according to Fulton and Dumbell's technique were performed on blood samples obtained from 98 patients with poliomyelitis associated with paresis, 103 patients with serous meningitis who were suspected of having poliomyelitis, 45 patients with various febrile infections not caused by the poliomyelitis virus, and 27 patients with afebrile diseases. A positive reaction of the blood to the test was obtained in 85 (86.7%) of the 98 patients with poliomyelitis associated with paresis. These results corresponded with those obtained by many other workers, although they may have used other techniques for the complement-fixation test. A positive reaction of the blood to the complement-fixation test was obtained in 47 (45.6%) of the 103 patients with serous meningitis of doubtful origin. The total number of positive reactions was obtained by testing a second blood sample with regard to the presence of complement-fixing antibodies from 7 to 12 days after a negative reaction of the first blood sample had been obtained at the end of the first week of the patient's disease. The number of positive results obtained under these conditions corresponded to those obtained by other workers who used the method of direct demonstration of virus by growth of the pathogenic agent in tissue culture.

The complement-fixation reaction is an aid in confirming the clinical diagnosis of poliomyelitis. The complement-fixation reaction is of particular value for the diagnosis of nonparalytic forms of poliomyelitis the cause of which is not clear. The diagnostic value of the complement-fixation reaction, however, has its limits, primarily because of the observation of negative reactions to the test in patients with a definite clinical aspect of poliomyelitis. A positive reaction to the complement-fixation test in the absence of clinical criteria for poliomyelitis was observed in 8 (11%) of the 72 patients with infections which were not caused by the poliomyelitis virus. Although inapparent infections with poliomyelitis virus may produce complement-fixing antibodies, it cannot be definitely stated that causative agents other than poliomyelitis viruses may not be responsible for a positive complement reaction. The complement-fixation reaction does not seem to be an appropriate means of establishing the type of the causative virus in patients with poliomyelitis.

GYNECOLOGY & OBSTETRICS

Non-Suppurative Osteitis Pubis in the Female. L. L. Wiltse and C. H. Frantz. J. Bone & Joint Surg. 38A:500-516 (June) 1956 [Boston].

The authors report the occurrence in 13 women of a disease that they believe is a definite clinical entity related to, but not identical with, osteitis pubis in men. The disease was nonsuppurative and noninflammatory and developed in the anterior portion of the pelvic girdle. In five of the women, the symptoms were first noted during pregnancy; in five others, the symptoms appeared within two months after delivery; in one, they appeared after extensive pelvic surgery; and in two they developed after an injury. Four illustrative case histories are presented, one from each of these four groups.

The typical patient with this disease (usually a young woman) begins to experience pain about the symphysis within a few months after the occurrence of some event capable of producing trauma in the adjacent structures. A physical examination reveals tenderness directly over the symphysis, although no swelling or fluctuation is seen. Blood, urine, and temperature are generally normal, but the symphysis frequently shows instability. The pain often becomes so severe that the woman is completely bedridden and can neither sit nor stand. As the disease progresses, the roentgenograms may show spotty demineralization of the bone adjacent to the symphysis, widening of the symphysial gap, and gradual development of sclerosis and narrowing. The disease is self-limited, but it may persist for weeks or years. Treatment was symptomatic in all of the 13 patients presented. It consisted of bed rest. warm packs, and analgesics. One of the patients who had been attended by a number of doctors received a variety of treatments, including x-ray therapy, corticotropin, cortisone, and phenylbutazone. The authors comment on osteitis pubis in male patients and present their own concept of the etiology, which admittedly leaves some factors unexplained. They believe that the condition referred to as osteitis pubis is a localized reflex neurovascular dystrophy brought about by a combination of trauma and predisposing changes at the symphysis. The changes at the symphysis are due to the influence of certain hormones and are of the nature of, but more pronounced than, those that normally occur during pregnancy.

Recent Research in Physiology of Breast Applied to Mammary Cancer. G. Hadfield. Brit. M. J. 1:1507-1511 (June 30) 1956 [London, England].

According to Hadfield, about 50% of human breast cancers are hormone-dependent and do not have the gloomy and mysterious attribute of "autonomy" so often regarded as the essential biological characteristic of all malignant tumors. A breast cancer is said to be hormone-dependent if progressive proliferation of its infiltrating and metastasizing cells is conditioned by an adequate supply of the specific mammotropic hormones responsible for physiological mammogenesis. The author reviews experimental studies on the hormonal control of the breast and discusses the presence of mammotropic hormones in the urine. Normal breast growth is controlled by the synergistic action of the pituitary hormone prolactin acting at a relatively high concentration, with ovarian estrogen acting at a relatively low one. Combined oophorectomy and adrenalectomy deprive the breast cancer of estrogenic steroids, and growth regression follows if the tumor is hormone-dependent. This effect seems to be almost always temporary; estrogen production is slowly reestablished, and progressive growth of the tumor recurs, probably when estrogen production from an unknown site reaches the low level required for normal mammogenesis. Total hypophysectomy in all probability completely deprives the tumor of estrogen and prolactin. This operation can have no effect on the growth of a hormone-independent tumor. The urine of all premenopausal women and of approximately 50% of postmenopausal women contains one or more mammotropic hormones. It seems probable that it contains prolactin. If the urine of a breast-cancer patient has no mammotropic activity, it seems very probable that her cancer would not be hormone-dependent and that hypophysectomy would have no effect on its progressive growth.

Further Experience with Apresoline in Toxemia and Hypertension of Pregnancy. H. L. Riva, W. L. Pickhardt, R. H. Holzworth and R. L. Sherman. Am. J. Obst. & Gynec. 72:48-55 (July) 1956 [St. Louis].

Results of 1-hydrazinophthalazine (Apresoline) therapy in 67 pregnant toxemic and hypertensive patients are presented. The patients were divided into the following groups: preeclampsia, hypertension of labor, hypertensive vascular disease, hypertension with superimposed toxemia, eclampsia, and preeclampsia with chronic glomerulonephritis. The mean vasodepressor response was significant in all six groups; it was less marked in the patients with a previous history of hypertension. The average tachycardia after administration of Apresoline was noted within 30 minutes and amounted to an increase of about 20 to 30 mm. Hg. The infant mortality, amounting to about 7%, was not attributed to the use of Apresoline. Oral or subcutaneous administration may have a place in a few selected nonacute cases. The intravenous drip method of administering Apresoline was found to be the most efficacious in maintaining a desired lowering of blood pressure and so avoiding a precipitous drop in blood pressure. Apresoline is highly recommended for the control of the hypertensive aspects of preeclampsia and hypertension in pregnancy.

Comments on the Richardson Pregnancy Test and the Rapp-Richardson Saliva Prenatal Sex Determination Test. W. G. Dobson and A. G. Gornal. Am. J. Obst. & Gynec. 72:70-74 (July) 1956 [St. Louis].

The Richardson pregnancy test is questioned both as to its reliability and the theoretical basis on which it was proposed. The authors obtained an accuracy of about 75% in pregnant patients and 47% in nonpregnant women. Evidence is presented that the method of extraction does not effect any separation or purification of an estrone fraction and that, even if it did, the amount of free estrone in the urine of pregnant women is much too small to be detected with 2, 4-dinitrophenylhydrazine. The Rapp-Richardson saliva prenatal sex-determination test is subject to similar criticism and had an accuracy that indicated that the result was in no way determined by the sex of the fetus.

Fertility After Tubal Pregnancy. S. Bender. J. Obst. & Gynaec. Brit. Emp. 63:400-403 (June) 1956 [London, England].

Two hundred sixty-four of 305 women who had been operated on for tubal pregnancy between 1946 and 1952 were followed up. One or more pregnancies occurred after this operation in 116, or 44%, of these 264 women. On the basis of this follow-up, it appears that, of each 100 women who have had tubal gestations, 56 do not conceive again and 44 do. Of the 56 who remain sterile, 7 have had a sterilizing operation. In another six, the remaining tube has been shown by salpingography to be blocked. There must be others in whom the remaining tube is blocked, but the fact has not been proved. In addition, at least 3 of the 56 do not become pregnant because they consistently practise contraception purely for fear of another ectopic pregnancy. Doubtless there are others who practise contraception for other reasons. In 44 of 100 conception does occur again; but this is a minimum figure because of the limited time of follow-up, at the most seven years. If all of these women were followed to the menopause, the conception rate would probably approach 50%. Of the 44 who do conceive, 32 produce live babies. This means that only one in three women who have had a tubal pregnancy will thereafter have a live child.

The conception rate was notably higher in the 130 women under the age of 30 at the time of operation (54%) than in the 134 older patients (34%). The conception rate was the same in the previously parous and the previously nulliparous. Of particular interest is the relationship between the type of operation performed and the subsequent conception rate. Nothing was done at laparotomy in four women, because tubal abortion was seen to be complete; all four became pregnant again. This is a reminder that probably most cases of tubal pregnancy are never diagnosed. Probably the commonest fate of the fertilized egg that implants in the tube is that it dies and is absorbed. Of four women on whom salpingotomy was performed, three became pregnant again. In the majority of cases (187) salpingectomy was carried out, and 80 of these women became pregnant again, a conception rate of 42.7%. In 51 women, salpingo-oophorectomy was performed, and 29 of these became pregnant again, a conception rate of 56.8%. Statistically, the difference between these rates is barely significant, but the author cites evidence indicating that pregnancy is more likely to occur again when tubal pregnancy is treated by the removal of both tube and ovary rather than the tube alone. Inspection of the nonpregnant tube for patency, salpingotomy instead of salpingectomy when feasible, but salpingo-oophorectomy when salpingotomy is not possible, are cited as the chief measures to be taken in women who wish to become pregnant again after a tubal pregnancy.

Tuberculosis and Pregnancy. S. Jacobs. Dis. Chest 30:43-49 (July) 1956 [Chicago].

The author studied a series of 64 tuberculous women who received obstetric care at the Charity Hospital of Louisiana. Most of them were young Negro women receiving antibiotic therapy. It was found that pregnancy does impose an additional stress on tuberculous women, but quantitative evaluation of this stress is almost impossible. Most women, particularly those who are anxious to have children, can tolerate this stress when treated with the antibiotics currently available. To reduce this stress to the minimum, tuberculous women should be advised to defer pregnancy until the disease has been inactive at least two years if minimal, three years if moderately advanced, and five years if far advanced. Experience with a relatively small group suggests that, if this precaution is observed, even multiple pregnancies are tolerated without reactivation of the tuberculosis. To detect tuberculosis, each obstetric patient should have a chest x-ray film examination as soon as pregnancy has been discovered. When tuberculosis is found in a pregnant woman, treatment with antibiotics and rest should be started at once precisely as during the nongravid state. Other methods of therapy should be added as needed. The patient may be assured that, with adequate therapy, she will continue to improve despite the pregnancy, may be delivered of a normal child, and will be noninfectious by the time of confinement.

PEDIATRICS

Prevention of Extension of Tuberculosis in Early Childhood. P. Zoelch. Deutsche med. Wchnschr. 81:1082-1084 (July 6) 1956 (In German) [Stuttgart, Germany].

To ascertain the value of isoniazid in preventing the dissemination or generalization of tuberculosis, the author sent questionnaires to 15 children's clinics and to 5 sanatoriums for tuberculous children. The question whether isoniazid prevents generalization of tuberculosis was generally answered in the affirmative. Particularly impressive was the fact that isoniazid given by mouth prevented threatening meningitis in young children with miliary tuberculosis. Only two children were mentioned in whom meningitis resulted from miliary tuberculosis, whereas before the introduction of isoniazid tuberculous meningitis developed in about 50% of the children with miliary tuberculosis of the lungs. The author also learned of five children in whom tuberculous meningitis developed after other forms of tuberculosis, while they were being treated with isoniazid. In his own sanitarium the author observed a young child with tuberculous pneumonitis and caseous degeneration in whom fatal tuberculous meningitis developed after three months of combined administration of isoniazid and streptomycin. In two other patients with tuberculous lung infiltrations, meningeal symptoms developed temporarily during isoniazid therapy. The author believes that in these two patients tuberculous meningitis would doubtless have developed in the absence of the administration of isoniazid. Miliary tuberculosis rarely developed during isoniazid therapy.

The question of the occurrence of hematogenous dissemination of other forms during isoniazid therapy was answered variously. Skeletal, pleural, renal, and lymph-node involvements were occasionally observed, but there was always the possibility that these disseminations existed before the isoniazid therapy was begun. The toxic effects of isoniazid were mostly minor and easily reversible. To determine whether invasion and breakdown of the bronchial lymph nodes occurs more frequently with than without isoniazid therapy, the incidence of recurrent pulmonary exacerbations, which, like aspiration infiltration, atelectasis, and mixed forms, are often caused by perforation of lymph nodes, was investigated. The incidence of these complications with and without isoniazid therapy differed in various institutions, but the author believes that differences in case material existed and that pulmonary recurrences were not essentially greater with than without tuberculostatic therapy. As regards the age of the patients who should receive isoniazid therapy to prevent dissemination of tuberculosis, it is advisable in children under 2 years of age but not in those over this age. The beginning dose is 5 mg. per kilogram of body weight, and this is later increased to 10 mg. per kilogram. Periods of treatment lasting one month are followed by a treatment-free interval of equal length, and in this way isoniazid therapy may be continued for one year.

Myeloid Leukemia in Children. P. Giraud, R. Bernard, T. Mangipan and F. Challiol. Semaine hôp. Paris 32:2444-2451 (July 10-14) 1956 (In French) [Paris, France].

The authors observed myeloid leukemia in three boys aged 11, 5, and 13. They cite some manifestations of the disease, rare in children, that are more frequent in the child than in the adult: (1) ocular involvement, found in two of the cases, in the form of classic retinitis with papillary edema, small punctate and juxtapapillary hemorrhages, large venous bilateral congestion, and white perivascular infiltrates; (2) moderate renal attack manifesting itself by a simple and relatively frequent albuminuria; (3) cutaneous lesions the size of a pea to that of a nut, violet-colored and histologically characteristic; and (4) generalized or localized adenopathy, sometimes microulcerated. Apart from these relatively rare manifestations, the clinical aspect of myeloid leukemia in children does not differ notably from that found in adults with this disease. In infants the disease may be mistaken for the Von Jacksch-Suzet syndrome. The basic clinical feature is splenomegaly, and the blood picture commonly shows the presence of anemia and platelet deficiency. The total course of the disease toward a fatal end rarely seems to exceed three years. The terminal complication usually consists of hemorrhages with leukoblastic transformation. Death was due to cerebral thrombosis in one of the three reported cases. Although no newer form of chemical therapy has as yet been tested in the child, such therapy might possibly afford a longer survival time in this fatal affection.

The Immunization of Allergic Children: Part I. Special Reference to Eczema Vaccinatum. B. A. Johnson and S. C. Dees. North Carolina M. J. 17:304-309 (July) 1956 [Winston-Salem, N. C.].

Eczema vaccinatum is a preventable disease. Eight cases occurred in 415 cases of atopic eczema, representing about 2 cases of eczema vaccinatum among each 100 cases of eczema. All the patients were 5½ years of age or younger, and death occurred in the case of a 6-month-old infant. The vaccinated 5-year-old and 6-year-old preschool and school-aged sibling constitutes the greatest single menace as a contact with the eczematous child. A vaccinated person should be considered a danger to the eczematous child until the scab from the vaccination site has fallen. The history of contact with a vaccinated person is the most valuable aid to the physician in the diagnosis of eczema vaccinatum. The authors urge adherence to the contraindications of smallpox vaccination. Persons who have a skin disease or who are intimate contacts of a person with a skin disease should never be vaccinated.

Pheochromocytoma in a Thirteen-Year-Old Child. P. Giraud, M. Salmon, R. Bernard and others. Semaine hôp. Paris 32:2435-2440 (July 10-14) 1956 (In French) [Paris, France].

The authors report the case of a 13-year-old child who showed permanent arterial hypertension. Diagnosis of the presence of a pheochromocytoma was confirmed by the Regitine test. The tumor was removed and the child recovered. The authors analyze a number of reports in the literature of pheochromocytoma in children. Hypertensive paroxysmal crises are rare because this tumor usually produces permanent hypertension in children. Retropneumoperitoneum is very helpful in the diagnosis of pheochromocytoma, but its interpretation may be difficult. Pharmacodynamic tests are simple and more reliable. When they are positive the presence of an adrenalin-secreting tumor is confirmed. Of these tests, the one with Regitine is particularly recommendable, as it is reliable and innocuous. The only treatment for such tumors is surgical removal, which carries a high death rate as a result of operative accidents, paroxysmal hypertension, or postoperative collapse. Complete and definitive recovery may be expected after the surgical operation if such accidents are avoided.

UROLOGY

Simple Renal Cysts in Children: Review of the Literature and Report of Five Cases. J. H. DeWeerd and H. B. Simon. J. Urol 75:912-921 (June) 1956 [Baltimore].

The present report is concerned with congenital simple (serous) cysts of the kidney occurring in childhood. Although these cysts are found fairly frequently at postmortem examination (2 to 4%), they rarely attain sufficient size to become clinically evident during childhood. Congenital simple renal cyst in children has been diagnosed clinically and treated in five patients at the Mayo Clinic since 1915. A table lists the important data on these five children and on 16 others described in the literature. All 21 patients met the following criteria: (1) the cyst was unilocular; (2) there was no communication between the cavity of the cyst and the renal pelvis; (3) the cavity of the cyst was lined with epithelium; (4) no renal elements were contained within the cyst; (5) a localized region of the kidney was involved; (6) the uninvolved renal tissue was relatively normal grossly or microscopically, or both, and (7) the renal pelvis and ureter were patent. Some cases included in previous studies were excluded from this study on the basis of these criteria.

Simple renal cyst is found somewhat more frequently in males and in the left kidney. It may be encountered at any age from the newborn period through adulthood, and it involves the poles of the kidney with approximately equal frequency. The presenting complaint in almost all cases is that of abdominal mass, occasionally accompanied by pain. The lesion is demonstrable by urography, either excretory or retrograde, but roentgenographic or clinical differentiation from embryonal carcinosarcoma (Wilms' tumor) is practically impossible. For this reason, and because simple renal cyst in children is rare as compared with renal embryoma (Wilms' tumor), the usual preoperative clinical impression is that of malignant disease. Excision of the presenting cyst wall is the treatment of choice unless severe destruction of renal parenchyma necessitates nephrectomy. Unfortunately, such destruction frequently prevails.

Urinary Tract Calculi in Poliomyelitis. J. R. Taylor, A. J. W. Alcock and J. A. Hildes. Canad. M. A. J. 75:29-34 (July 1) 1956 [Toronto, Canada].

A total of 1,390 patients with acute poliomyelitis were admitted to the Winnipeg Municipal Hospital during the three years from 1952 to 1954. Motor paralysis of the bladder, resulting in acute urinary retention, was a common accompaniment of low spinal paralysis. Approximately 300 patients required catheter drainage for varying periods of time for this reason Although complete detrusor paralysis was transient, return of bladder function often took several weeks and was sometimes incomplete, as shown by cystometrography carried out on a few of the patients. Initially, Zephiran (benzalkonium chloride) in a 1:20,000 solution was used as a bactericidal irrigant in patients with indwelling catheters, but on this regimen incrustations frequently formed on the catheter and sometimes became the nidus for bladder calculi. In nine patients, bladder calculi were crushed and removed transurethrally and in three patients suprapubic lithotomy was carried out. When "G" solution was adopted as a routine bladder irrigant, bladder calculi were effectively prevented from forming and a few already present were dissolved. A low-grade cystitis was common in patients with indwelling catheters, but this subsided once the catheter was removed.

Renal calculi proved to be the most important and the most troublesome of the urinary-tract complications in patients with poliomyelitis. Artificial respiration was necessary in 237 patients. Respirator treatment for less than 40 days was necessary in 74 patients and for long periods in 98. Renal stones developed in 33 (about a third) of those requiring long-term respirator treatment and in one of those receiving short-term respirator treatment. No renal stones were found in the group not treated in a respirator. As in patients with prolonged recumbency for any reason, the authors consider immobility, with resulting demineralization of bone, and hypercalciuria the major factors in the development of renal stones. The calculi were typical radiopaque recumbency calculi of the soft triple-phosphate type. They were usually multiple and often bilateral, but there were several instances of solitary calculi or of involvement of only one kidney with multiple calculi. The stones varied greatly in size, from minute particles to stones of up to 2 or 3 cm. in diameter.

Repeated x-ray examinations are necessary throughout the whole period of recumbency. Although the usual prophylactic measures must be modified on account of the dependence on artificial respiration and severe extensive lower motor neurone paralysis, increased activity, weight-bearing, high urinary output, restricted calcium intake, and control of gross infection are important prophylactic measures. Multiple small and moderately large stones will often pass spontaneously. Stones in the lower ureter can be removed by transurethral manipulation in spite of some difficulties in cystoscopy caused by contractures and stiffness of hips and knees. When surgery on the kidney or ureter is necessary, it can be carried out with relative safety and with good results. Seventeen operations for renal calculi were carried out in 16 patients.

The Surgical Spread of Cancer in Urology. P. Boreham. Brit. J. Urol. 28:163-175 (June) 1956 [Edinburgh, Scotland].

Boreham believes that three of the following four criteria should be satisfied if a metastasis is to be considered an implant: 1. It must be discontinuous with the primary tumor, and therefore cannot have arisen by direct extension. 2. The growth must arise in another direction than that of the lymph drainage of the primary tumor. 3. It must arise in a tissue not normally the seat of blood-borne metastases. 4. The metastasis should preferably be growing in a tissue foreign to the type cell of the tumor.

Six cases of recurrence of carcinoma of the bladder occurring in the urethra are presented. Three of these were in the posterior and three in the anterior urethra. Another five patients are presented in whom metastases developed in the prostatic cavity after a prostatectomy had been performed in the presence of a carcinoma of the bladder. Fifteen patients with recurrence of carcinoma of the bladder in the scar of an open operation are discussed. It was found also that after approximately 5% of open operations on the bladder the first recurrence was in the scar. Although the evidence that these metastases arose by implantation is not conclusive in all of the cases, it is quite clear that surgical implantation does occur and that in some cases a surgical implant is the only metastasis that spoils an otherwise curative operation.

Bladder Involvement in a Case of Herpes Zoster. M. Dales and G. Wilson. Brit. J. Urol. 28:198-200 (June) 1956 [Edinburgh, Scotland].

A 42-year-old man was admitted to hospital with retention of urine of 12 hours' duration. During the preceding week he had been confined to bed with an upper respiratory infection. Four days prior to admission a painful rash had developed over his right buttock and thigh, and for 24 hours he had complained of intermittent suprapubic pain and increasing difficulty in micturition. Pressure in the suprapubic region produced intense pain and increased his desire to micturate. The prostate and urethra were normal. A typical zosterian eruption was present over the right buttock and thigh in the areas of the first and second lumbar dermatomes. Catheterization was performed and produced 300 ml. of clear urine. A course of aureomycin was given for the herpes zoster. Retention of urine recurred after the initial catheterization. Closed, continuous catheter drainage was used for 48 hours, after which the patient voided urine normally. Six weeks after discharge the patient remained well and had had no further urinary symptoms. There was a slight brownish pigmentation over the area of distribution of the rash, but there was no sensory loss, no muscle wasting, and the reflexes were normal. This case differs from those described elsewhere in that the lumbar segments of the cord were involved and no vesicles were found in the bladder or urethra. The disturbance appears to have been primarily a motor dysfunction. Recorded cases of bladder involvement in herpes zoster are remarkably few, a finding which is surprising in view of the relative frequency of bladder dysfunction in similar virus diseases of the nervous system, such as poliomyelitis.

OPHTHALMOLOGY

Retinal Lesions in Hodgkin's Disease. M. Brihaye-van Geertruyden A.M.A. Arch. Ophth. 56: 94-99 (July) 1956 [Chicago].

The author was able to follow for three months the evolution of cotton-wool opacities in the retina of a 31-year-old woman with Hodgkin's disease. The lesions were first noticed when the patient entered the hospital during a febrile episode. During the following days, new spots developed. As soon as cervical and splenic x-ray therapy was begun the retinal lesions progressively faded and no new lesion appeared, but 18 days after the end of the treatment new white spots appeared with hemorrhages. The number increased until death. The histological examination at autopsy proved that the cotton-wool opacities were conglomerates of cytoid bodies in the nerve-fiber layer of the retina. Although cotton-wool opacities have been observed in many diseases, the author was unable to find any other report on their occurrence in Hodgkin's disease. In conclusion she stresses the following points: 1. Cotton-wool opacities do not necessarily represent an infiltration by the specific tissue of Hodgkin's disease. 2. No parallelism existed between the appearance of cotton-wool opacities and the degree of anemia, hepatic damage, or biliary-tract disease. The evolution of cotton-wool opacities closely followed the general condition of the patient. Ocular examinations of other patients with Hodgkin's disease might throw additional light on the pathogenesis of this curious lesion.

Some Ocular Sequelae of Tuberculous Meningitis: A Preliminary Survey, 1953-54. A. J. Mooney. Am. J. Ophth. 41: 753-768 (May) 1956 [Chicago].

With modern therapy (streptomycin, aminosalicylic acid, and isoniazid) the survival rate in tuberculous meningitis is now about 80% and, as a result of this, eye complications that were practically unknown seven years ago are now a frequent occurrence. Within the past 15 months the author has examined 65 patients with tuberculous meningitis, of whom 47, or 72%, had ocular lesions. The pathological process appears to be tuberculous arachnoiditis that causes either papilledema by interfering with the circulation of the cerebrospinal fluid or pale disks by strangulating the pial vessels going to the optic nerves and chiasma. There was no connection between the amount of intrathecally administered streptomycin and the eye manifestations. No relationship could be established between deafness and eye complications.

The author believes that choroidal tubercles can be regarded as evidence of miliary tuberculosis. As a result of studying 16 patients with choroidal tubercles, he formed the opinion that the tubercles are a valuable prognostic guide; new tubercles appear when the disease is active, but when pyrexia subsides no fresh tubercles appear. Many smaller tubercles disappear without leaving any ophthalmoscopic evidence.

Papilledema was present in 17 patients, in some of whom the edema was confined to the upper and lower disk margins and subsequently disappeared as the disease regressed. In other patients the swelling amounted to two or even three diopters and the papilledema in these seemed to be of two varieties. In the first variety the disk showed a pale serous-looking swelling not necessarily associated with a high cerebrospinal fluid pressure. This type of edema subsides as the disease is controlled, and improvement seems to be accelerated by repeated spinal punctures. The edema seems to be caused by external hydrocephalus, and the process is reversed as the meningitis subsides. In the second type of papilledema the disk presents the florid appearance typical of increased intracranial pressure from brain tumor or internal hydrocephalus. Antibiotics and repeated spinal punctures fail to control the swelling, and the author believes that papilledema of this type may go on to secondary atrophy if steps are not taken in time to relieve the increased intracranial pressure. Apparently the tuberculous basal meningitis causes adhesions in the posterior fossa that obstruct the flow of the cerebrospinal fluid from the fourth ventricle into the cisterna magna with resulting internal hydrocephalus. Neurosurgery was carried out in four of these patients.

Pallor of the disks with clear margins was present in 13 of the patients. Eight of these 13 patients were transferred to the neurosurgical unit for exploration of the optic nerves and chiasm in the hope of finding adhesions interfering with the blood supply of this part of the visual pathway, the removal of which would either improve the vision or prevent it from getting worse. The need for neurosurgery seems to be influenced to some extent by the time that has elapsed before treatment is instituted. When a practitioner is in doubt about diagnosis in a case of this nature, the patient should be sent immediately to a suitable hospital for treatment. A short course of cortisone therapy (in the absence of serious pulmonary complications) should be started and continued for about three weeks, with a view to preventing the formation of adhesions. A long course is not justified. If this treatment fails to prevent papilledema or pale disks, a careful watch should be kept on the disks, and, if they deteriorate in spite of treatment, neurosurgery seems justified.

igmentary Retinal Lipoid Neuronal Heredodegeneration (Spielmeyer-Vogt Disease): The Neuro-Ophthalmologic Considerations. J. Hoffman, Am. J. Ophth. 42: 15–21 (July) 1956 [Chicago]

The identification of many neurological disorders is facilitated by ophthalmoscopic examination. One entity that exemplifies this fact is Spielmeyer-Vogt disease, which is also known as Batten-Mayou disease, juvenile Tay-Sachs disease, juvenile amaurotic family idiocy, and cerebromacular dystrophy. On the basis of intensive research and critical analysis of the numerous papers on the subject as well as of independent clinical and laboratory studies, Hoffman and his co-workers believe that Spielmeyer-Vogt disease is a separate entity, distinct from not only the systemic lipoidoses but also the infantile type of Tay-Sachs disease. The differences far exceed the resemblances, which are superficial at best. Clinically, Spielmeyer-Vogt disease is manifested by an heredofamilial predisposition as a Mendelian recessive. About the fifth to eighth year of life there are suggestive symptoms indicating visual impairment. After an intellectual arrest, there is an almost precipitous drop. Organic psychological changes, such as irritability, apathy, and speech abnormalities, accompany this decline and are associated with numerous indications of a deteriorating central nervous system. Upper and lower motor neurone palsies, with or without grand mal and/or Jacksonian convulsions, are observed in varying combinations. One of the earliest changes observable on ophthalmoscopy is a yellowish-gray appearance of the retina, with slightly narrowed blood vessels. Gradually, small pigmented granules make their appearance at the periphery and in the course of time proceed centrally, eventually giving the entire retina an appearance resembling that in retinitis pigmentosa. Shortly after these changes have begun to show up, a macular alteration is noted and with it an expanding central scotoma. In sharp contrast to the "cherry-red spot" macula of Tay-Sachs disease, in Spielmeyer-Vogt disease there is a central brownish, brick-red core at the macula region. This is surrounded by a pale ring and then a halo of peppery pigmentation. The disk itself becomes extremely pale and presents a primary atrophic picture only late in the progress of retinal alterations.

The histories of two sisters with so-called Spielmeyer-Vogt disease are presented. The author suggests that a more appropriate, accurate, understandable, and meaningful name for this entity would be "lipoid neuronal pigmentary retinal heredodegeneration." It would eliminate the proper name confusion (Spielmeyer-Vogt, Batten-Mayou, Stengel, and so forth). It would separate this disease entity from the group of amaurotic family idiocies, since, technically speaking, it is a dementia rather than an amentia, as implied by the term idiocy. This new name would also do away with the limitation of the incomplete term "cerebromacular dystrophy." The name suggested indicates that the disease is a degenerative process of a hereditary nature and involves the neuronal elements and is associated with an inclusion lipoidal deposit. It presents another distinguishing feature, namely, the involvement of the pigmentary as well as the neuronal elements of the retina.

THERAPEUTICS

The Chemotherapy of Hypertension. R. Birchall, G. F. Weber and H. M. Batson. Am. Pract. & Digest Treat. 7:1104-1110 (July) 1956 [Philadelphia].

The results of the use of the newer chemotherapeutic agents in the treatment of 81 closely followed patients with various types of hypertension were evaluated in an effort to form definite impressions as to the usefulness of these preparations. The drugs employed included hexamethonium, hydralazine, veratrum, the derivatives of rauwolfia serpentina, and the newer ganglionic blocking agents, ansolysen and ecolid. Results were intentionally not evaluated on the basis of statistical analysis. Subjective as well as objective improvement and consideration of the emotional response of the patient to each regimen were the bases of evaluation. All patients with malignant hypertension or severe essential hypertension should be hospitalized for careful regulation of the blood pressure by the administration of a combination of a ganglionic blocking agent and reserpine. They should be taught to take their own blood pressures at home and to regulate the dosage of the ganglionic blocking agent by means of a sliding scale, depending on the blood-pressure reading taken at intervals that vary with the particular ganglionic blocking agent used. In patients with malignant hypertension, the blood pressure can almost always be controlled and the course of the disease "reversed" if renal function is good and the blood urea nitrogen level is below 40 mg. per 100 cc.

The authors have all but abandoned use of hydralazine, since it seems to have little advantage over reserpine and is more toxic. The toxic level of veratrum is so close to the therapeutic level that it is rarely considered useful. The effect of the rauwolfia derivatives is unpredictable. In patients who have previously had bilateral sympathectomy, they are potent antihypertensive agents and must be given cautiously and in small dosage initially. Of the ganglionic blocking agents, ansolysen is no more effective than hexamethonium, but the side-reactions are fewer and the regimen considerably easier. Ecolid has recently proved to be just as effective as ansolysen and will replace it as the agent of choice because of its smoothness of action and the convenience of administration at roughly 12-hour intervals as opposed to the ansolysen schedule, i. e., before meals and at bedtime. Experience with inversine is still too limited to permit any decision as to whether or not it will prove superior to ecolid.

Pharmacological and Clinical Research on O-Acetylsalicylamide. O. Piccinelli and A. Fiocchi. Gaz. med. ital. 115:139-146 (May) 1956 (In Italian) [Turin, Italy].

The authors carried out pharmacological and clinical research on O-acetylsalicylamide. The drug has no toxic effects, it is easily tolerated, and it has a marked corticotropic effect. One hundred forty-eight patients with rheumatism, fever, and various pains were treated with the drug. Dosage varied from 1 to 2 gm per day given orally in divided doses of from 0.1 to 1.5 gm at a time. Tolerance was perfect. Large doses caused some drowsiness. Gastric tolerance was very good, even in patients with gastrointestinal affections. Blood pressure remained within normal values. There were no kidney complications. Results were good in five patients with rheumatism. With daily doses of from 10 to 12 gm. fever disappeared within four to seven days. Results were not so good in 8 patients with rheumatic arthritis. In some patients symptoms were attenuated, but radiological observation did not show any improvement. Ten patients with muscular rheumatism recovered completely. The drug has a marked analgesic effect. Neurological affections were checked in one or two days. The antipyretic effect was poor in six cases of typhus and two cases of brucellosis. The effects were good in 11 cases of pleuropulmonary affections: both symptoms and fever were checked.

Clinical and Laboratory Studies of Novobiocin, a New Antibiotic. W. M. M. Kirby, D. G. Hudson and W. D. Noyes. A. M. A. Arch. Int. Med. 98:1-7 (July) 1956 [Chicago].

Laboratory studies of novobiocin, a new antibiotic, showed that micrococci (staphylococci) were remarkably sensitive to the drug in vitro and there was no cross resistance with other antibiotics. Pneumococci and group A streptococci were also inhibited by low concentrations of novobiocin, but they were less sensitive than micrococci. Among the gram-negative bacilli, members of the Proteus group were moderately sensitive. Novobiocin was less effective in the presence of a larger inoculum of bacteria, and serum exerted a pronounced inhibitory effect. Concentrations of novobiocin in the serum of patients receiving 2 gm. of the drug daily were considerably higher than those obtained with other antibiotics, but these levels were determined by a serial dilution method in broth and did not reflect the factor of serum inhibition.

Thirty-five patients with bacterial pneumonia, 26 with micrococcic infections, 3 with streptococcic infections, and 11 with miscellaneous conditions were treated with novobiocin. The daily dose was 2 mg., administered orally. Results in the 75 patients were generally favorable, and they appeared comparable to those obtained with erythromycin. Side-effects were minimal. Maculopapular rashes, which may have been caused by novobiocin, developed in two patients. In five patients with micrococcic wound infection and abscesses, prompt healing did not occur and the infecting organisms rapidly became resistant to novobiocin. For this reason, it is recommended that novobiocin be used exclusively for the treatment of infection caused by organisms resistant to other antibiotics, such as penicillin, streptomycin, and the tetracyclines. Wherever possible, another antibiotic to which the pathogenic agent is also sensitive should be administered simultaneously in an attempt to prevent or delay the emergence of antibiotic-resistant micrococci.

The Treatment of Chronic Granulocytic Leukemia with Myleran. I. G. Early and R. W. Prichard. North Carolina M. J. 17:315-319 (July) 1956 [Winston-Salem, N. C.].

Myleran is a drug of relatively recent origin that has been found to have a beneficial effect on the course of chronic granulocytic leukemia. It consistently produces a decrease in the number of circulating granulocytes, probably by depressing granulopoiesis. In excessive doses, however, it may cause a decrease in other formed elements of the blood. Thus the chief toxic manifestation is thrombocytopenia. The drug has been shown to be of no benefit in other types of leukemia or in the myeloblastic phase of chronic granulocytic leukemia. Twelve patients with chronic granulocytic leukemia were treated with Myleran in doses of 4 to 12 mg. per day until an adequate effect had been obtained. Good to excellent responses were obtained in seven patients, with remissions lasting up to 13 months. Three patients who had leukopenia, thrombocytopenia, or both were not benefited appreciably by the drug. In patients who responded favorably the first improvement was in the sense of well-being. This was followed by a gradual fall in the leukocyte count, especially in the number of immature granulocytes, together with a rise in the hemoglobin level and a gradual decrease in the size of the spleen. In three patients immature granulocytes completely disappeared from the peripheral blood. After the drug was withdrawn, the total leukocyte count ordinarily started to rise again within from one to eight months. The remaining five patients died. Their survival periods ranged from 1½ to 15 months after the start of therapy. Two of these patients had excellent remissions initially; one also responded well to second and third courses of Myleran, but both subsequently died in myeloblastic relapses. One patient had a minimal response initially but then had a myeloblastic relapse while receiving the drug. Most observers now agree that the method of choice for the administration of Myleran is to give small doses until the desired response is obtained. The advisability of giving maintenance doses after a remission has been induced has not yet been determined. It is not known whether the use of maintenance doses hastens the development of resistance. The one patient in this series on maintenance therapy has done quite well over a period of 13 months. The possibility of a carcinogenic effect should be kept in mind when patients are being treated with this drug. Myleran seems to produce a greater and more consistent response than other drugs used in the treatment of this disease. It is more easily administered than roentgen therapy and has been found to produce good remissions in some patients who have shown little or no response to irradiation.

Clinical and Experimental Researches on a New ACTH Combination with Prolonged Effect. L. Rosa, G. Bergami, A. Bersani and others. Riforma med. 70:641-645 (June 9) 1956 (In Italian) [Naples, Italy].

The authors studied the effect of corticotropin (ACTH) combined with a phosphate of polyphloretine (AH 51). Local metabolism of ACTH was considerably delayed. The effect of a dose of 20 I. U. per day on 10 patients with asthma lasted 24 to 48 hours. Maintenance dose was 5 I. U. A high dose of 30 I. U. had an effect for three or four days on three patients with urticaria. Eosinophilia dropped to about 50%. The eosinopenic effect lasted from 72 to 96 hours. The administration of one dose of the drug increased the elimination of the 17-ketosteroids. The effects of this new ACTH combination last four times longer than those of plain ACTH for beginning doses; they last eight times longer for maintenance doses. The combination was well tolerated and did not cause side-effects.

PATHOLOGY

Electron Microscopy of the Leprosy Bacillus: A Study of Submicroscopical Structure. E. M. Brieger and A. M. Glauert. Tubercle 37:195-206 (June) 1956 [London, England].

Mycobacterium leprae and Myco. tuberculosis are indistinguishable in preparations stained by the Ziehl-Neelsen technique. Conclusions drawn from electron micrograms of unsectioned bacilli may be deceptive unless the evidence is supplemented by examination of ultra-thin sections. Since sectioning has given information of a submicroscopic structure in ordinary bacteria, it was hoped that by applying this technique to the study of Myco. leprae it would be possible to decide whether the differences seen in electron micrograms of unsectioned mycobacteria are due to genuine differences in internal organization. It was also thought that the technique of ultra-thin sectioning might give information on the structure of the "globi" or lepra cells, which have been the subject of so much controversy. It was planned to compare the intracellular growth of the leprosy bacillus with that of the tubercle bacillus, which had been studied previously.

Material from six patients with lepromatous lesions and from three with the tuberculoid or macular type of leprosy was obtained at a leprosarium in the Belgian Congo. Tissue juices were embedded in agar and fixed in osmic acid. They were transported to England by air in a 70% alcohol solution and then embedded in methacrylate. Punch biopsies were prepared in the same way. Electron micrograms of leprosy bacilli confirmed observations made on stained preparations, which have shown that the morphological appearance of these organisms varies. The bacilli seen in electron micrograms range from short bipolar rods to filaments of different thickness and density; dense spherical forms are also seen. The relationship of these forms to one another cannot be ascertained from a series of fixed preparations. Nevertheless, if the pleomorphism that is observed is not due to degeneration, the leprosy bacillus must have a complex life history. The leprosy bacilli of the tissue juices occurred as isolated filaments and rods and as groups of organisms or "globi."

There has been considerable speculation concerning the structure of the "globi." According to Denney, four different interpretations have been given. Some observers have considered them to be intercellular colonies; others have considered them to be clumps formed within lymph spaces, mechanically compressed into spherical or spheroidal forms; still others have expressed the opinion that the masses represent colonies of individual rods bound together as a zooglea. A fourth view is that they may be characteristic colonies growing within an as yet unidentified membrane. Denney himself agrees with the last view. Chaussinand distinguishes between an "amas," or "mass," and a "globus." In the mass the bacilli are still distinguishable as individual organisms. In the globus the bacilli lie end-to-end, in parallel array, and are so tightly packed that it is no longer possible to distinguish them from one another.

The electron micrograms also show groups of bacilli contained within a limiting membrane that are similar to the globi described by Denney. The nature of this membrane cannot be deduced from the electron micrograms, but the possibility that it is the cell membrane of a disintegrating leukocyte cannot be disregarded. Denney believes that the membrane restrains the growth of the bacilli and Chaussinand refers to the membrane as a capsule and agrees that it prevents the spreading of the rapidly multiplying organisms. It is impossible to judge from electron micrograms whether the bacilli within these clumps are viable, although some have the density of apparently healthy organisms. Under the electron microscope the bacilli confined within these membranes are still distinguishable from one another. The findings reported in this paper are only preliminary. The study was limited to obtaining evidence of the value and possibilities of applying to the problems of leprosy techniques that had already proved valuable in the field of tuberculosis research.

The Failure of Increased Intravascular Pressure to Induce Arterial and Arteriolar Necrosis. D. G. Johnston and G. A. Marples. Angiology 7:279-286 (June) 1956 [Baltimore].

The causative relationship of necrotizing vascular lesions and hypertension has long been a subject of speculation and debate. Opinions regarding the pathogenesis of acute vascular disease in hypertension can be grouped into three general categories: (1) effects of increased intravascular tension on vessels as the chief factor; (2) effects of increased intravascular tension and toxic substances in the blood resulting from renal insufficiency and/or renal ischemia as necessary factors; and (3) effects of toxic substances alone. Investigators and clinicians are accepting more frequently the idea that, in hypertension, arterial and arteriolar necrosis are caused principally, if not solely, by the effects of increased intravascular pressure. The most vigorous proponents of this idea have been Byrom, Dodson, and Wilson. In the experiment of Byrom and Dodson, the major portion of the arterial system was subjected to mechanical stretching of the wall by the forceful injection of fluid.

The present authors decided to subject a small part of the arterial system to rapidly increased intravascular tension. The immediate recipients of the acute hypervolemia, in this experiment, were one or both renal arteries, via a short segment of aorta. Ninety adult male albino rats of Wistar strain were used. Ten of these were controls. It was found that acute necrosis of renal arteries and arterioles could not be caused by sudden severe increases of intra-aortic pressure in the region of the renal ostia. These experiments do not support the "vicious circle" theory of Wilson and Byrom and their contention that necrotizing vascular damage is the direct result of hypertension.

Secondary Amyloidosis in Leprosy. J. S. Shuttleworth and Sister Hilary Ross. Ann. Int. Med. 45:23-38. (July) 1956 [Lancaster, Pa.].

Secondary amyloidosis is the leading cause of death from leprosy in the National Leprosarium of the United States. The primary purpose of the studies described was to find a method of diagnosing amyloidosis at an earlier stage than is possible with the Congo red test. The first approach was to correlate Congo red findings with clinical and autopsy material. The next step was the study of serum protein patterns in kown cases of amyloidosis parallel with controls in an effort to find a consistent pattern that might be of assistance in determining which patients have or will have amyloidosis and also to study the effect of large doses of hyaluronidase on the serum protein pattern, proteinuria, and hepatosplenomegaly in amyloidosis. A third, very limited, study was to obtain liver biopsy specimens with the Vim-Silverman needle in cases of known amyloidosis (as evidenced by the Congo red test) and in cases in which amyloidosis was not apparent. The Congo red test was performed on 95 patients in various stages of leprosy. Eight of these had the tuberculoid and 87 the lepromatous type of leprosy. In some of the patients the test was repeated at intervals of a year. The Congo red was given intravenously in a 1% aqueous solution in dosages of 1 cc. of the solution per 10 lb. of body weight. Blood specimens were collected at the end of two minutes and one hour after the injection, the two-minute specimen being used as the control. Urine specimens were examined for Congo red one hour after the administration of the dye. Laboratory studies ascertained the nonprotein nitrogen content of the blood, the total serum proteins; serum albumin; globulin; alpha, beta, and gamma globulins; serum cholesterol; phospholipids; polysaccharides; *mucoproteins*; and the function of the liver by the thymol-turbidity and cephalin-cholesterol–flocculation tests. Urinalysis consisted of specific gravity, quantitative albumin, sugar, and microscopic examinations. Serum polysaccharides were determined by the tryptophan reaction and expressed as Coleman units. Mucoproteins were determined by the method of Winzler and others.

The authors record and comment on the results of the various tests and conclude that amyloidosis of the kidney, which occurred in all of the patients, is the direct cause of death. The diagnosis of this complication depends largely on the development of a persistent proteinuria, Congo red absorption, hepatosplenomegaly, and, to a lesser degree, altered serum proteins and perhaps liver biopsy in selected cases. The correlation between the Congo red test and the degree of amyloidosis is poor, and unless this test shows 80 to 100% dye absorption in one hour the diagnosis cannot be made from this finding alone. Serum protein and lipoid changes occur in lepromatous leprosy per se, and in a study of the various protein fractions no consistent alteration occurred in cases of leprosy complicated by amyloidosis. The average duration of life after the onset of proteinuria in amyloidosis was 38.33 months, with a fairly wide range above and below this figure. The development of anemia and a progressive elevation of the nonprotein nitrogen are unfavorable prognostic signs

The Treated Pulmonary Lesion and Its Tubercle Bacillus: I. Pathology and Pathogenesis. W. E. Loring and H. Mac Vandiviere. Am. J. M. Sc. 232:20-29 (July) 1956 [Philadelphia].

The classic lesion of pulmonary tuberculosis has undergone significant qualitative and quantitative changes as a result of treatment with the modern chemotherapeutic agents. The authors demonstrate this on the basis of observations made in their laboratory on 69 surgical specimens obtained in 11 pneumonectomies, 1 bilobectomy, 24 lobectomies, 28 segmental resections, and in 5 operations combining lobectomy with segmental wedge resection. Studies on these specimens and reports by other observers indicate that the morphological alterations produced by the administration of streptomycin differ from those that result after treatment with isoniazid. The authors describe first the morphological modifications of the classic tuberculous lesion caused by streptomycin and then those produced by isoniazid. They suggest that these changes are probably determined by two different factors: (1) the site of action of the drug with respect to the individual cell, and (2) the action of the drug on the fundamental metabolism of the bacillus. Streptomycin and isoniazid are capable of attacking the tubercle bacillus directly. They materially aid in the prevention of multiplication and slow down metabolic processes, and isoniazid even permits destruction of the bacillus. The pathological evidence presented in this report is indirect. The bacteriological findings described in the report following this one contribute further valuable data

The Treated Pulmonary Lesion and Its Tubercle Bacillus: II The Death and Resurrection. H. Mac Vandiviere, W. E. Loring I. Melvin and S. Willis. Am. J. M. Sc. 232:30-37 (July) 1956 [Philadelphia].

This second report is concerned with two problems. The first concerns the autonomous or drug sterilization, or both, of the tuberculous lesion. The second problem concerns the modification of viable bacilli. Several workers have found lesions within the human body to contain microscopically visible acid-fast bacilli that do not grow on culture mediums. Since this phenomenon was observed prior to the advent of antituberculous drugs, it cannot be assumed that drugs are solely responsible for this nonculturable status of visible bacilli. Opinions are divided as to whether these organisms are alive or dead. The authors made bacteriological studies on pulmonary tissues obtained in the surgical treatment of 84 patients with tuberculosis. These tissues contained 48 open cavities, 26 closed cavities, 17 end-stage cavities, and other lesions. All patients had received combined chemotherapy for varying periods. When materials from 48 open cavities were placed on culture mediums, growth resulted in the usual period of less than eight weeks in 44 of them. One culture required three months to grow. The cultures were, in general, resistant to one or another of the major antituberculous drugs. From 22 closed cavities, no bacilli grew on culture within the usual eight-week period. In nine instances, however, cultures grew after extended incubation of from 3 to 10 months. Bacilli were found microscopically in 9 of 17 end-stage cavities, but when material from these cavities was placed on culture mediums, there was no growth, even after extended incubation.

Thus it has been demonstrated by bacteriological and pathological (preceding paper) data that in certain lesions tubercle bacilli may be disposed of. This allows the normal body mechanisms and physicochemical status to produce the end-stage cavity. The closed cavity with its hibernating bacilli is apparently the result of normal body mechanisms with little drug effect becoming manifest within the cavity. It was in this type of lesion that extended incubation demonstrated its greatest value by increasing the propagability of the latent bacilli. A high percentage of the classic open cavities revealed rapid growth and the bacilli were generally resistant to drugs. These are interpreted as drug failures insofar as the cavity and its bacilli are concerned.

The authors believe that the whole story is not known, and that, if further enzymes or further improvements of techniques are introduced, more of these bacilli thought "dead" may actually be found to be alive. One type of lesion (closed cavities) has revealed bacillary life where viability was doubtful. There may be other instances yet unknown. There are still bacilli that can be seen but that do not grow with this technique. What will happen to them in the body? Will modified environmental conditions bring them to life? What is the future fate of these adapted tubercle bacilli?

Electron Microscopy of Poliomyelitis Virus. A. R. Taylor and M. J. McCormick. Yale J. Biol. & Med. 28:589-597 (June) 1956 [New Haven, Conn.].

Concentrated poliomyelitis virus preparations containing essentially one type of particle have been obtained consistently from infectious tissue culture fluids by means of a combination of alcohol precipitation and centrifugation. The ultimate size and shape of small virus particles as they are seen in shadowed electron micrographs appear to be dependent upon the hydration of the particles at the time of the first exposure to high vacuum. The authors describe a method for the preparation of electron microscope specimens, in which the collodion membranes are formed on agar blocks, used as filtration membranes for the samples, and subsequently mounted on specimen screens for examination. The use of collodion as a filtering membrane for the preparation and mounting of small pathogenic viruses for electron microscopic examination has distinct practical advantages. The equipment is simple and easily sterilized. The viruses may be handled in saline solutions avoiding the drastic osmotic effects of water and nonisotonic salt solutions. The studies described led to the hypothesis that the characteristic particles of poliomyelitis virus, approximately 30μ in diameter, are "cell-like" structures containing a central body approximately 20μ in diameter and a surrounding membrane.

RADIOLOGY

Bronchial Carcinoma: Effect of Radiotherapy on Survival. J. R. Bignall. Lancet 1:876-879 (June 9) 1956 [London, England].

The survival of 207 patients treated by radiotherapy is compared with that of 248 who were not so treated. Of the 207 patients who received radiotherapy, 114 were given an estimated tumor dose of 1,000 to 3,900 r and 93 were given 4,000 r or more. The group that was irradiated and the group that was not irradiated were as far as possible alike in the factors known to influence survival. No patient was known to have extrathoracic metastases when the decision concerning treatment was made. The greatest difference between the treated and the untreated in duration of life from first attendance at hospital was found in those without mediastinal metastases treated with 4,000 r or more: 35% lived a year and 15% two years, compared with 24% and 6% of the untreated. In the patients with mediastinal metastases the differences were less; and the pattern of survival of those treated with 1,000 to 3,900 r was almost identical with that of the corresponding untreated group. There is suggestive evidence that the differences were not due entirely to the variations in selection and random-sampling but were contributed to by the radiotherapy. It is unlikely, however, that radiotherapy caused an increase of as much as 10% in the proportion surviving a year after diagnosis or 5% in those living two years, even in the most favorable cases treated with the higher doses.

Carcinoma of the Posterior Tongue Treated with Radiation. C. L. Marin and J. A. Martin. Radiology 66:835-841 (June) 1956 [Syracuse, N. Y.].

In the period from 1936 to 1950 a total of 120 patients with primary carcinoma of the tongue were seen at a clinic in Dallas, Texas. Forty of these, or 33.3%, had lesions involving the posterior third of the tongue, and they represent the material for this study. Men outnumbered women, roughly two to one. Most patients were in the age range between 50 and 80 years. All patients were treated primarily with irradiation, employing low-intensity radium needle implantation of the primary tumor. Adequate atropinization and local anesthesia are imperative if one is to obtain good access to the posterior tongue for radium needle implantation. As a rule, lesions located in the true base of the tongue are treated by the vertical implantation of needles containing 2.4 mg. of radium distributed in 4 cm. of active length. Tumors on the posterior lateral border and extensions into the floor of the mouth and sides of the pharynx are implanted with needles containing 1.33 mg. of radium in 1.5 cm. of active length. Patients are hospitalized while the radium is in place. Twenty-two of the patients had lymph node metastases. These were treated by interstitial radium implants combined with heavily filtered x-ray therapy with conventional 220-kv. equipment. The over-all five-year salvage rate was 38%. Ten of the 18 (56%) without palpable nodes survived, but only five of the 22 (23%) with involved lymph nodes survived. Radical surgery was never employed as the primary treatment, but secondary surgery was used for removal of sequelae in a few cases. No block dissections were done. The results obtained compare favorably with a salvage of 33% obtained for a group of 120 cancers involving all portions of the tongue treated with a similar technique.

Ultrasoft Roentgen Rays in the Treatment of Hemangiomas: A Follow-Up Examination of 400 Cases of Strawberry Marks and Port-Wine Stains. E. Amdrup and G. Knudsen. Radiology 66:825-834 (June) 1956 [Syracuse, N. Y.].

Four hundred two hemangiomas in 339 patients were treated in the Department of Radiology of the Town and County Hospital, Kolding, Denmark, during the years 1940 to 1952. Three hundred fifteen of these were elevated, while the remaining 87 were flat. The flat hemangiomas in this series were port-wine stains. No cases of purely cavernous hemangioma (the subcutaneous, easily compressible tumor imparting a bluish appearance to the skin) were observed. All of the elevated hemangiomas treated were strawberry marks; these may be purely superficial or may contain a deeper, presumably cavernous element. No distinction between these two types was made in the present study. Histologically, both strawberry marks and port-wine stains are classified as capillary hemangioma, but while the elevated lesions reveal a poorly differentiated endothelium, the cells of the flat hemangioma are of adult type. This explains the considerably higher radiosensitivity of the strawberry marks.

Up to 1945 the tube used was one giving a beam with a half-value layer of 2.02 mm. of skin at 30 kv. and of 1.15 mm. of skin at 20 kv. Most elevated hemangiomas were treated at 30 kv., while the thinnest strawberry marks and flat hemangiomas received the softer radiation. Since 1945, the authors have used a tube with a beryllium window, with a focus-skin distance of 10 cm. A few hemangiomas were treated with Bucky rays, usually in fractionated dosage, with 500 r at each sitting. Except in these few cases, a large single dose was given. At present, the authors invariably use a single dose of 800 to 1,200 r. The adjacent unaffected skin is protected by a thin shield of lead foil, 0.1 to 0.3 mm. in thickness, which is sufficient to stop the beam of ultrasoft rays. Flat hemangiomas are irradiated without compression; elevated hemangiomas must be compressed during the exposure. Otherwise the abundant amounts of blood present in these lesions will absorb a large proportion of the ultrasoft rays, resulting in an undue difference in the dose delivered to the surface and that reaching the deeper portions. The therapeutic results in 315 strawberry marks were excellent in 212, good in 74, and unsatisfactory in 27 lesions. In the port-wine stains the results were excellent in 42, good in 25, and unsatisfactory in 19 lesions. The authors conclude that ultrasoft rays are suitable for the treatment of both flat and elevated hemangiomas. They may be applied to all superficial hemangiomas, irrespective of their location. The technique is simple and the administration rapid, requiring a few seconds up to a few minutes. This is an advantage, especially in the case of a young, restless child.

ANESTHESIA

Phantom Limb Pain Associated with Spinal Analgesia. R. A. L. Leatherdale. Anaesthesia 11:249-251 (July) 1956 [London, England].

A 63-year-old man with a history of intermittent claudication over the past five years had had a midthigh amputation of his right leg, the clinical picture in that leg at that time being almost identical with the one now presenting in his left. Two weeks prior to the amputation of his right leg a right lumbar sympathectomy had been performed in an unsuccessful attempt to save the limb. For about three months after the amputation he had experienced phantom limb pain of a burning character in his right foot, but this had never been severe and had long since disappeared completely. When a midthigh amputation of the remaining (left) leg became necessary, a spinal anesthetic was injected into the subarachnoid space, with the patient lying on his left side. The patient was turned into the supine position immediately after the injection, and coincident with the onset of anesthesia he experienced severe phantom limb pain in his right (i. e., absent) foot and toes. It was far more distressing than any similar pain that had occurred after his first amputation.

Spasms of pain in the phantom limb continued throughout the duration of the analgesia, but, as the latter wore off, the sensations subsided. The relief of pain was almost as dramatic as its onset, and there was no recurrence during the four weeks the patient was in hospital. Examination of the stump of the right leg showed a well-healed amputation scar with no tender areas or palpable masses. He died shortly after discharge from a coronary thrombosis.

Hypothermia in the Repair of Interatrial Septal Defects at the State University of Iowa. J. L. Ehrenhaft and J. Moyers. J. Iowa M. Soc. 46:456-461 (Aug.) 1956 [Des Moines].

Twenty-three patients with interatrial septal defects were subjected at the department of surgery of the State University of Iowa to open cardiotomy with the aid of hypothermia. Eight patients had ostium-primum defects in which the lower border of the defect was formed by the rim of fibrocartilaginous tissue at the junction of the mitral and tricuspid valves. The remaining 15 patients had ostium-secundum defects, the margins of which were formed by a complete rim of fibromuscular septal tissue. In 10 of the 15 patients, ostium-secundum type defects were uncomplicated by other lesions. Cooling was accomplished by immersion in ice water. Rectal temperature was constantly recorded by a specially designed thermocouple and recording apparatus. Since there is a further temperature drop of 5 or 6 C after the patient has been removed from the ice bath, the patients were taken from the immersion tub when rectal temperatures had reached 33 C. The lowest resultant temperature was usually 27 C. To restore normal body temperature, reimmersion in warm water (48 C) was necessary at the end of the operation The anesthetic agent used in all patients was diethyl ether. Premedication consisted of morphine and scopolamine. Induction with nitrous oxide was followed by administration of increasing concentrations of ether until orotracheal intubation could be accomplished. Thereafter, ether concentrations were decreased as cooling progressed, so that almost all patients were given only nitrous oxide and oxygen when their body temperature was below 32 C. Apparently, the combined effects of morphine, nitrous oxide, and hypothermia met the surgical requirements

The best results were obtained in patients over 5 years of age who had ostium-secundum defects and only moderately elevated pulmonary artery pressures. Older patients up to the age of 48 who were subjected to surgical exploration and closure of the defects also made remarkable recoveries. Two of the 15 patients with ostium-secundum defects died. Of four patients in whom closure of an ostium-primum defect was accomplished only one survived; the other three died of cardiac failure during the operation or in the postoperative period. The authors' experience in the correction of interatrial septal defects with the aid of hypothermia supports the contention by other workers that open cardiotomy and direct suture in a bloodless field constitutes a good and a relatively safe method. Hypothermia has been found practical and not particularly hazardous to patients having correctable defects. Ventricular fibrillation occurred in 11 of the 23 patients, most commonly after the septal defects had been closed and at the time that circulation was reestablished If ventricular fibrillation occurred, cardiac resuscitation and conversion to ventricular rhythm and occasionally to sinus mechanism were accomplished in all but two patients by manual compression of the heart and often-repeated electric defibrillation. In two patients with irreparable lesions and pulmonary hypertension, death took place on the operating table.

PUBLIC HEALTH

Certain Aspects of the Microbiology of Frozen Concentrated Orange Juice. E. R. Wolford. Am. J. Pub. Health 46:708-715 (June) 1956 [Albany, N. Y.].

Coliform bacteria are widely distributed in nature. It has been the experience of the citrus product industry that it i impossible to produce frozen concentrated orange juice that is always free of coliform bacteria. The fact that coliforms have been found in orange juice products by most investigators has led to several studies of their source and significance in citr products. Patrick found coliforms to be associated with so insects, fruit flies, and slightly decomposed or damaged fr No Escherichia coli was found, but in a later study of cult isolated from frozen concentrated orange juice, Patrick f d that Esch. coli made up an appreciable proportion of the cultures. Hays and Riester found that oranges irrigated with raw lake water may frequently harbor Esch. coli.

Further investigations of sources and possible significance of coliforms in citrus products are reported here by Wolford He presents evidence to show that the presence of coliform bacteria in frozen concentrated orange juice does not necessarily indicate that direct contamination has occurred, coliforms were isolated from fruit aseptically picked into sterile bags, and this fact indicates that some coliforms are among the normally occurring flora in the groves. Esch. coli was isolated from oranges being delivered to concentrate plants; hence the presence of this organism in frozen concentrate need not indicate insanitary practices at the product plant. Packing house wash-tank solutions were found to contain many coliforms, including Esch. coli, and thus may be one of the principal sources of the organism in frozen orange juice products. Surface contamination of fruit-handling equipment was most common where bits of orange pulp had accumulated. Juice and concentrate samples, when positive for coliforms, appeared to reflect the condition of the fruit used rather than sanitary conditions of the juice line. The majority of coliform-positive samples contained l than 10 coliforms per 100 ml.

BOOK REVIEWS

The Lung as a Mirror of Systemic Disease. By Eli H. Rubin, M.D., Professor of Clinical Medicine, Albert Einstein College of Medicine, Yeshiva University, New York. Cloth. $12.50. Pp. 288, with 92 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

This volume alerts the physician to the wealth of information in an x-ray examination of the chest. The lung serves as a mirror of changes in the organs and tissues of the body not accessible to direct examination. About 80 diseases may be associated with the pulmonary lesions described. Though roentgenography is stressed, the differential features of each disease are considered. The pulmonary lesions are described in the light of the physical and laboratory findings, and an effort is made to present the entire disease as mirrored in the chest film. This film assumes increasing importance as a case-finding tool, not only in detecting the pneumonias, tuberculosis, neoplasms, and other primary pulmonary diseases but also in detecting pulmonary manifestations of skin diseases, hemopoietic diseases, metabolic disturbances, and other disorders in the subspecialties of internal medicine. Even surgical abdominal diseases may show evidence of their presence in the chest film. Without adequate appreciation of the primary disturbance, the significance of the shadow may easily be missed. A number of rarities that may become commonplace with more frequent recognition are included. Though roentgenography and its modalities occupy a key position in chest diagnosis, a history, thorough physical examination, and the necessary laboratory tests, including bronchoscopy, bronchography, and, when indicated, lung biopsy, are essential to a diagnosis. With experience, a particular disease may be suspected or diagnosed with a high degree of accuracy by the roentgenographic findings alone. A definitive diagnosis always requires confirmatory evidence. Broadly speaking, pulmonary diseases may be grouped as primary, secondary (emboli, metastatic malignancies, and terminal pneumonias), and concomitant. If the lungs are involved as part of a systemic disease, the symmetrical distribution of lesions, a vascular or perivascular pattern of abnormal markings, and a tendency toward pleural involvement are characteristic. At least 50 abnormal states may lead to miliary or nodular foci. The author of this book performs a real service by calling attention to frequently unappreciated facts.

Bellevue Is My Home. By Salvatore R. Cutolo, M.D., with Arthur and Barbara Gelb. Cloth. $4. Pp. 317. Doubleday & Company, Inc., Garden City, New York; 575 Madison Ave., New York 22, 1956.

During the more than 200 years that Bellevue Hospital has been caring for the sick, it has grown to be an enormous institution. Some think of Bellevue as a miniature city; others say it has been the cradle of medicine in America. It is the only hospital to which four medical schools are attached: Columbia University College of Physicians and Surgeons, Cornell University Medical College, New York University College of Medicine, and New York University Post-Graduate Medical School. Faculty members from these schools exclusively staff this hospital today. The author has been closely associated with Bellevue in various capacities for more than 25 years. He states, "It costs us $17,000,000 to operate Bellevue each year, of which $14,000,000 goes for payroll, $1,360,000 for food, and $1,155,000 for medical, laboratory, and surgical supplies." The author leaves the distinct impression that the 1,000 visiting physicians, 459 interns and residents, 582 graduate nurses, 500 student nurses, and the hundreds of other attendants all embrace the ideal of kind, courteous, and efficient care for all their patients. Many interesting tales of patients and some almost miraculous cures are related. The author of such beloved songs as "My Old Kentucky Home" and "Old Black Joe" was brought to Bellevue in 1864 as an alcohol-ravaged, pitiful, and wasted figure after he had fallen across the washbowl in his room, severely cutting his neck and face. Three days later he died in the ward at Bellevue. This patient was Stephen Foster, and the old ledger showing his admission to the hospital is still there. The American Society of Composers, Authors and Publishers presented a plaque to the hospital four years ago to commemorate Foster's death. A businessman from Memphis, Tenn., now dead, for 20 years annually came to New York and stood outside the entrance to the hospital for a few moments on Jan. 13, the anniversary of Foster's death. Many stories of patients and of some famous physicians who have served the hospital, as well as some medical discoveries that were made within its walls, are recalled. A chapter entitled The Third Phase of Medicine concerns the rehabilitation services. Some chapters pertain to the great work now done by the psychiatric service. The first five chapters of the book are autobiographical.

J. A. M. A. Queries and Minor Notes. Cloth. $5.50. Pp. 334. Published for American Medical Association by C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1956.

In the past the American Medical Association has published three compilations of items from the Queries and Minor Notes department of The Journal under the title "Selected Questions and Answers." The last of these, published in 1950, covered the period 1943 to 1949. Because of the large demands for volume 3 long after it was out of print and because of requests for a new compilation, the present volume, selected from items published during the 12 months ending June, 1955, has been made available. Selection was based largely on the teaching value, general interest, and timeliness of the items, avoiding unnecessary duplication and matters so highly technical as to be of limited interest. Like the preceding volumes, this one has no index, but the table of contents is arranged for easy reference.

School Health Practice. By C. L. Anderson, B.S., M.S., Dr.P.H., Professor of Hygiene and Health Education, Oregon State College, Corvallis. Cloth. $4.75. Pp. 560, with 29 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1956.

This book was written to provide the what, how, and why of the functional school health program. It is intended to serve as a textbook for student teachers and as a reference for teachers in practice. Its principal sections include a description of the school-age child, including his appearance in health and illness and his physical and emotional development; a discussion of the organization of the school health program; and detailed descriptions of the three major aspects of a school health program—health services, health instruction, and healthful school living. This book is well organized and has an index and an appendix that contain such useful information as resources for health instruction, record and report forms, and means for evaluating a school health program. Unfortunately, the book was prepared without medical or dental consultation. In many places medical terminology is used inaccurately. The suggested relation between educators and physicians does not conform to the interprofessional consensus expressed by the National Conferences on Physicians and Schools sponsored by the American Medical Association. In the section concerned with communicable disease control, the drugs suggested for the treatment of various skin infections and infestations are recommended in a manner that implies their use in the school without local medical supervision. There is only casual mention of the need for interprofessional planning of the school health program among educators and their colleagues in medicine, dentistry, and public health. Thus, student teachers using this as a textbook will get the impression that the school health program is conceived and executed by educators who are privileged to command the services of the other professions in the community if and when they need them. The value of the book would have been materially enhanced if certain statements in the field of health, medical care, and dentistry had been checked for accuracy through professional consultation and if the spirit of interprofessional cooperation in both the planning and the carrying out of school health activities, particularly school health service, had been more clearly delineated.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

J. A. M. A. Clinical Abstracts of Diagnosis and Treatment. [Selected by Noah D. Fabricant, M.D., Editorial Associate, Journal of the American Medical Association.] Published with approval of Board of Trustees, American Medical Association. Cloth. $5.50. Pp. 661. Intercontinental Medical Book Corporation, with Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1956.

This compilation of the best of the abstracts culled from the Medical Literature Abstracts section of THE JOURNAL is chiefly concerned with the literature of 1955. The abstracts are not arranged by medical specialties, as they are in THE JOURNAL, but by organ systems, with additional chapters entitled Metabolism, Poisonings, Infections, Therapeutics, and Diagnostic Technics. The value of abstracts in general has long been recognized, and this conveniently arranged volume should be a welcome addition to the library of the busy practitioner. The book has an index.

Medicinal Chemistry. Volume II. Editors F. F. Blicke and C. M. Suter. Series of reviews prepared under auspices of Division of Medicinal Chemistry of American Chemical Society. By A. Stoll and others. Cloth. $10. Pp. 311, with illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, England, 1956.

The second volume of this series is similar in purpose and make-up to the first, which appeared in 1951. The purpose is to provide a comprehensive summary of data on compounds having biological properties and thus to aid in the correlation of structure with activity. Each chapter, written by an authority, includes compounds having specific biological activity. Where it is not feasible, because a category may be too large to include all the information in a single chapter, a subdivision is made on a chemical basis. The present volume contains four chapters dealing with cardiac glycosides, synthetic estrogens, arylpiperidine analgesics, and β-haloethylamine adrenergic blocking agents. Most of the chapters contain a large portion of the material in table form in order to conveniently correlate activity and structure. Each chapter contains numerous references to the original literature.

Diseases of the Skin. By Richard L. Sutton, Jr., A.M., M.D., F.R.S., Chairman of Department of Dermatology, University of Kansas Medical Center, Kansas City, Kan. Eleventh edition. Cloth. $29.50. Pp. 1479, with 1972 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1956.

Successive editions of this monumental work have become a standard component of the dermatologist's library. Since the last edition, the co-authorship of Sutton and Sutton has been dissolved by the death of the senior author; but the excellence of the present edition assures the book a continued prominent place in the dermatological literature. This volume is a combination textbook, encyclopedia, and atlas. The organization is that of the traditional textbook, but each section is supplemented with brief reviews of the literature and of pertinent experimental work, descriptions of unusual cases, and extensive bibliographic references with commentary. In addition, each section is profusely illustrated with black-and-white clinical photographs and photomicrographs of outstanding quality and variety. This is an extremely valuable feature of the book. The scope of the work is comprehensive. All known skin diseases, including the exanthems, are discussed and adequately indexed. Diseases are grouped by cause when this is known, and by morphology when it is not. The table of contents clearly indicates the major classifications, but the formidable lists of diseases presented under the last three chapter headings need further subgrouping to facilitate reference. In the text, descriptions of the individual diseases are lucid and complete. The outlines of therapy are practical, explicit, and comprehensive. In some cases the author reviews the literature of therapy without comment; in others, he clearly states his preference. The inexperienced may wish for more critical evaluation, but the more experienced reader will appreciate the wide basis on which to make his own evaluation. The histopathological descriptions throughout the text are occasionally less detailed than the graduate student may wish, but for the most part they give an adequate picture.

In the 13 years since the last revision, there have been many advances in dermatology. These are well reflected in this new edition. Much new information has been included, and the sections on therapy have been thoroughly revised and brought up-to-date. The book is readable and useful. The novice may wish for more synthesis and less reference in some sections, but those conversant with the field should welcome the ready access to the source of each observation and opinion expressed. The inclusion of complete bibliographic references in parentheses within the sentences of the text is distracting but perhaps more useful than the bibliographies in small print at the end of each chapter that are found in previous editions. The book should be most useful to dermatologists and graduate students. It should also be helpful to practitioners and students with some orientation in the field. It is somewhat too large (and expensive) for a beginning textbook in dermatology.

Poliomyelitis: Papers and Discussions Presented at the Third International Poliomyelitis Conference. Compiled and edited for International Poliomyelitis Congress Cloth $7 50 Pp 567, with 442 illustrations J B Lippincott Company, 227-231 S Sixth St, Philadelphia 5; 2083 Guy St, Montreal, Canada, 1955.

As stated in the preface of this book, the demand for the published proceedings of the first two conferences was such as to leave no question whether to publish the proceedings of the third conference. The book covers the social aspects of poliomyelitis, medical care of acute cases, infection and immunity, tissue culture of the causative virus, orthopedic aspects of the disease, and physical medicine and rehabilitation. There is also a section on current trends and future prospects, as well as one in which 20 scientific exhibits are presented. The papers, which are by outstanding authorities from all over the world, are attractively printed. Extensive use is made of illustrations, most of which are clear and add to an understanding of the text. There is an index. Current interest in poliomyelitis is far greater than its importance as a public health problem would warrant, and it is to be hoped that modern methods of immunization will make it so rare that some of the attention now devoted to this disease can be directed elsewhere.

Virus Diseases and the Cardiovascular System: A Survey. By Ernest Lyon, M.D. Cloth. $5.75. Pp. 215. Grune & Stratton, Inc., 381 Fourth Ave, New York 16; 99 Great Russell St., London, W.C.1, England, 1956.

In the past few years the effects of the many virus diseases on the cardiovascular system have been recognized. Reports of electrocardiographic changes in a number of virus infections, the increasing incidence of nonspecific pericarditis and myocarditis probably of viral origin, and the relationship of rubella (German measles) in the pregnant mother to congenital heart disease in the child have made the internist and cardiologist aware of the cardiovascular problem in virus diseases. Although much has been written on the subject, pertinent information is difficult to obtain because reports are scattered through many different journals. Dr. Lyon, a well-trained microbiologist and clinician, has done a great service in reviewing a large number of articles in order to include in this volume all the pertinent information on the effect of virus diseases on the heart and blood vessels. In the first part he reviews the present concepts as to how the viruses act on the circulation; in the second part the individual diseases and their specific peculiarities are described; and in the third part rickettsial infections are discussed. An extensive bibliography is given at the end of each chapter. This book should be most welcome as a reference book to the internist and cardiologist.

Diseases of the Chest. By H. Corwin Hinshaw, M D., Ph D, Clinical Professor of Medicine, Stanford University School of Medicine, and L Henry Garland, M.B., B.Ch., Clinical Professor of Radiology, Stanford University School of Medicine, San Francisco. Cloth. $15. Pp 727, with 634 illustrations. W. B Saunders Company, 218 W. Washington Sq, Philadelphia 5; W. B. Saunders Company, Ltd, 7 Grape St, Shaftesbury Ave., London, W C.2, England, 1956.

This is an excellent presentation of diseases of the lungs by two well-qualified men, who were assisted by a few co-authors for some special subjects. The book covers all the usual and unusual diseases of the lungs, bronchi, and pleura. It is beautifully printed, and the illustrations are unusually clear. The bibliography is brief but well chosen. This volume should be of great value to students and practitioners who are interested in diseases of the chest. Its contents are so up-to-date that it should be useful for many years to come.

QUERIES AND MINOR NOTES

TYPHOID IMMUNIZATION

To the Editor:—*In her senior year, a student nurse developed typhoid. This was established by repeated positive blood cultures. She had previously received the conventional three injections of typhoid vaccine in her freshman year and was given one additional injection of vaccine in each of the succeeding years. In the future would it be logical to give typhoid vaccine to her? Does typhoid produce a subsequent immunity in a high percentage of cases? By analyzing the agglutinin response, would it be possible to come to any conclusion regarding future immunity in an individual case?*

M.D., Illinois.

Answer.—It is likely that the patient in question possesses a fairly high level of resistance to typhoid. On the other hand, there is no way to prove this with certainty in a given individual, since serologic tests do not always correlate with actual resistance to the disease. Furthermore, all immunity is relative. Immunity to typhoid is no exception, and the evidence for lasting immunity after an attack of typhoid is not as solid as is the case with certain of the infectious diseases, e. g., measles or mumps. However, in areas where typhoid is highly prevalent, it is usually a children's disease and is much less common in adults, which suggests that infection generally produces immunity. For this and other reasons it may be assumed that the patient has a fairly high resistance to typhoid and therefore she need not receive typhoid vaccine routinely. On the other hand, if she is likely to be heavily exposed to typhoid infection, it would be a reasonable precaution to administer 0.05 to 0.1 ml. of typhoid vaccine intradermally (but not on the forearm, which is hypersensitive to such injections) not oftener than every three years.

EAR INFECTION AND SWIMMING

To the Editor:—*I am a member of a fishing club that owns a 14-acre spring-fed lake. A committee has decided that, to (1) increase the food supply for the fish and (2) reduce the amount of marine weeds, the lake should be treated with fertilizer. They propose to use a commercial fertilizer known as "10-10-10," which, I understand, is composed of 10 parts each of nitrogen, phosphate, and potash. Do you think it is possible that this treatment of the water may cause swimmers to have ear infections?*

J. T. Brennan, M.D., Clarksburg, W. Va.

Answer.—Ear infection from swimming is nearly always in the form of an external otitis, the result of moisture remaining in the depth of the ear canal causing maceration of the epithelium, offering a favorable culture medium for Micrococcus (Staphlococcus) pyogenes var. aureus, Pseudomonas aeruginosa, and, occasionally, Aspergillus mold. The fertility of pond water should in no way alter its bacterial content for swimmers. It has been found that a silicone preparation, which protects the skin of the ear canal from maceration by water, is useful for swimmers who are troubled with external otitis.

FIBERGLAS

To the Editor:—*I would like to learn of the toxic effects, if any, associated with Fiberglas cloth and of the resins and catalyst used to fix and harden the resins, as used in covering boats and in general hobby materials.*

Earl Parsons, M.D., Little Rock, Ark.

Answer.—Fiberglas itself essentially is harmless. Dust from it will not provoke pulmonary fibrosis. Little such dust reaches the lungs, due to peculiar electrostatic properties of the material. Spicules of Fiberglas may penetrate the skin and lead to mechanical irritation often termed "Fiberglas warts." To facilitate weaving and other fabrications, the glass fibers sometimes are lubricated with such agents as Spindle Oil, which, in turn, possesses no significantly harmful properties. The troublesome exposure connected with the shaping of objects such as boats from Fiberglas derives from the synthetic resins employed. Notable in the group are the epoxy resins, which act both as primary skin irritants and allergens. The manufacture and use of epoxy resins involve a complex array of catalysts, plasticizers, activators, and solvents. The number may include ethylenediamine, diethylenetriamine, acetone, ethyl acetate, benzoyl peroxide, tricresyl phosphate, dimethyl phthalate, cyclohexanone, cobalt, naphthenates, allyl glycidyl ether, and others. More than one of these agents, such as tricresyl phosphate, is known to be toxic, but in resin application (not manufacture) practical exposure is unlikely. The amines constitute the chief concern. The entry of the amine radical frequently provides opportunity for the dermatitis and asthma that occur frequently after sensitization, or primary eye irritation from vapors, together with caustic contact damage on any tissue surface. It is possible that the epoxy resins per se, which are epichlorohydrin bis-phenol condensation resins, are relatively nonactive, all damage being attributable to the ancillary chemicals present.

TRANSFUSIONS IN RHEUMATIC DISEASES

To the Editor:—*I am inquiring about the use of blood transfusions in chronic, subacute polyarticular arthritis. I have inquired at our local hospital staff meetings and no one knows anything about it.*

G. E. Ramseyer, M.D., Plainwell, Mich.

Answer.—The transfusion of blood to patients with rheumatic diseases, particularly rheumatoid arthritis, was used more extensively in the past than is currently the case. Various rationales have been proposed. It has been thought that the administration of blood may have a beneficial, nonspecific, or "tonic," effect and in some manner stimulate the formation of antibodies. The transfusion of blood also has been advocated to increase the content of protein in the serum, in addition to supplying red corpuscles and hemoglobin to the rheumatoid patient in whom active stages of the disease may result in hypoproteinemia as well as anemia. The transfusion of blood usually has been favored more for patients who have the acute or subacute and febrile phases of a rheumatoid process. However, recent studies of the anemia of patients with rheumatoid arthritis generally have indicated that, as the active inflammatory process subsides, the values for hemoglobin and erythrocytes increase without specific antianemia treatment, provided the dietary intake of iron and other substances is adequate.

Normal whole blood has been most often used, but variable amounts and intervals have been advocated by different observers. Other techniques proposed have included the use of blood previously subjected to ultraviolet irradiation or blood (or plasma) obtained from pregnant women. The value claimed for these procedures has not been substantiated by the controlled, careful observations of most rheumatologists. In the course of an extensive trial of blood transfused in various manners, it was found that the benefit, if any, has been temporary and usually insufficient to justify the risks and expense involved. The transient benefit sometimes noted at times may be attributed to a mild, febrile reaction that follows the transfusion of blood. At best it would seem that the administration of blood should be considered only as part of a broad general treatment program based on the indications of each patient's condition. The indications for transfused blood should not depend merely on the ability of the patient to afford the procedure or on the availability of suitable donors. Other more effective treatment generally is equally available or more so, and it may be more practical.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

TREATMENT OF TORULAR MENINGITIS

To the Editor:—*What is the latest treatment of and prognosis in torular meningitis? What is the route of invasion into the meninges?*

William T. Cassano, M.D., Brooklyn, N. Y.

Answer.—Torular meningitis, also known as cryptococcosis or European blastomycosis, is a subacute or chronic infection caused by Cryptococcus neoformans (Torula histolytica), a yeast-like fungus. The disease may possibly be derived from an endogenous source. The route of invasion into the meninges is not generally known but is probably from the respiratory tract, which is thought to be the portal of entry. A history of a mild but definite respiratory infection can usually be obtained from patients suffering from torular meningitis. Most of the cases reported have been of the cerebral and meningeal type. The prognosis is usually poor once meningitis is established, because the host is apparently unable to develop any specific immunologic resistance. Carton and Mount (*J. Neurosurg.* 8:143,1951), in a review of 178 cases with central nervous system involvement, found only one case, that of cryptococcic meningitis treated with sulfadiazine, in which the patient could be considered as cured. Eighty-six per cent of the patients died within one year and 70% of these within three months of onset. The central nervous system disease is considered a virulent one. Although several patients were reported alive after two and a half, seven, and nine years, these still showed evidence of the disease, revealing a more indolent, milder, but rarer type of infection.

Acti-Dione, an antibiotic produced by many cultures of Streptomyces griseus, is the latest treatment. Acti-Dione itself has been unsatisfactory in central nervous system cryptococcosis. Only one of four patients with that disease treated with it and followed for one and one-half years was apparently cured with no sign of recurrence. (Carton and Liebig: *A.M.A. Arch. Int. Med.* 91:773 [June] 1953.) These authors, however, in sensitivity studies found that combinations of Acti-Dione with polymyxin B, or with compound 77, were the most potent and acted synergistically. These combinations, for want of a better remedy, perhaps with fever therapy, should be tried first. The result of the treatment may depend on the dose and route of administration. In evaluating the response to therapy, however, it must be taken into consideration that occasionally a patient with central nervous system cryptococcosis may have a spontaneous remission. Whitehill and Rawson (*Virginia M. Month.* 81: 591, 1854) reported a case of a 16-year-old girl with generalized cryptococcosis in which the lymph nodes, kidneys, liver, and spleen were predominantly involved, presenting a clinical picture resembling Hodgkin's disease. She was treated with 4.05 gm. of 2-hydroxystilbamidine given over a 19-day period with apparent cure.

HORMONES AND THE INCREASED GROWTH OF CHICKENS

To the Editor:—*Are hormones rendered inactive and destroyed by heat as in cooking? I have in mind estrogenic hormones as given to chickens and turkeys to increase their growth. I believe Canada prohibits administration of hormones to chickens. Do you know of any other countries that forbid this practice?*

M.D., New Jersey.

Answer.—Three estrogens are being used in the United States to stimulate growth rate in cattle or to increase fat deposition and improve carcass quality in chickens and turkeys. Diethylstilbestrol is administered to cattle either orally or subcutaneously in compressed pellet form. Poultry are usually implanted with diethylstilbestrol in pellet or paste form or are fed dienestrol diacetate in the ration. Cattle respond to orally given hexestrol, or dienestrol, in much the same way as to diethylstilbestrol (*J. Animal Sc.* 14:329, 1955). Assays of edible tissues of estrogen-treated cattle, chickens, and turkeys indicate that, when recommended amounts of estrogens are fed or implanted, the estrogenic activity of the meat or other organs is extremely low or in many cases undetectable. The safe use of estrogens in meat animal production depends on the lack of concentration of these substances in the tissues rather than the destruction of the compounds in the cooking process. The estrogens used are relatively heat stable. Tests with diethylstilbestrol, which has a melting point of about 170 C, show that, in meat to which diethylstilbestrol was added before cooking, the estrogens had approximately the same activity after the meat was cooked to the well-done state (*J. Animal Sc.* 13:138, 1950). In Canada diethylstilbestrol may be fed to cattle at a level not to exceed 10 mg. per day (similar to the U. S.). At present no methods of administering estrogens to poultry have been approved by Canadian food and drug officials.

GLYCOSURIA IN ELDERLY PATIENTS

To the Editor:—*Several male diabetics between 62 and 72 years of age not on insulin therapy and free from urinary sugar for many years have begun to show 0.25 to 0.5% sugar in spite of strict dietary care. In all cases this follows diminished activity due to retirement or to physical causes. Increased activity would not be advisable in most of these men who are suffering from the concomitants of diabetes or other chronic disease. Would administration of small doses of any of the long-lasting insulins be advisable?*

M. D., New York

Answer.—The presence of consistent glycosuria, although of mild degree, in elderly patients calls for the administration of small doses of one of the long-lasting insulins. Since these patients generally have an elevated renal threshold for glucose, the presence of sugar in the urine means that the blood sugar level is considerably above normal. Hypoglycemia is of course to be avoided, but patients in the older age groups are, as a rule, relatively insensitive to the action of insulin so that this danger is not great. It is suggested that 10 units of isophane insulin or lente insulin be used as a beginning daily dose and that, after a few days, the blood sugar level be determined in the late afternoon, since this is the period at which these preparations are most active. Postprandial blood sugar values of approximately 150 mg. per 100 cc. would be considered safe and acceptable.

TETANUS IMMUNIZATION

To the Editor:—*Would it be advisable to substitute at the time of an injury the use of three 0.5-cc. doses of tetanus toxoid (fluid or precipitated) at two-week intervals instead of tetanus antitoxin in order to prevent serum sickness and anaphylaxis that may occur with the use of tetanus antitoxin?*

Milton Jabush, M.D., Lakewood, N. J.

Answer.—It would be inadvisable to substitute three doses of tetanus toxoid for one dose of tetanus antitoxin at the time of injury in individuals who had had no previous toxoid immunization. The injection of tetanus toxoid at two-week intervals for three doses in an unimmunized patient would produce adequate circulating antibodies against tetanus infection in about five or six weeks after the first injection This would almost certainly permit the development of some cases of active tetanus with incubation periods of 3 to 14 or more days. The best way to prevent serum sickness and anaphylaxis resulting from inoculations of tetanus antitoxin would be by universal toxoid immunization. In this manner a booster injection of toxoid at the time of injury would recall adequate concentrations of circulating antibodies into the blood stream, protect the patient from tetanus, and eliminate the danger of serum sickness or anaphylaxis from the antitoxin

REMOVAL OF STAINS ON GIRL'S BACK

To the Editor:—*A Negro girl, aged 25, has a history of acne of the face, chest, arms, and back of 10 years' duration The pustular lesions have resolved, leaving large blackish stains that have coalesced on the back. These stains now cause her mental distress. Can you suggest any method that would cause these stains to disappear?*

Reuben H. Pearlman, M.D., Pittsburgh

Answer.—The pigmentation will most likely disappear in time, but, if the young woman is impatient, she might hasten matters by applying Benoquin ointment. This should be done cautiously to avoid contact dermatitis and/or too much depigmentation.

« Washington News »

Defense Moving Ahead on Medicare Program • •
Small Business Agency Making Facilities Loans • •
Mine Workers Medical Spending Up • •

MILITARY DEPENDENT PROGRAM

Aiming at having the operation in effect by Dec. 8 as provided in the law, the Defense Department is moving ahead with its work on the new military dependent medical care program, now identified as "medicare." Under the program, enacted at the last session of Congress, dependents are defined, and recognized dependents for the first time have statutory authority for government-paid medical care. Parents and parents-in-law, if 50% or more of their support is furnished by the serviceman, are entitled to full benefits under the program, either in military facilities or in private facilities under arrangements currently being contracted for by the Department of Defense. In private facilities, dependents are charged the first $25 of costs. The big problem facing the Defense Department now is how to make fiscal arrangements for supplying them with private benefits. The Secretary of Defense has the right to limit or deny private care to dependents in areas where military medical facilities are available and where the military mission will not be impaired.

Under present plans, state medical societies are the key unit in arranging private medical (as distinguished from hospital) care for service families. The Defense Department contemplates calling representatives of state societies to Washington in the near future to work out with them individual contracts for each state. The plan is to have the state society select its own agents (the society itself, Blue Shield, commercial companies, or possibly banks) and set a fee schedule acceptable to the Defense Department.

In preparation for meetings with state society representatives, the Defense Department task force handling preparations for the program expects to work out a model state contract, in consultation with state society advisers. As a preliminary step, several state societies drew up the type of contracts they consider workable in their areas for the guidance of the department.

To put the hospital care phase into effect, the department has tentatively decided to allocate coverage on the basis of Army areas (the Army is the medicare agent for all three services), with Blue Cross responsible for a majority of the areas and commercial insurance companies for the remainder. Before this decision was made, the department held a number of conferences with representatives of the professional and insurance organizations involved.

One of the first major steps in preparation for medicare was issuance of a directive by the Secretary of Defense. It embodies the department's concept of the law and general instructions to the uniformed services as to implementation of the law. The directive is a detailed document of about 36 pages, in contrast to the relatively brief text of the law. The directive indicates what kind of care is to be provided in military and civilian facilities, and under what circumstances; how dependents will be identified; and what types of outpatient care are to be provided in military and civilian facilities. (In the latter, outpatient care is limited in general to such emergencies as injuries, lacerations, or poisonings.) Prior to the series of Defense Department meetings with state society representatives to work out contracts, regulations will have to be issued jointly by the Defense Department and the Department of Health, Education, and Welfare. Agreements with state societies will be based on these regulations.

BUSINESS AGENCY LOANS TO PRIVATE HOSPITALS

Another agency of the federal government has moved for the first time into the health field. The Small Business Administration, an independent agency reporting to the President, announces it is receiving applications for loans to privately owned hospitals, nursing homes, and laboratories. Funds may be used for expansion, improvement, and working capital. In addition to being privately owned, to be eligible the facilities must be operated for profit and have not more than 50 beds at the time of application. All laboratories are to be considered small unless operated in connection with a proprietary hospital of more than 50 beds. The Small Business Administration listed these definitions of facilities:

Hospitals are those health facilities licensed as hospitals providing inpatient medical or surgical care of the sick or injured, including obstetrics. Nursing homes are those facilities for accommodation of convalescents or other persons who are not acutely ill and not in need of hospital care but who may require nursing care and related medical services. Medical and dental laboratories are those facilities that provide services to physicians, dentists, hospitals, and similar health facilities. The loans are of two types: participation loans, which are made jointly with banks and other private lending institutions, and direct loans, where no participation is available. The agency explains further that loans may be used for building new facilities, for expansion or improvement of existing plants, or for working capital.

"The amount which the Small Business Administration may lend is limited by statute to a maximum of $250,000 to any one borrower," an agency announce-

---

From the Washington Office of the American Medical Association.

TREATMENT OF TORULAR MENINGITIS

To the Editor:—*What is the latest treatment of and prognosis in torular meningitis? What is the route of invasion into the meninges?*

William T. Cassano, M.D., Brooklyn, N. Y.

Answer.—Torular meningitis, also known as cryptococcosis or European blastomycosis, is a subacute or chronic infection caused by Cryptococcus neoformans (Torula histolytica), a yeast-like fungus. The disease may possibly be derived from an endogenous source. The route of invasion into the meninges is not generally known but is probably from the respiratory tract, which is thought to be the portal of entry. A history of a mild but definite respiratory infection can usually be obtained from patients suffering from torular meningitis. Most of the cases reported have been of the cerebral and meningeal type. The prognosis is usually poor once meningitis is established, because the host is apparently unable to develop any specific immunologic resistance. Carton and Mount (*J. Neurosurg.* 8:143,1951), in a review of 178 cases with central nervous system involvement, found only one case, that of cryptococcic meningitis treated with sulfadiazine, in which the patient could be considered as cured. Eighty-six per cent of the patients died within one year and 70% of these within three months of onset. The central nervous system disease is considered a virulent one. Although several patients were reported alive after two and a half, seven, and nine years, these still showed evidence of the disease, revealing a more indolent, milder, but rarer type of infection.

Acti-Dione, an antibiotic produced by many cultures of Streptomyces griseus, is the latest treatment. Acti-Dione itself has been unsatisfactory in central nervous system cryptococcosis. Only one of four patients with that disease treated with it and followed for one and one-half years was apparently cured with no sign of recurrence. (Carton and Liebig: *A.M.A. Arch. Int. Med.* 91:773 [June] 1953.) These authors, however, in sensitivity studies found that combinations of Acti-Dione with polymyxin B, or with compound 77, were the most potent and acted synergistically. These combinations, for want of a better remedy, perhaps with fever therapy, should be tried first. The result of the treatment may depend on the dose and route of administration. In evaluating the response to therapy, however, it must be taken into consideration that occasionally a patient with central nervous system cryptococcosis may have a spontaneous remission. Whitehill and Rawson (*Virginia M. Month.* 81: 591, 1854) reported a case of a 16-year-old girl with generalized cryptococcosis in which the lymph nodes, kidneys, liver, and spleen were predominantly involved, presenting a clinical picture resembling Hodgkin's disease. She was treated with 4.05 gm. of 2-hydroxystilbamidine given over a 19-day period with apparent cure.

HORMONES AND THE INCREASED GROWTH OF CHICKENS

To the Editor:—*Are hormones rendered inactive and destroyed by heat as in cooking? I have in mind estrogenic hormones as given to chickens and turkeys to increase their growth. I believe Canada prohibits administration of hormones to chickens. Do you know of any other countries that forbid this practice?*

M.D., New Jersey.

Answer.—Three estrogens are being used in the United States to stimulate growth rate in cattle or to increase fat deposition and improve carcass quality in chickens and turkeys. Diethylstilbestrol is administered to cattle either orally or subcutaneously in compressed pellet form. Poultry are usually implanted with diethylstilbestrol in pellet or paste form or are fed dienestrol diacetate in the ration. Cattle respond to orally given hexestrol, or dienestrol, in much the same way as to diethylstilbestrol (*J. Animal Sc.* 14:329, 1955). Assays of edible tissues of estrogen-treated cattle, chickens, and turkeys indicate that, when recommended amounts of estrogens are fed or implanted, the estrogenic activity of the meat or other organs is extremely low or in many cases undetectable. The safe use of estrogens in meat animal production depends on the lack of concentration of these substances in the tissues rather than the destruction of the compounds in the cooking process. The estrogens used are relatively heat stable. Tests with diethylstilbestrol, which has a melting point of about 170 C, show that, in meat to which diethylstilbestrol was added before cooking, the estrogens had approximately the same activity after the meat was cooked to the well-done state (*J. Animal Sc.* 13:138, 1950). In Canada diethylstilbestrol may be fed to cattle at a level not to exceed 10 mg. per day (similar to the U. S.). At present no methods of administering estrogens to poultry have been approved by Canadian food and drug officials.

GLYCOSURIA IN ELDERLY PATIENTS

To the Editor:—*Several male diabetics between 62 and 72 years of age not on insulin therapy and free from urinary sugar for many years have begun to show 0.25 to 0.5% sugar in spite of strict dietary care. In all cases this follows diminished activity due to retirement or to physical causes. Increased activity would not be advisable in most of these men who are suffering from the concomitants of diabetes or other chronic disease. Would administration of small doses of any of the long-lasting insulins be advisable?*

M. D., New York.

Answer.—The presence of consistent glycosuria, although of mild degree, in elderly patients calls for the administration of small doses of one of the long-lasting insulins. Since these patients generally have an elevated renal threshold for glucose, the presence of sugar in the urine means that the blood sugar level is considerably above normal. Hypoglycemia is of course to be avoided, but patients in the older age groups are, as a rule, relatively insensitive to the action of insulin so that this danger is not great. It is suggested that 10 units of isophane insulin or lente insulin be used as a beginning daily dose and that, after a few days, the blood sugar level be determined in the late afternoon, since this is the period at which these preparations are most active. Postprandial blood sugar values of approximately 150 mg. per 100 cc. would be considered safe and acceptable.

TETANUS IMMUNIZATION

To the Editor:—*Would it be advisable to substitute at the time of an injury the use of three 0.5-cc. doses of tetanus toxoid (fluid or precipitated) at two-week intervals instead of tetanus antitoxin in order to prevent serum sickness and anaphylaxis that may occur with the use of tetanus antitoxin?*

Milton Jabush, M.D., Lakewood, N. J.

Answer.—It would be inadvisable to substitute three doses of tetanus toxoid for one dose of tetanus antitoxin at the time of injury in individuals who had had no previous toxoid immunization. The injection of tetanus toxoid at two-week intervals for three doses in an unimmunized patient would produce adequate circulating antibodies against tetanus infection in about five or six weeks after the first injection. This would almost certainly permit the development of some cases of active tetanus with incubation periods of 3 to 14 or more days. The best way to prevent serum sickness and anaphylaxis resulting from inoculations of tetanus antitoxin would be by universal toxoid immunization. In this manner a booster injection of toxoid at the time of injury would recall adequate concentrations of circulating antibodies into the blood stream, protect the patient from tetanus, and eliminate the danger of serum sickness or anaphylaxis from the antitoxin.

REMOVAL OF STAINS ON GIRL'S BACK

To the Editor:—*A Negro girl, aged 25, has a history of acne of the face, chest, arms, and back of 10 years' duration. The pustular lesions have resolved, leaving large blackish stains that have coalesced on the back. These stains now cause her mental distress. Can you suggest any method that would cause these stains to disappear?*

Reuben H. Pearlman, M.D., Pittsburgh.

Answer.—The pigmentation will most likely disappear in time, but, if the young woman is impatient, she might hasten matters by applying Benoquin ointment. This should be done cautiously to avoid contact dermatitis and/or too much depigmentation.

sonnel see cases formerly considered hopeless and helpless respond to constructive assistance through full utilization of available services, and cooperate with the rehabilitation efforts of the fund's medical services. . . . As experience is gained, it is hoped that total patient care, which is rehabilitation at its best, can be achieved for every physically disabled fund beneficiary."

MISCELLANY

The Internal Revenue Service says that a grant to a taxpayer primarily to further his education and training by enabling him to complete work for his doctoral degree, "with the taxpayer under no commitment to the grantor" as to his educational objectives, may be excluded from the recipient's taxable income. . . . Systematic methods developed by the National Bureau of Standards for solving radiation penetration problems associated with medical use of radiation are discussed in the bureau's Summary Technical Report 2039, available from the bureau. . . . The Defense Department is understood to have extended the date for termination of the Army and Air Force veterinary corps to Nov. 30. Secretary Wilson originally ordered the two veterinary corps (the Navy has none) to be closed out by last July 1. However, the corps are established by law, and Congress will probably look into the matter after the session opens in January. Abolition of the corps has been opposed by the American Medical Association and other professional groups. . . . Under a grant from the Joint Commission on Mental Illness and Health, the University of Michigan Survey Research Center will conduct a national opinion survey as a part of the commission's three-year sampling of 2,500 individuals on their attitude toward the knowledge of mental illness and emotional strength or well-being. . . . The Navy, celebrating the 114th anniversary of the founding of its Bureau of Medicine and Surgery, points out that it now has on duty 550 physicians certified by American boards and that 337 of its doctors are in residency training. . . . The U. S. Public Health Service has awarded a special citation to the Union Pacific Railroad in recognition of the fact that all the road's operating dining cars had a rating of 95% or better on PHS inspections during a full year. The last similar award went to the Erie Railroad in 1953. . . . An October draft call for 300 physicians to be assigned to the Navy has been announced by the Defense Department, the first call since last May. These physicians report for duty later in the year. . . . The Public Health Service has announced that examinations for appointment of medical officers in the commissioned corps of the PHS will be held in November. Entrance pay for the two grades, assistant and senior assistant surgeon, is $7,498 a year. The PHS explained that assistant grade entrants are assigned the temporary grade of senior assistant. This, said PHS, is in accord with recent policies providing certain career incentives to medical and dental officers of the uniformed services. The rank of assistant surgeon requires 7 years of collegiate and professional training, and the rank of senior assistant surgeon, 10 years.

Results With

'ANTEPAR'®*

against **PINWORMS**

In clinical trials, over 80% of cases have been cleared of the infection by one course of treatment with 'Antepar.'

Bumbalo, T. S., Gustina, F. J., and Oleksiak, R. E.:
J. Pediat. 44:386, 1954.

White, R. H. R., and Standen, O. D.:
Brit. M. J. 2:755, 1953.

against **ROUNDWORMS**

"Ninety per cent of the children passed all of their ascarides . . ."

Brown, H. W.:
J. Pediat. 45:419, 1954.

***SYRUP OF 'ANTEPAR'** Citrate brand Piperazine Citrate

Bottles of 4 fluid ounces, 1 pint and 1 gallon.

***TABLETS OF 'ANTEPAR'** Citrate brand Piperazine Citrate

250 mg. or 500 mg., Scored

Bottles of 100.

Pads of directions sheets for patients available on request.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, New York

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

1957 Clinical Meeting, Philadelphia, Dec. 3-6.

1958 Annual Meeting, San Francisco, June 23-27.

1958 Clinical Meeting, Minneapolis, Dec. 2-5.

1959 Annual Meeting, Atlantic City, June 8-12.

Academy of Psychosomatic Medicine, Hotel Plaza, New York, Oct. 4-6. Dr. Ethan Allan Brown, 75 Bay State Road, Boston 15, Secretary

American Academy for Cerebral Palsy, Congress Hotel, Chicago, Nov. 17-19. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary

American Academy of Neurological Surgery, Camelback Inn, Phoenix, Ariz., Nov. 7-11. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago, Oct. 14-19. Dr. W. L. Benedict, 100 First Avenue Bldg., Rochester, Minn., Secretary.

American Academy of Pediatrics, Hotel Statler, New York, Oct. 6-11. Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Secretary.

American Association of Medical Clinics, Washington, D. C., Oct. 26-28. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association of Nursing Homes, Shamrock-Hilton Hotel, Houston, Texas, Oct. 22-25. Mr. Ira O. Wallace, P. O. Box 366, New Castle, Ky., Secretary.

American Association for the Surgery of Trauma, The Biltmore, Santa Barbara, Calif., Oct. 4-6. Dr. James K. Stack, 700 N. Michigan Ave., Chicago 11, Secretary.

American Branch, International Society of Surgery, Fairmont Hotel, San Francisco, Oct. 9. Dr. Walter G. Maddock, 250 East Superior St., Chicago 11, Secretary.

American Cancer Society, Scientific Session, Park Sheraton Hotel, New York, Oct. 29-30. Dr. Charles S. Cameron, 521 West 57th St., New York 19, Medical Director.

American Clinical and Climatological Association, Skytop Lodge, Skytop, Pa., Nov. 1-3. Dr. Marshall N. Fulton, 124 Waterman St., *Providence 6, R. I., Secretary.*

American College of Gastroenterology, Hotel Roosevelt, New York, Oct. 15-17. Mr. Daniel Weiss, 33 West 60th St., New York 23, Executive Secretary.

American College of Obstetricians and Gynecologists, Palmer House, Chicago, Nov. 7-9. Dr. Paul Hodgkinson, 116 South Michigan Blvd., Chicago 3, Secretary.

American College of Preventive Medicine, Atlantic City, N. J., Nov. 11-15. Dr. John J. Wright, *School of Public* Health, Univ. of North Carolina, Chapel Hill, N. C., Secretary.

American College of Surgeons, Fairmont Hotel, San Francisco, Oct. 8-12. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

Annual Conference on Electrical Techniques in Medicine and Biology, Governor Clinton Hotel, New York, Nov. 7-9. Mr. E. *Dale* Trout, General Electric Company, X-Ray Dept., Milwaukee 1, Chairman.

American Dental Association, Atlantic City, Oct. 1-4. Dr. Harold Hillenbrand, 222 East Superior St., Chicago 11, General Secretary

American Dietetic Association, Hotel Schroeder and Auditorium, Milwaukee, Wis., Oct. 9-12. Mrs. Helen H. Anderson, Stanford University Hospitals, San Francisco, Secretary.

American Heart Association, Netherlands Plaza Hotel, Cincinnati, Oct. 27-31. Dr. Rome A. Betts, 44 East 23d St., New York 10, Executive Director.

American Medical Writers' Association, Hotel Morrison, Chicago, Sept. 28-29. Dr. Harold Swanberg, P.O. Drawer 110, Quincy, Ill., Secretary.

American Public Health Association, The Ambassador, Atlantic City, N. J., Nov. 12-16. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Rhinologic Society, Illinois Masonic Hospital and Palmer House, Oct. 9-13. Mrs. Mabel Campbell, 834 Wellington Ave., Chicago 14, Corresponding Secretary.

American Roentgen Ray Society, Hotel Statler, Los Angeles, Sept. 25-28. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

American *School Health* Association, Atlantic City, N. J., Nov. 12-18. Dr. A. O. DeWeese, 513 East Main St., Kent, Ohio, Secretary.

American Society of Anesthesiologists, *Municipal Auditorium*, Kansas City, Mo., Oct. 8-12. Mr. John H. Hunt, 188 West Randolph St., Chicago 1, Executive Secretary.

American Society *of* Clinical Pathologists, *Drake* Hotel, Chicago, Oct. 7-12. Dr. Clyde G. Culbertson, 1040-1232 West Michigan St., Indianapolis, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Kentucky Hotel, Louisville, Ky., Oct. 22-25. Dr. Harold Hodge, University of Rochester, Rochester 20, N. Y., Secretary.

American Society for the Study of Arteriosclerosis, *Palmer House*, Chicago, Nov. 11-12. *Dr. O. J.* Pollak, P. O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Jung Hotel, New Orleans, Oct. 31-Nov. 3. *Dr. John E.* Larsh Jr., Dept. of Parasitology, School of Public Health, University of North Carolina, Chapel Hill, N. C., Secretary.

American Veterinary Medical Association, Plaza Hotel, San Antonio, Texas, Oct. 15-18. Dr. J. G. Hardenbergh, 600 South Michigan Blvd., Chicago 5, Executive Secretary.

Annual Conference on Electrical Techniques in Medicine and Biology, Governor Clinton Hotel, New York, Nov. 7-9. Mr. E. Dale Trout, General Electric Company X-Ray Dept., Milwaukee 1, Chairman

Association of American Medical Colleges, The Broadmoor, Colorado Springs, Colo., Nov. 12-14. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Roosevelt, New Orleans, Oct. 23-25. *Dr. Henry B.* Kirkland, P O Box 594, Newark 1, N. J., Secretary.

Association of Medical Illustrators, State *University* of Iowa, Iowa City, Oct. 1-3. Miss Rose M. Reynolds, University of Nebraska College of Medicine, Omaha 5, Corresponding *Secretary*

Association of Military Surgeons of the United States, *Hotel Statler*, Washington, D. C., Nov. 12-14. Colonel Robert E. Bitner, Room 718, 1726 Eye St., N.W., Washington 6, *D. C., Secretary.*

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 2-10. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., *Secretary.*

Central Association of Obstetricians and Gynecologists, Roosevelt Hotel, *New Orleans*, Oct. 4-6. Dr. Edwin J. DeCosta, Suite 615, 104 South Michigan Ave., Chicago 3 Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 9-10. *Dr. Robert H. Ebert, 950 East 59th St., Chicago 37,* Secretary

Clinical Orthopaedic Society, Cleveland, Oct. 5-6. Dr Marcus J Stewart, 869 Madison Ave., Memphis, Tenn., Executive Secretary

College of American Pathologists, *Drake Hotel*, Chicago, Oct 8-13 Dr. A. H. Dearing, Suite 2115, *Prudential Plaza*, 130 East Randolph *St., Chicago, Executive Secretary.*

Congress of Neurological Surgeons, Palmer House, Chicago, Nov. 1-3 Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary

Eastern Psychiatric Research Association, Waldorf-Astoria Hotel, New York, Oct. 27. Dr. Theodore R. Robie, 676 Park Ave., East Orange, N. J., Secretary.

Gerontological *Society*, Hotel Hamilton, Chicago, Nov. 8-10 Dr Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary

Gulf Coast *Clinical Society*, Admiral Semmes Hotel, Mobile, Ala., Oct. 18-19. Dr. Theodore F. Middleton, 1302 Government St., Mobile, Ala., Secretary.

Indiana *State* Medical Association, Murat *Temple*, Indianapolis, Oct 16-18. Mr. James A. Waggener, 23 East Ohio St., Indianapolis 4, Executive Secretary.

Institute of Psychiatric Treatment, Boston State Hospital, Boston, *Sept. 27-29. Dr. Leo Alexander* and Dr. Robert *Arnot*, 433 Marlborough St., Boston 15, Co-Chairmen.

Interstate Postgraduate Medical Association of North America, Hotel Statler, Cleveland, Oct. 22-26. Mr. Roy T. Ragatz, Box 1109, Madison 1, Wis., Executive *Director.*

Kansas City Southwest Clinical *Society*, Fall Clinical Conference, Municipal Auditorium, Kansas City, Mo., *Sept.* 24-27. Dr. Lee H. Leger, 3036 Gillham Road, Kansas City 8, Mo., Director of Clinics.

Michigan State Medical Society, Sheraton-Cadillac Hotel, Detroit Sept. 26-28. *Dr. L. Fernald Foster, 606 Townsend St., Lansing 5* Secretary.

Mississippi Valley Medical Society, Hotel Morrison, Chicago, Sept. 26-28. Dr. *Harold Swanberg*, 510 Maine St., Quincy, Ill., Secretary

National Proctologic Association, Maryland Hotel, Chicago, Oct. 18-20. Dr. George E. Mueller, 59 East Madison St., Chicago 2, Executive Secretary.

National Society for Crippled Children and Adults, Statler Hotel, Washington, D. C., *Oct. 28-Nov.* 1. Dr. Dean Roberts, 11 South LaSalle St., Chicago 3, Executive Director.

New England Postgraduate Assembly, Hotel Statler, Boston, *Oct.* 30-Nov. 1. Dr. *Robert P.* McCombs, 22 Fenway, Boston 15, Chairman, Program Committee.

New Hampshire Medical Society, *Wentworth-by-the-Sea*, Newcastle, Sept. 28-30. Dr. Warren H. Butterfield, 18 School St., Concord, Secretary.

Omaha Mid-West Clinical *Society*, *Hotel Fontenelle*, Omaha, Oct. 29-Nov. 1. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Oregon State Medical Society, Portland, Oct. 16-20 Dr. Richard B Carter, 1020 S. W. Taylor St., Portland 5, Secretary.

Pacific Coast Fertility Society, El Mirador Hotel, *Palm Springs*, Calif., *Nov.* 8-11. Dr. *Edward* T. Tyler, 10911 Wayburn Ave., Los Angeles 24, Secretary.

Pennsylvania, Medical Society of *the State of*, Chalfonte-Haddon *Hall*, Atlantic City, N. J., Oct. 21-26. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Regional Meetings:

American College of Physicians:
Montana-Wyoming, Great Falls, Mont., Nov. 16-17. *Dr. Harold B*
Gregg, 103 N. Wyoming St., Governor.
New Jersey, Newark, Nov. 7. Dr. Edward C. Klein Jr., 6 South Kingman Rd., South Orange, Governor.
New Mexico, Albuquerque, Oct. 16. Dr. Robert Friedenberg, 143
Madison S [illegible] Governor.
Midwest, [illegible] Dr. Wesley W. Spink, 412 *Delaware*
St., S.E., Minneapolis 14, Governor.
Southeastern, Nassau, Bahama Islands, Oct. 6-7. *Dr. William C*
Blake, 706 *Franklin St.*, Tampa 2, Fla., *Chairman.*
Western New York, Albany, Oct. 19. Dr. John H. Talbott, 100 *High*
St., Buffalo 3, Governor.
West *Virginia, Charleston*, Sept. 29. Dr. Paul H. Revercomb, 1031
Quarrier St., Charleston 1, W. Va., Governor.

Southeastern Allergy Association, *Barringer Hotel*, Charlotte, N. C., Oct. 5-6. Dr. *Katharine* B. MacInnis, 1515 Bull St., *Columbia 1, S. C.*, Secretary.

(Continued on page 26)

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 4

CHICAGO, ILLINOIS

SEPTEMBER 22, 1956

Copyright, 1956, by American Medical Association

THE FACIAL NERVE IN PAROTID SURGERY

Oliver H. Beahrs, M.D.
and
Bernard F. L'Esperance, M.D., Rochester, Minn.

• *The excision of small parts of the parotid gland is liable to result in damage to the facial nerve, which runs through the substance of the gland. Such damage is hard to avoid if the nerve is not well exposed, and the surgeon has to choose between the danger of facial paralysis and the danger of incomplete performance of the intended extirpation. A good exposure makes it possible to choose between removal of the superficial portion of the gland and total removal of both superficial and deep portions by careful dissection. If there is a malignant tumor in the gland, excision must be total and the nerve must be sacrificed. Nerve grafting, using a section from the greater auricular nerve, was successful in preventing permanent facial paralysis in a case of this kind here described.*

Surgical treatment of the parotid gland in the past has been manifestly influenced by the intimate relationship between the parotid gland and the facial nerve. The dread of damaging this nerve has been paramount in the minds of surgeons dealing with lesions in this region. Paralysis of the nerve produces disfigurement, with psychic trauma that many persons are unable to endure; in not a few instances, suicide has appeared to be the only escape. Consequently, it is with adequate reason that the surgeon has gone out of his way to preserve this nerve, in many instances to the point of jeopardizing what he is attempting to accomplish.

General Background

The seventh cranial nerve, after emerging from the cranium through the stylomastoid foramen, passes anteriorly, laterally, and slightly inferiorly for approximately 1 cm. and then enters the posterior border of the parotid gland. In the substance of the gland, it divides into two main trunks, namely, the superior temporofacial and the inferior cervicofacial. These, in turn, divide into five terminal branches, the temporal, zygomatic, buccal, mandibular, and cervical, which emerge at the anterior border of the parotid. A predominant concept has originated from the work of McWhorter[1] that the gland is composed of two distinct lobes, one superficial and the other deep, the two being connected by an isthmus. The facial nerve supposedly divides into its two main branches at the posterior border of the isthmus, one branch passing superiorly, the other inferiorly. From our experience, we have not been able to demonstrate this arrangement and so have preferred to consider portions of the gland as lying either superficial or deep to the nerve, which courses directly through the substance of the parotid gland. This opinion has been expressed by Martin[2] and Lathrop[3] and, more recently, by Tabah.[4]

As already indicated, it is largely because of fear of inflicting damage to the facial nerve that efforts to remove tumors of the parotid gland have been ineffectively conservative. The high incidence of recurrence in practically all series reported bears out this statement. Martin[2] noted that 36% of all patients with parotid tumors coming to the New York Memorial Hospital on first admission had had one or more episodes of recurrence after one or more previous operations. Rawson and Horn[5] followed up patients operated on for mixed tumors of the parotid gland for a period of at least 10 years and found a recurrence rate of 31%. Kirklin and associates,[6] in reviewing the experience at the Mayo Clinic, found that 34% of patients with mixed tumors had been previously treated when first seen at the clinic. Figures such as these probably are directly attributable to inadequate operation resulting from lack of knowledge of the nature of parotid tumors, fear of injuring the facial nerve, and inexperience in a proper surgical approach.

Various methods have been described for identifying the facial nerve. Sistrunk,[7] and Adson and Ott,[8] advocated identifying the marginal mandibular branch of the facial nerve and tracing it posteriorly to locate the main stem of the nerve. McCormack and coworkers[9] advised commencing the procedure at the anterior border of the gland, locating the terminal branches in this region, and then tracing the branches

---

From the Section of Surgery, Mayo Clinic and Mayo Foundation (Dr. Beahrs) and Fellow in Surgery, Mayo Foundation (Dr. L'Esperance). The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

posteriorly until the main trunk is reached. Brown's group[10] favored a direct approach after adequate exposure was obtained by wide reflection of the cutaneous flaps. Byars[11] identified the posterior facial vein as the primary step, using this landmark to isolate the cervicofacial division of the nerve. The approach that has most adherents probably is the afore-mentioned method of McCormack and associates. We consider that this technique makes for a difficult and time-consuming operation with a greater probability of damaging the nerve or portions of it. Locating the marginal mandibular branch and tracing this to the main trunk are not advised for the reasons just given; also, much time can be lost in attempting to locate and isolate this branch. We think that attempting to approach these tumors directly by local excision or enucleation is contraindicated; by such an approach, one never can be sure of completely circumventing the lesion, and the danger of neural damage is increased because of the lack of exposure of the nerve. It is this method of attempting to excise locally a growth of the parotid gland that has especially resulted in high rates of recurrence. Locating the posterior facial vein to find the cervicofacial division of the nerve can be fraught with difficulty because of the varied arrangements of veins in this region and the variable relation between vein and nerve, thus increasing the danger of traumatizing the nerve.

We endorse the method advocated by Janes,[12] whereby one first identifies the stem of the facial nerve after it leaves the stylomastoid foramen and then traces the branches peripherally under direct vision. The main trunk of the nerve in an adult is always consistent in its location and is of sufficient size so that with reasonable care it should not be injured. The nerve in the adult is found directly anterior and deep to the mastoid process.

Operative Technique

Parotidectomy.—General anesthesia is administered through an endotracheal tube. The field is widely draped to include the ear, corner of the eye, and corner of the mouth on the homolateral side, so that motion of the face can be seen by the surgical team. The familiar Y or inverted T incision is made, with one limb extending from behind the ear below and parallel to the inferior margin of the mandible for 6 to 7 cm. The other limb passes upward and anterior to the ear in one of the natural creases of the skin. The cutaneous flaps are widely developed, and the dissection is then commenced at the posteroinferior border of the gland. With traction exerted superiorly and anteriorly, the posterior border of the gland is freed from the sternocleidomastoid muscle and, in a deeper plane, from the posterior belly of the digastric muscle. Dissection then passes downward along and anterior to the cartilaginous external auditory canal and the mastoid process. As the dissection is carried medially and deep to the body of the mastoid process, the main trunk of the nerve invariably is found. If upward traction is applied to the gland, the nerve can be palpated in the substance of the gland before it can be seen. With the main trunk of the nerve exposed, there is little occasion to stimulate or otherwise traumatize it.

After the stem of the nerve has been located, the superficial portion of the gland is separated from its branches by blunt dissection, using the closed tip of a small, pointed dissecting scissors. The nerve is always under direct vision, and, as long as the dissection remains superficial to the nerve, there is no danger of damaging it. Hemostasis is maintained first by tension, traction, and countertraction on the tissues and, subsequently, after the dissection is complete, by application of mosquito hemostats and ligatures. Traction exerted by means of Kocher's forceps placed on the superficial part of the gland with proper tension and in the right direction greatly facilitates the operation and cannot be overstressed. It is amazing with what dispatch superficial parotidectomy can be accomplished by a team familiar with the technique.

If the tumor is situated in the deeper tissues of the gland, total parotidectomy is indicated. After completion of the superficial dissection, the external carotid artery and posterior facial vein are divided at the inferior border of the deep portion of the gland, the superficial temporal artery and vein are divided at the superior border, and the internal maxillary artery is severed at the anterior border. After the facial nerve and its branches are gently retracted out of the way with nerve hooks, the deep portion of the gland is removed either between the two main branches of the nerve or below its inferior branch, whichever is more expedient.

We treat benign tumors of the superficial portion of the gland by superficial parotidectomy. As already indicated, if the tumor is situated deep to the nerve, total parotidectomy with preservation of the nerve is performed. If the character of the tumor is questionable, a biopsy is done, and fresh frozen sections of tissue are studied immediately. If malignant changes are thus found, the surgical procedure necessarily has to be extended. Carcinoma of the parotid gland poses a different problem, in that total parotidectomy invari-

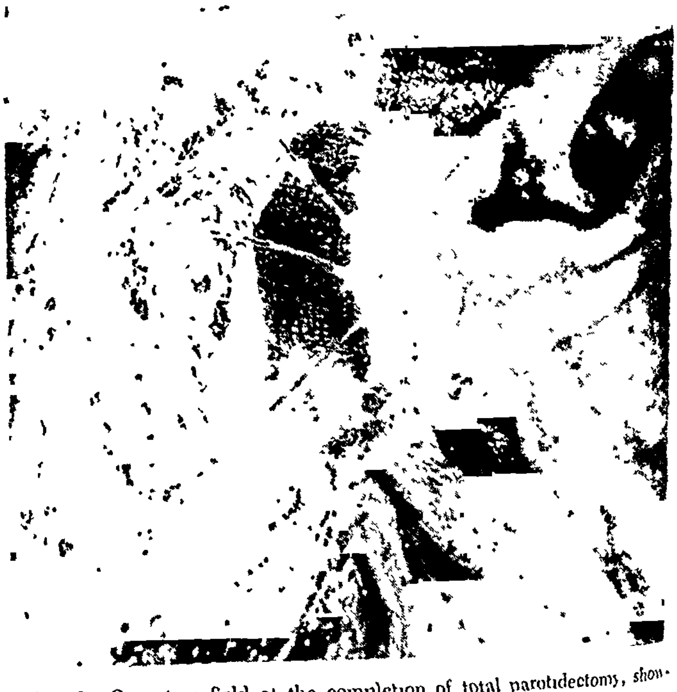


Fig. 1.—Operative field at the completion of total parotidectomy, showing nerve graft in place.

ably should be performed. The nerve in most instances must be sacrificed in order to accomplish adequate excision of the tumor. However, the nerve or a portion of it might be preserved in selected instances in which the nerve is free of the tumor or in which the tumor is of a low grade of malignancy or is well encapsulated. When the nerve is sacrificed, the patient is left with facial paralysis.

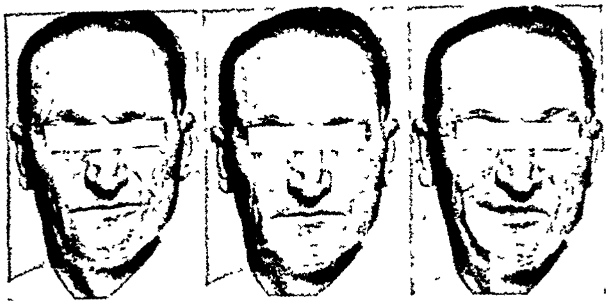


Fig. 2.—Appearance of patient 16 months after operation, demonstrating return of gross facial function.

Repair for Facial-Nerve Palsy.—Techniques proposed to improve the results of palsy of the facial nerve include (1) nerve anastomosis or nerve grafts, (2) repair by muscle operation, (3) repair by use of supporting fascial strips, and (4) a combination of the last two. If the nerve has been sacrificed in the course of the primary surgical procedure, it appears reasonable to state that reestablishment of continuity of the nerve by suture or nerve graft should be the procedure of choice, if it is possible to accomplish it. Only this reconstructive procedure will be considered in this paper.

Bunnell[13] claimed the first successful intratemporal repair of the facial nerve by nerve graft, using the sural nerve for donor purposes. Maxwell[14] added much stimulus to the problem in 1951 when he reported four cases, in three of which he used grafts from the greater auricular nerve to bridge various defects in the facial nerve. More recently, Conley[15] presented a technique that he had used on seven occasions in dealing with malignant tumors of the parotid gland. This consists of bridging the defect with a nerve graft procured from the contralateral side of the neck and composed of the greater auricular nerve and cutaneous filaments. Anastomoses are protected by using small, windowed plastic-tube cylinders. His entire procedure includes total radical parotidectomy and radical dissection of the neck. Auxiliary suspensions with fascia lata were carried out in one instance, and rotation of the masseter muscle was done in three instances along with nerve grafting. In recent years, we have inserted nerve grafts in selected cases and would like to record one instance in which the patient has been followed sufficiently long to illustrate the result.

Report of a Case

A 50-year-old man first registered at the Mayo Clinic in January, 1954. A mole had been present on the left temple for more than 15 years, during which time it had grown slightly. Four months prior to admission to the clinic, he had noticed a small lump in the region of the left parotid gland that had disappeared spontaneously but had reappeared about a month before admission and had continued to grow. Two weeks before admission, the tumor in the parotid region had been removed and biopsy of the mole had been performed. The lesions were said to be malignant, and the patient was referred to the clinic for further evaluation. Examination at the clinic revealed a localized nodular plaque in the left upper preauricular region measuring 1.5 by 1.5 cm.; it was ill-defined in character and was steel blue. An incision was present over the left parotid gland. Cervical lymph nodes were not palpable. Study of the tissue that had been removed elsewhere disclosed a diagnosis of malignant melanoma of the left temporal region with metastasis to the left parotid gland.

Operation at the clinic consisted of wide excision of the melanoepithelioma, radical total parotidectomy on the left, and radical dissection of the left side of the neck in continuity. The homolateral greater auricular nerve was used to bridge the gap between the main trunk of the facial nerve and its peripheral branches, brought together into three groups; 00000 silk was used for the anastomosis (fig. 1). Plastic closure of the defect in the left temporal region was carried out, with a skin graft applied to the defect in the left temporal region. The pathologist reported a melanoepithelioma measuring 3 by 1.5 cm. in the skin of the parotid region, with metastatic involvement of three superficial cervical lymph nodes and five nodes in the deep jugular region. The patient has been examined subsequently at the clinic in May, 1954, and June, 1955; no evidence of recurrence of the melanoepithelioma has been found. Examination of facial function in June, 1955, revealed good gross motion of all groups of muscles supplied by the facial nerve (fig. 2). A cosmetic defect was not noticeable.

Summary

Superficial parotidectomy should be the minimal surgical procedure used in the treatment of tumors of the parotid gland. The facial nerve can be easily exposed and dissected free of the gland by first exposing the main trunk deep and medial to the mastoid process. If the character of the tumor necessitates removal of the facial nerve, a nerve graft should be used at the time of the primary surgical intervention, if possible, to bridge the gap as the initial step in the treatment of the cosmetic deformity resulting from sacrifice of this nerve. If this should fail, other plastic procedures can be tried.

References

1. McWhorter, G. L.: Relations of Superficial and Deep Lobes of Parotid Gland to Ducts and to Facial Nerve, Anat. Rec. **12**: 149-154 (Feb.) 1917.

2. Martin, H.. Operative Removal of Tumors of Parotid Salivary Gland, Surgery **31**: 670-682 (May) 1952.

3. Lathrop, F. D.: Facial Nerve. Technique of Exposure and Repair, S. Clin. North America **33**: 909-926 (June) 1953.

4. Tabah, E. J.: Surgical Management of Parotid Tumours, Canad. M. A. J. **71**: 456-465 (Nov.) 1954.

5. Rawson, A. J., and Horn, R. C., Jr.. Sebaceous Glands and Sebaceous Gland-Containing Tumors of Parotid Salivary Gland, with Consideration of Histogenesis of Papillary Cystadenoma Lymphomatosum, Surgery **27**: 93-101 (Jan.) 1950.

6. Kirklin, J. W.: McDonald, J. R., Harrington, S. W., and New, G. B.. Parotid Tumors. Histopathology, Clinical Behavior, and End Results, Surg. Gynec. & Obst. **92**: 721-733 (June) 1951.

7. Sistrunk, W. E.. Tumor of the Parotid Gland, S. Clin. North America **1**: 1515-1521 (Oct.) 1921.

8. Adson, A. W., and Ott, W. O.· Preservation of Facial Nerve in Radical Treatment of Parotid Tumors, Arch. Surg. **6**: 739-746 (May) 1923.

9. McCormack, L. J., Cauldwell, E. W., and Anson, B. J.: Surgical Anatomy of Facial Nerve with Special Reference to Parotid Gland, Surg. Gynec. & Obst. **80**: 620-630 (June) 1945.

10. Brown, J. B., McDowell, F., and Fryer, M. P.: Direct Operative Removal of Benign Mixed Tumors of Anlage Origin in Parotid Region, with Summary of Parotid Tumors in General, Surg. Gynec. & Obst. **90**: 257-268 (March) 1950.

11. Byars, L. T. Preservation of Facial Nerve in Operations for Benign Conditions of Parotid Area, Ann. Surg. **136**: 412-421 (Sept.) 1952.

12. Janes, R. N.: Treatment of Tumours of Salivary Glands by Radical Excision, Canad. M. A. J. **43**: 554-559 (Dec.) 1940.

13. Bunnell, S.: Suture of Facial Nerve Within Temporal Bone, with Report of First Successful Case, Surg. Gynec. & Obst. **45**: 7-12 (July) 1927.

14. Maxwell, J. H.: Extra-Temporal Repair of Facial Nerve: Case Reports, Ann. Otol. Rhin. & Laryng. **60**: 1114-1133 (Dec.) 1951.

15. Conley, J. J.: Facial Nerve Grafting in Treatment of Parotid Gland Tumors: New Technique, A. M. A. Arch. Surg. **70**: 359-366 (March) 1955.

THE ELECTROCARDIOGRAM AS A SAFEGUARD IN PERICARDIOCENTESIS

Linton H. Bishop Jr., M.D., Emory University, Ga., E. Harvey Estes Jr., M.D.
and
Henry D. McIntosh, M.D., Durham, N. C.

• *Damage to the myocardium during pericardial paracentesis has occasionally been severe enough to result in pericardial tamponade and death. Anamil experiments here described showed that contact of the tip of the needle with the myocardium could be detected electrocardiographically if the needle was connected in such a way as to constitute an exploring electrode with the machine set as in recording chest leads. Contact with the myocardium is indicated by elevation of the S-T or the P-R segment, depending on whether the ventricle or the auricle is disturbed. This technique has been used in 40 cases of pericardial paracentesis. All were without complication, though the ventricular cavity was entered inadvertently in six instances. The danger of unintended puncture of the ventricle can be minimized by recognizing the existence of a lag between the appearance of changes in the electrocardiogram and the communication of this fact to the operator.*

In spite of the usefulness of pericardial tap in the diagnosis and therapy of pericardial diseases, the procedure is usually performed with some reluctance because of the occasional reports of pericardial tamponade and death after the procedure. The exact incidence of such complications is not known, but a recent survey revealed that the majority of a group of prominent cardiologists and surgeons had personal knowledge of one or two such accidents.[1] Since 1949, we have used the electrocardiogram as an additional safeguard during this procedure. The electrocardiogram is used as an indicator of the contact of the needle with the myocardium.

Technique

Prior to the tap, electrodes are applied to the arms and legs of the patient, to which are attached the lead wires of a direct-writing electrocardiograph. The "chest" or "precordial" lead wire from the machine is attached to the shank of the pericardial needle by means of an extra length of wire with alligator clamps at both ends (fig. 1). The machine is set to record a V lead, which means that the pericardial needle becomes the exploring electrode. The pericardial tap is carried out in the usual manner, except that as the needle is introduced the electrocardiogram is continuously monitored by an observer other than the operator.

Observations

The contact of the needle with the myocardium is signaled by the appearance of a striking elevation of the S-T segment, such as is seen in figure 2, if the ventricular muscle is contacted, or of the P-R segment if the auricle is contacted. The appearance of such a change is the signal for withdrawal of the needle.

Experimental studies on dogs have shown that actual entry of the needle into the myocardium is not necessary for the production of this current of injury. All that is required is a slight distortion of the epicardial layers, even through an intact pericardium. Figure 3 shows such a record obtained from an experimental animal. In the first section of the record, the needle is in contact with the chest wall only. In the second section the needle is in light contact with the left ventricle through an intact pericardium, with a small saline solution–soaked cotton pledget used as a means of contact. In the remaining sections firm pressure is exerted through the intact pericardium, first over the left ventricle and then over the left auricle. Note the S-T segment elevation in the former, the P-R segment elevation in the latter. It is reasoned that this feature will occasionally signal the contact of the needle with an intact pericardium immediately overlying the heart with no intervening layer of fluid, thus preventing actual entry of the needle into the pericardial sac with the accompanying risk of cardiac injury.

Figure 4, obtained from the same animal as the preceding figure, shows the further changes with actual entry of the needle into the myocardium. The changes are felt to arise in the myocardial fibers immediately surrounding the needle. These forces are not of sufficient magnitude to deform the P-R or S-T segment in more remote leads; therefore, the recording must be made from the pericardial needle itself.

In one patient the pericardial needle could not be forced through the pericardial sac because of its extreme thickness and leathery consistency. In this instance the electrocardiogram failed to show any change.

Occasionally such changes as have been previously described have been seen during the course of withdrawal of fluid, as the epicardium is pulled against the tip of the needle by the suction of the syringe. Usually the nature of this contact is evident to the operator, who can avoid such contact by a shift of needle position. We have used the technique or have directly observed its use in about 40 cases of pericardiocentesis. All were done without complication, though the ventricular cavity was inadvertently en-

---

From the Department of Medicine, Emory University School of Medicine (Dr. Bishop), and the departments of medicine, Veterans Administration Hospital and Duke University School of Medicine (Drs. Estes and McIntosh).

tered in six instances in spite of this additional precaution In these six instances the failure of the technique to prevent entry of the needle into the cavity resulted not from lack of change in the electrocardiogram but from a delay in response on the part of the observer or the operator.

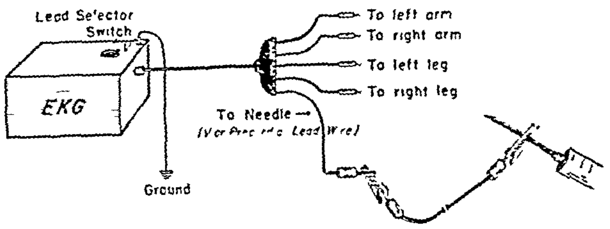


Fig 1 —Method of attaching an electrocardiograph to the pericardiocentesis needle The alligator clamp may also be attached to the handle of a Kelly clamp applied to the shank of the needle

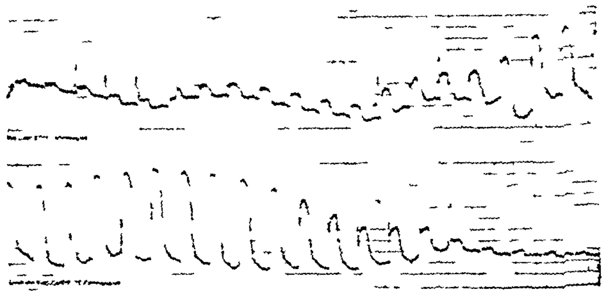


Fig 2 —Example of the striking S-T segment shift obtained on contact of the needle with the ventricular myocardium The electrocardiogram was taken during pericardiocentesis, with the needle used as an exploring electrode (Record is continuous)

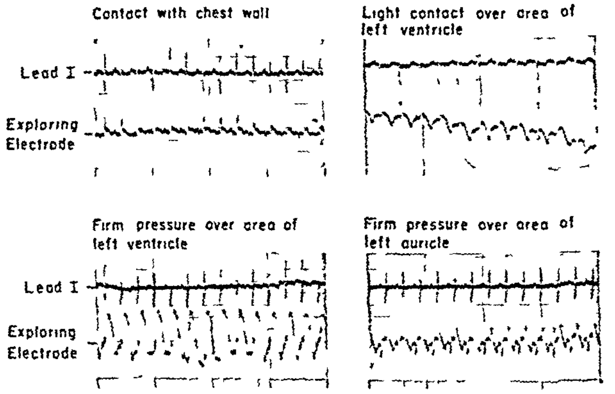

Contact with chest wall
Light contact over area of left ventricle
Lead I
Exploring Electrode
Firm pressure over area of left ventricle
Firm pressure over area of left auricle
Lead I
Exploring Electrode

Fig 3 —Record obtained from an experimental animal (dog), demonstrating appearance of S-T and P-R segment elevation with firm pressure through an intact pericardium Note the S-T segment elevation with pressure over the left ventricle and the P-R segment elevation with pressure over the left auricle

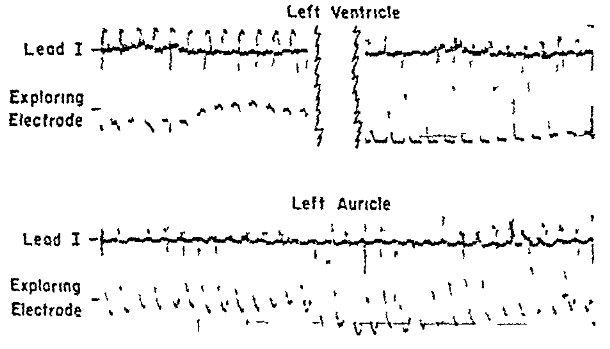


Fig 4 —Further change in S-T and P-R segments with entry of the needle into the myocardium (record from animal as figure 3).

Comment

The advantages of the use of the technique are felt to be threefold. 1. It will occasionally prevent the entry of the needle into the pericardium when no cushioning layer of fluid is present. 2 It immediately signals the entry of the needle into the myocardium, allowing the operator to withdraw promptly without unnecessary manipulation, with the accompanying risk of myocardial laceration. 3. It immediately clarifies the source of any grossly bloody fluid obtained from the pericardial needle. If bloody fluid is obtained without the appearance of S-T or P-R segment shift, such as has been described, one need have no fear that the fluid is being obtained from the chambers of the heart rather than the pericardial sac.

Since the exact incidence of serious complications following pericardiocentesis is not now known, we are not able to objectively measure the degree of protection afforded by the use of the described technique. The increased sense of security afforded by its use is unmistakable, however, and it has quickly become a routine procedure in the several hospitals in which it has been introduced. The lag between the appearance of changes in the electrocardiogram and the communication of this fact to the operator is a definite limitation, but can be minimized by experience on the part of both observer and operator.

Summary

The electrocardiogram has been used as an additional safeguard in cases of pericardiocentesis, serving as an indication of the contact of the needle with the myocardium.

Box M3208, Duke Hospital (Dr. Estes).

References

1. Kotte, J. H , and McGuire, J.. Pericardial Paracentesis, Mod. Concepts Cardiovas Dis 20: 102-103 (July) 1951.

Diagnosis in Brucellosis.—It is unfortunate there is no one reliable, specific test generally available for the diagnosis. In the diagnosis of brucellosis, the finding of Brucella by blood culture is diagnostic, but the test requires careful and rigid technique not available to that great group of practitioners most likely to observe the early cases. Then, too, the obtaining of a positive culture is largely a matter of accident in acute brucellosis and rarely found in chronic brucellosis. We should emphasize that negativity of any one test does not necessarily indicate that a Brucellar infection is not present, either in acute or chronic pulmonary brucellosis. A number of these diagnostic discrepancies may be mentioned. The agglutination test is of significance, only, if positive. A positive intradermal reaction indicates increased sensitivity to Brucella antigen but does not signify whether the infection is active, on the other hand, negative reactions have been observed in acute Brucella infections with positive blood cultures The opsonocytophagic test requires accurate technique with virulent Brucella organisms Increased phagocytosis with a positive intradermal reaction suggests a still active infection, although it may be logical to infer that a high degree of phagocytosis implies a balance between infection and immunity, but it does not mean that a Brucella infection is not present Conditions, such as stated, produce a situation seemingly impossible for solution, but it is my opinion a diagnosis can be made in a large percentage of the cases observed — A. E Greer, M D , Pulmonary Brucellosis, *Diseases of the Chest*, May, 1956

J.A.M.A., September 22, 1956

PROCEDURE FOR CLINICAL EVALUATION OF RENAL FUNCTION

Lawrence G. Raisz, M.D., Jack D. Rosenbaum, M.D., Thaddeus E. Prout, M.D.
and
W. Henry Russell, M.D., Boston

• *The procedure described is particularly helpful in evaluating the renal status of patients whose plasma concentrations of nonprotein nitrogen or urea may be but slightly elevated while creatinine clearance values may have fallen as low as 50 or 25% of normal. This includes many hypertensive patients, in whom the use of hypotensive drugs or sympathectomy may be under consideration. The test involves administering a water load of 2,000 ml. within two hours. This should normally lead to a diuresis of more than 8 ml. per minute. The collection of a blood sample for determination of creatinine, the injection of phenolsulfonphthalein, and the collection of urine samples are all timed in such a way as to yield figures for both glomerular and tubular functional capacity. The mean values for endogenous creatinine clearance by this method were 120 and 100 ml. per minute respectively, in 40 healthy men and 10 healthy women. The normal phenolsulfonphthalein excretion figures ranged from 25 to 45% for the first 15 minutes and from 55 to 80% for total two-hour excretion. The test is obviously contraindicated in the presence of acute renal failure with oliguria; in less severe forms of renal impairment it is informative and avoids the hazards of concentration tests involving restriction of fluid intake.*

In the selection of laboratory procedures for the clinical evaluation of renal function it is frequently desirable to include one test that indicates the magnitude of the glomerular filtration rate and another that serves as a measure of renal tubular function. The present report describes a convenient method for combining two such tests in a single procedure; this consists of the measurement of endogenous creatinine clearance and phenolsulfonphthalein excretion during a water diuresis.

Procedure

No special preparation of the patient is required, although an extra 500 ml. of water may be given on the evening prior to the test. The protocol employed is given in table 1. The patient remains recumbent and does not smoke during the procedure. The amount of water and the time of its administration need not be exact. A sufficiently large load is given to ensure that water diuresis will be maintained at or near a peak rate during the first three urine collection periods. The urine collections and the injection of phenosulfonphthalein should be timed to the nearest minute. Except when significant impairment of bladder function is present, most patients are able to void satisfactorily at the specified time intervals. The blood sample can be obtained and phenolsulfonphthalein injected through the same needle, but care must be taken to avoid contaminating the blood sample with phenolsulfonphthalein, since this dye interferes with creatinine analysis. Accurate measurement of the amount of phenolsulfonphthalein injected is essential.

TABLE 1.—*Procedure for Evaluating Renal Function*

Elapsed Time, Hr.	Actual Time,* A. M.	Procedure
0	6:30	Drink 1,000 ml. of water within ½ hr.
½	7:00	Drink 250 ml. of water
1	7:30	Void and discard, drink 250 ml. of water†
1 ½	8:00	Void and discard, drink 250 ml. of water
2	8:30	Collect urine sample 1, drink 250 ml. of water
2 ½	9:00	Collect urine sample 2
2 ¾	9:15	Obtain blood sample for creatinine, then inject 1 ml. of phenolsulfonphthalein
3	9:30	Collect urine sample 3
3 ¾	10:15	Collect urine sample 4
4 ¾	11:15	Collect urine sample 5

* The test may, of course, be begun at any time desired.

† Voiding at this time prevents overdistention of the bladder and helps accustom the patient to the procedure.

Phenosulfonphthalein concentration in the urine is measured most accurately with a photoelectric colorimeter, but visual techniques are also satisfactory. Creatinine is determined by the Jaffe reaction,[1] which also measures a small amount of noncreatinine chromogen in the serum. Although more specific methods for the measurement of creatinine are available,[2] the simpler direct method is adequate for clinical use. The calculation of creatinine clearance is as follows:

$$\frac{\text{urine creatinine (mg./100 cc.)} \times \text{urine flow (ml./min.)}}{\text{serum creatinine (mg./100 cc.)}} = \begin{array}{c}\text{Creatinine}\\ \text{clearance}\\ \text{(ml./min.)}\end{array}$$

Results of a normal test and the method of recording are shown in table 2. If there is marked discrepancy in the urine flow or creatinine clearance values between the two clearance periods, the results are not reliable. Unless a high urine flow has been achieved prior to the first collection period, the first creatinine clearance value may be considerably higher than the second because the bladder and renal dead space contain residual urine of high creatinine concentration formed before water diuresis began. When this more concentrated urine is "washed out" and collected during the first period of high flow, an erroneously high value for urine creatinine concentration is obtained.

The procedure can be modified to measure the function of each kidney separately during cystoscopy. Large ureteral catheters (7 F. or 8 F.) are used to minimize leakage. In addition, the bladder is drained initially and washed out at the end of each collection period and the irrigation fluid is analyzed to determine if leakage has occurred. A 15-minute urine collection is

---

From the Medical Service and Research Laboratory, Veterans Administration Hospital (Drs. Raisz, Rosenbaum, Prout, and Russell), and the Department of Medicine, Boston University School of Medicine (Drs. Raisz, Rosenbaum, and Prout). Dr. Raisz is now at the Veterans Administration Hospital, Syracuse, N. Y.; Dr. Rosenbaum at Tufts College Medical School, Boston; Dr. Prout at Johns Hopkins Hospital, Baltimore; and Dr. Russell with the Mount Kisco Medical Group, Mount Kisco, N. Y.

obtained from each kidney for creatinine clearance. Blood for serum creatinine determination is then drawn, phenolsulfonphthalein is injected, and 15-minute phenolsulfonphthalein excretions are measured bilaterally.

Comment

The endogenous creatinine clearance has been widely employed as a measure of glomerular filtration rate. Although it does not measure filtration rate as precisely as inulin clearance, it is much better suited for clinical use because of simplicity and convenience.[3] The urea clearance has also been widely employed as a measure of renal function. Its magnitude represents a variable proportion of glomerular filtration rate, and interpretation is further complicated by the fact that urea clearance varies with the rate of urine flow. Creatinine clearance does not show such variation with urine flow, although a high rate of flow is desirable, as in any clearance procedure, to minimize collection errors. At low rates of flow such errors can be reduced by prolonging the collection period. Moreover, in our experience the chemical determination of urea presents greater difficulty than does that of creatinine.

TABLE 2.—*Combined Renal Function Test, Showing Representative Figures for Normal Test**

Urine Sample, No.	Time, A. M.	Urine Volume, Ml.	Urine Flow, Ml./Min.	Urine Creatinine Concentration, Mg./100 Ml.	Creatinine Clearance,† Ml. Min.	Phenolsulfonphthalein Excretion, % of Injected Dye	Specific Gravity
1	8:00- 8:30	300	10.0	12.0	120	...	1.002
2	8:30- 9:00	360	12.0	11.0	132	...	1.001
3	9:00- 9:30	330	11.0	...	...	30	1.001
4	9:30-10:15	270	6.0	...	...	30	1.002
5	10:15-11:15	210	3.5	...	...	15	1.003
Total						75	

* Water load given, 2,000 ml; phenolsulfonphthalein injected at 9.15; serum creatinine 1 mg./100 ml.

† Av. creatinine clearance, 126 ml./min.

The mean value for endogenous creatinine clearance obtained in 40 healthy male subjects was 120 ml. per minute, with a standard deviation of ± 15 ml. per minute. A mean value of approximately 100 ml. per minute was obtained in 10 healthy women. The glomerular filtration rate in normal individuals varies with body size, age, and sex.[4] Clearance data are often corrected for body size, using 1.73 sq. m. of body surface area as a standard of reference. This correction need not be made routinely, but the height and weight should be recorded, so that variations in body size can be considered in interpreting the results. The inulin clearance has been shown to decrease with advancing age in normal men free of renal disease. Mean normal values of 90 to 100 ml. per minute per 1.73 sq. m. have been reported in men over 50, and of about 65 ml. per minute per 1.73 sq. m. in men over 80. This variation with age may well hold for creatinine clearance and should be applied to the interpretation of values in older patients.

In normal subjects phenolsulfonphthalein excretion ranges from 25 to 45% in 15 minutes, with a total excretion of 55 to 80% in two hours. The results of this test depend upon the renal plasma flow, the function of the tubule cells, the volume of the distribution of the dye (which is chiefly the blood volume), and, particularly in the 15-minute sample, the amount of delay encountered in the genitourinary tract. The value of a 15-minute sample in detecting minor impairment of function is greatly reduced if bladder emptying is incomplete.[5] To minimize such error, the urine volume should be large. For example, a 10-ml. residual urine volume introduces a 25% error if the volume voided is 30 ml. but only a 5% error if the volume voided is 190 ml. A low 15-minute value with a normal two-hour total suggests that bladder emptying is significantly impaired. Depressions of both 15-minute and two-hour values indicate renal tubular damage or diminished renal blood flow or both and do not distinguish between them.

The administration of a water load of the magnitude employed in the present procedure leads to a diuresis in excess of 8 ml. per minute in normal subjects. The occurrence of such a water diuresis requires an adequate glomerular filtration rate and the ability to form a dilute urine. Inability to secrete a dilute urine is uncommon in renal disease except in patients with advanced failure. However, maximum flow is frequently reduced owing to a decreased rate of filtration. (It is recognized that impairment of water diuresis may occur without primary renal disease, as in adrenocortical insufficiency and certain edematous states. Various antidiuretic stimuli, such as pain, emotional stress, nicotine, and narcotics, also impair water diuresis.) Conversely, the finding of a high maximal urine flow usually indicates that filtration rate is not severely impaired.

The procedure described was not designed as a "screening" test to establish the presence of normal renal function but has been used to evaluate patients with evidence of renal disease. For the former purpose a concentration test[6] is much simpler and has been extensively employed. When significant renal insufficiency is suspected, a concentration procedure requiring fluid restriction may be hazardous.[7] Moreover, it is difficult to estimate the magnitude of renal functional impairment from the results of a concentration test.

The present procedure has been particularly helpful in evaluating patients with normal or only moderately elevated plasma concentrations of nonprotein nitrogen or urea, some of whom may have impaired function as evidenced by creatinine clearance values as low as 25 to 50% of normal. This group includes many hypertensive patients in whom such impairment is of great importance, especially when the use of antihypertensive agents or sympathectomy is under consideration. Although it has been suggested that determination of the plasma creatinine concentration alone will provide adequate evaluation of renal function,[8] in our experience it is not uncommon to find distinct lowering of clearance values with plasma creatinine in the normal range. However, an elevated plasma concentration clearly indicates renal functional impairment. When renal failure is advanced, plasma nonprotein nitrogen, urea, and creatinine concentrations are markedly elevated and further evaluation of renal function is generally superfluous. Moreover, in such patients a large water load may lead to nausea and vomiting, which are particularly to be avoided in renal failure. Water loading is obviously contraindicated in the presence of acute renal failure with oliguria.

Summary

A single procedure for measurement of endogenous creatinine clearance and phenolsulfonphthalein excretion during a water diuresis is a useful adjunct to the clinical evaluation of renal function.

Irving Avenue and University Place, Syracuse 10, N. Y. (Dr. Raisz).

Miss Ellen Vazuelis and Miss Miriam Halpin provided technical assistance in this study.

References

1. Hawk, P. B.; Oser, B. L., and Summerson, W. H.: Practical Physiological Chemistry, ed. 12, Philadelphia, Blakiston Company, 1949, pp. 506-509.

2. Hare, R. S.: Endogenous Creatinine in Serum and Urine, Proc. Soc. Exp. Biol. & Med. 74: 148-151 (May) 1950.

3. Mandel, E. E.; Jones, F. L.; Willis, J. J., and Cargill, W. H.: Renal Excretion of Creatinine and Inulin in Man, J. Lab. & Clin. Med. 42: 621-637 (Oct.) 1953.

4. Smith, H. W.: The Kidney: Structure and Function in Health and Disease, New York, Oxford University Press, 1951, pp. 543-562.

5. Chapman, E. M., and Halsted, J. A.: Fractional Phenolsulphonephthalein Test in Bright's Disease, Am. J. M. Sc. 186: 223-232 (Aug.) 1933.

6. Fishberg, A. M.: Hypertension and Nephritis, ed. 5, Philadelphia, Lea & Febiger, 1954, p. 97.

7. Strauss, M. B., and Raisz, L. G.: Clinical Management of Renal Failure, Springfield, Ill., Charles C Thomas, Publisher, 1956, pp. 69-71.

8. Haugen, H. N., and Blegen, E. M.: Plasma Creatinine Concentration and Creatinine Clearance in Clinical Work, Ann. Int. Med. 13: 731-739 (Oct.) 1955.

NYSTATIN (MYCOSTATIN) IN THE TREATMENT OF MONILIAL AND NONMONILIAL VAGINITIS

Harry R. Pace, M.D.
and
Samuel I. Schantz, M.D., Brooklyn, N. Y.

• ***Candida albicans infection (moniliasis) was demonstrated by culture in 59 out of 76 patients who had symptoms of vaginitis. Treatment with nystatin, inserted as tablets vaginally at bedtime, cured the moniliasis in 58 cases and failed only in one patient, who did not follow instructions. Of the two case histories given, one illustrates recovery, within two days, of a patient who had been treated for intense pruritus by various other means for several months; the other patient developed moniliasis after intensive treatment with antibiotics for pelvic inflammatory disease and recovered from moniliasis promptly after administration of nystatin. The infection recurred in 14 cases but was eradicated by a second course of treatment. Nystatin was not effective as a rule in trichomoniasis, but in moniliasis it relieved the pruritus promptly and did not cause any side-effects.***

Vaginal discharge, whether a primary or secondary symptom, is the most common pelvic complaint encountered in office practice. When a patient comes in complaining of vaginal itch accompanied by leukorrheal discharge, the symptoms usually are caused by either monilial (Candida albicans) vaginitis or trichomonal vaginitis. Leukorrhea due to nonspecific causes as well as to endocervicitis is not associated with pruritus. In the past, trichomonal vaginitis has had an appreciably higher incidence than monilial vaginitis. Now, however, monilial vaginitis is the more common of the two conditions. This reversal in incidence undoubtedly reflects to some extent the improved methods of diagnosis in vaginal moniliasis, but it is worth noting that this ratio has reversed since the development of antibiotics. Lee and Keifer [1] report that, prior to the advent of antibiotics, the usual office practitioner encountered four cases of trichomoniasis for every one of vaginal moniliasis; today, nearly a decade later, he finds three cases of monilial vaginitis for each case of trichomonal vaginitis. This ratio would seem too low in our experience. In our series of unselected office patients reported here, we found that the ratio of trichomonal vaginitis to monilial vaginitis in nonpregnant patients was 1:7. Among pregnant patients this ratio was 1:15. Many patients who appeared clinically to have trichomonal vaginitis were later shown to have monilial vaginitis.

Vaginal moniliasis has always posed a therapeutic problem. Heretofore, gentian violet has served as the principal therapeutic agent for this troublesome and often stubborn infection. However, gentian violet, as well as some of the gentian variants, not only is somewhat undependable but frequently produces irritation. In addition, the patient dislikes its staining property, and she also finds gentian violet difficult to apply correctly by herself. Various other preparations have been employed, but none has provided consistently satisfactory therapy.

Recently an antifungal antibiotic said to be both fungicidal and fungistatic for C. albicans has been introduced.[2] This agent, Mycostatin or nystatin, the now-accepted generic name assigned it by its discoverers, Hazen and Brown,[3] is derived from Streptomyces noursei. Shown to have extremely low toxicity, nystatin is also remarkably free of side-effects.[4] Because of these properties, it was decided to try nystatin in the treatment of vaginitis, and, so that it could be easily and conveniently inserted by the patient herself, it was used in the form of a tablet for vaginal insertion.

Clinical Material

The series here presented consists of 76 consecutive unselected cases of vaginitis encountered in office practice. The presenting complaints in all patients were leukorrhea and pruritus. These symptoms were severe in 28 women, moderate in 47, and mild in one patient. Vaginal smears from all 76 women were cultured for C. albicans, and in all cases a search was made (using the hanging-drop method with sodium chloride solution and the diagnostic aid, Trichomonas Diluent) for Trichomonas vaginalis. None of the patients proved to have both trichomonal vaginitis and monilial vaginitis. Mixed vaginal infections by C. albicans and T. vaginalis have not been observed by us, and it is our belief that such cases are extremely rare. Those reported may represent an error in diagnosis, since clinically there is some similarity in the conditions. Such errors can be avoided by basing the diagnosis on the results of culture.

Nickerson's medium was used exclusively for culturing of specimens for C. albicans. The active ingredient of this medium is a complex polybismuth sulfite. Culturing with Nickerson's medium, which has been well described in detail by Perl and co-workers,[5] is uncomplicated and can be adopted as a routine office procedure. As regards obtaining the material for culture, three points warrant emphasis. First, the patient should be instructed that she is neither to douche nor to use any medicament intravaginally for 72 hours prior to the taking of material for culture. Second, material for culture from the vagina should be obtained with a sterile, cotton-tipped applicator introduced through a sterile, nonlubricated bivalve speculum. In the absence of cheese-like particles in the vagina or on the vulva, a specimen should be taken from the secretion between the rugae of the lateral vaginal walls and at the mucocutaneous borders of the introitus. Third, cervical secretions are of no value in determining the presence of Candida organisms by culture.

Culturing presents no problems. The culture can be kept at either room or incubator temperature. If kept at room temperature, the observation period is two to five days. However, nystatin therapy can and should be started immediately, rather than delayed until the results of culture are known. If the culture is incubated at 32 to 37 C (89.6 to 98.6F), the result can be obtained within 24 to 48 hours. A positive culture will show C. albicans growing in large, jet black or dark brown, shiny, hemispherical colonies. On continued incubation, peripheral filamentation is revealed. Because of the ease and accuracy of culturing with Nickerson's medium, we prefer it to other mediums.

A total of 59 patients proved to have monilial (C. albicans) vaginitis. Thirty-one of these women were pregnant and 28 nonpregnant. Three of the nonpregnant patients, it is interesting to note, had received antibiotic therapy prior to the onset of monilial vaginitis. In every case the diagnosis of monilial vaginitis was confirmed by culture. Evaluation of nystatin therapy was based on clinical improvement and the results of cultures obtained at two follow-up examinations. The first examination was made one week after the institution of therapy and the second examination two to three months later.

In all patients therapy consisted solely of vaginal insertion of nystatin tablets, each containing 100,000 units of nystatin. No douches were prescribed or used during therapy, primarily because we do not consider the vaginal pH an important factor and consequently felt it unnecessary to attempt alteration of the pH with acid or alkaline douches. Therapy was not discontinued during menstruation. Three different dosage schedules were employed. All patients were instructed to insert the tablet just before retiring; when 2 tablets were ordered, they were to be used together, rather than one at night and one in the morning. Of the 31 pregnant women, 26 were instructed to use 1 tablet nightly for 7 nights, 2 were to use 1 tablet nightly for 14 nights, and the remaining 3 were to use 2 tablets nightly for 7 nights. Among the 28 nonpregnant patients, 12 were to use 1 tablet nightly for 7 nights, 5 were to use 1 tablet nightly for 14 nights, and 11 were to use 2 tablets nightly for 7 nights.

Table 1.—*Results of Treatment with Nystatin in Thirty-One Pregnant Patients with Vaginal Moniliasis*

Dosage	Patients, No	Results, Early				Recurrences Patients, No.	Results, Final Excellent
		Excellent	Good	Fair	Poor		
1 tablet daily for 7 days	26	24	1		1	9	26
1 tablet daily for 14 days	2	2					2
2 tablets daily for 7 days	3	2		1		1	3
Totals	31	28	1	1	1	10	31

Results in Vaginal Moniliasis

Intravaginal therapy with nystatin was successful in 98.3% of the 59 patients with vaginal moniliasis. Clinical manifestations disappeared and cultures became negative in all but one patient. Relief from pruritus was obtained within 48 hours in all cases. When the results in pregnant and nonpregnant patients are considered separately, it is seen that 100% of the pregnant patients and 96.3% of the nonpregnant patients responded favorably. The single patient who failed to respond to therapy used the medicament for only one week and thereafter failed to comply with instructions. We consider this failure to be due to lack of cooperation on her part. The above results are final, as determined by culture and clinical improvement at the follow-up examinations two to three months after initiation of therapy. Tables 1 and 2 show these final results and also present the early results, which were evaluated on the basis of clinical improvement and cultures obtained after one week of therapy. These tables also indicate the dosage schedule and the number of patients who had recurrences.

Table 2.—*Results of Treatment with Nystatin in Twenty-Eight Nonpregnant Patients with Vaginal Moniliasis*

Dosage	Patients, No	Results, Early		Recurrences Patients, No	Results, Final Excellent
		Excellent	Poor		
1 tablet daily for 7 days	12	11	1	2	11
1 tablet daily for 14 days	5	5		1	5
2 tablets daily for 7 days	11	11		1	11
Totals	28	27	1	4	27

Recurrence was indicated by reappearance of symptoms and positive cultures. In patients with recurrences, the interval between the cessation of therapy and recurrence ranged from two to five weeks. There did not appear to be any relationship between the severity of symptoms and recurrence; however, both the therapy schedule employed and pregnancy did appear to have some bearing on recurrence. Seventy-nine per cent of the relapses occurred in patients who used 1 tablet for seven days; or, expressed another way, 29% of the patients who were on this particular schedule had a recurrence. Further experience with nystatin will no doubt enable us to set up therapy schedules closer to the optimum.

Report of Cases

Two cases are presented for illustration. One patient had monilial vaginitis of long standing that was refractory to all forms of treatment except with nystatin. The second patient presented symptoms subsequent to intensive antibiotic therapy.

Case 1.—This woman had been suffering from intense vaginal itching for several months, during which time she had tried several forms of gentian violet, various douches, and other preparations, with intermittent partial relief. She became pregnant and presented herself at our office six weeks later. Culture for Candida was strongly positive within 24 hours, and nystatin therapy was started. Within two days she remarked that she had never felt so free of her symptoms, and subsequent cultures remained negative.

Case 2.—This woman had had a total hysterectomy and bilateral salpingo-oophorectomy for multiple uterine fibroids associated with chronic pelvic inflammatory disease. During the postoperative period she developed a pelvic abscess that was treated with intensive antibiotic therapy and subsequently drained from below. Shortly after discharge from the hospital she presented herself at our office complaining of severe vaginal pruritus. Culture for Candida was positive, and she was immediately given nystatin tablets to insert. Her condition cleared up within two days, and subsequent cultures were negative.

Results in Nonmonilial Vaginitis

Seventeen of the patients in this series of 76 were found to have nonmonilial vaginitis. Six had trichomonal vaginitis and were also treated with nystatin tablets to be inserted vaginally on the same therapy schedules. Two of these patients were pregnant, and in one of these an excellent early and final result was obtained. In the other patient, however, early results were poor, and she ultimately required other therapy. Of the four nonpregnant patients, two obtained no relief and were immediately started on other therapy. In the other two patients, early results were fair in one and poor in the other. Other therapy was subsequently employed. Cultures from the remaining 11 patients were all negative for both C. albicans and T. vaginalis. In nine, the early results with nystatin were poor, and all were placed on another form of therapy. Two women had a good early response to nystatin; in one of these the final result was excellent, while in the other the final result remained good. The results in these cases of nonmonilial vaginitis add to the evidence that nystatin is specific for C. albicans infections.

Comment

Although the pH of the vagina is held by many to be an important factor in the development of moniliasis,[6] we have not found this to be true. So far as could be determined, the pH played no part in the production of vaginitis in any of the patients in this series. Theoretically, a normal pH would favor the development of fungal infections, since fungi, in vivo as well as in vitro, grow best in an acid environment. However, an increase in the pH may be followed by *clinical moniliasis*. A high glycogen content in the vaginal mucosa has also long been regarded as a predisposing factor in fungal infection. Indeed, it is this increased glycogen content that is presented as the reason for the larger incidence of vaginal moniliasis in pregnant women or in women with diabetes. The exacerbations sometimes seen in the premenstrual phase are also accounted for by the increased amount of glycogen then present in the vaginal mucosa.[7]

Our experience would suggest that the importance of both the pH and the glycogen content is perhaps overemphasized. The cases making up this series were almost equally distributed between pregnant and nonpregnant women. Furthermore, there did not appear to be any correlation between the phase of the menstrual cycle and the onset or exacerbation of symptoms. Reinvestigation of the relationship between increased glycogen content in the vaginal mucosa and the production of monilial vaginitis may be justified. Perhaps appropriate studies would result in the identification of other factors operative in the development of vaginal moniliasis.

Summary

In a series of 76 consecutive cases of vaginitis encountered in office practice, 59 were proved by culture to be caused by Candida albicans. Six cases were caused by Trichomonas vaginalis, and 11 were due to neither monilial nor trichomonal infections. The ratio of trichomonal vaginitis to monilial vaginitis was 1:7 in nonpregnant patients and 1:15 in pregnant patients. All 59 patients with vaginal moniliasis, 31 of whom were pregnant and 28 of whom were nonpregnant, were treated with nystatin (Mycostatin), a new antifungal agent. Therapy with nystatin tablets, inserted vaginally, was successful in 98.3% of these 59 patients with vaginal moniliasis; that is, an excellent result was obtained in 100% of the pregnant patients and in 96.3% of the nonpregnant patients. Therapeutic response was judged on the basis of clinical improvement and of the results of cultures obtained at follow-up examinations. Ten pregnant patients and four nonpregnant patients with monilial vaginitis had recurrences, as determined by culture and clinical manifestations, two to five weeks after the cessation of therapy. Repeat courses of nystatin gave excellent final results in all 14 of these women. Relief from pruritus caused by vaginal moniliasis was obtained within 48 hours of the institution of nystatin therapy. Nystatin proved effective in the treatment of only 2 of the 17 cases of nonmonilial vaginitis. There was no

evidence of any form of drug toxicity in any of the cases. The vaginal pH and glycogen content do not appear to be predisposing factors in vaginal moniliasis.

Addendum

Since the preparation of this report, five additional patients with proved monilial vaginitis have been treated with nystatin tablets. All five patients obtained excellent early and final results.

4611 12th Ave. (19) (Dr. Pace).

The nystatin used in this study was supplied as Mycostatin by E R Squibb & Sons, New York

References

1. Lee, A. F, and Keifer, W. S: Vaginal Discharge, Northwest Med 53: 1227, 1954.

2 Sloane, M B: New Antifungal Antibiotic, Mycostatin (Nystatin), for Treatment of Moniliasis. Preliminary Report, J Invest. Dermat 24: 569, 1955. Brown, R, Hazen, E. L, and Mason, A.: Effect of Fungicidin (Nystatin) in Mice Injected with Lethal Mixtures of Aureomycin and Candida Albicans, Science 117: 609, 1953 Sternberg, T. H, and others Antifungal Effects of Nystatin on Fecal Flora of Animals and Man, in Antibiotics Annual. 1953-1954, edited by H Welch and F. Marti-Ibañez, New York, Medical Encyclopedia, Inc, 1953, p 199

3 Hazen, E L, and Brown, R: Fungicidin, Antibiotic Produced by Soil Actinomycete, Proc Soc Exper Biol & Med 76: 93, 1951.

4. Drouhet, E Action de la nystatine (fungicidine) in vitro et in vivo sur Candida albicans et autres champignons levuriformes, Ann Inst Pasteur 88: 298, 1955. Beckmann, A J, and Navarro, J E Pneumonia Complicating Oral Thrush Treated with Mycostatin, New Antifungal Antibiotic, J. Pediat. 46: 587, 1955

5 Perl, G, Guttmacher, A F, and Jakubowicz, H Vaginal Candidiasis New Method of Diagnosis and Treatment, Obst & Gynec 5: 640, 1955

6 (*a*) Bernstine, J. B, and Rakoff, A. E Vaginal Infections, Infestations and Discharges, New York, Blakiston Company, 1953, p. 266 (*b*) Kanter, A E: Recognition and Treatment of Vaginal Lesions, Postgrad Med 12: 457, 1952 (*c*) Plass, E D, Hesseltine, H C, and Borts, I H Monilia Vulvovaginitis, Am J. Obst & Gynec 21: 320, 1931 (*d*) Anderson, E F. Symposium. Certain Aspects of Office Treatment in Obstetrics and Gynecology Monilia Vaginitis, West. J. Surg 60: 224, 1952

7 Footnote 6 *a* and *b*

EFFECTS OF 3,5,3′ L-TRIIODOTHYRONINE IN PATIENTS WITH METABOLIC INSUFFICIENCY

PRELIMINARY REPORT

C. Robert Tittle, Abington, Pa.

• *A general slowing down of metabolic processes usually is associated with subnormal thyroid activity, but it can also be seen in cases where the thyroid is normally active as judged by its ability to take up radioactive iodine and by the levels of cholesterol and protein-bound iodine in the blood. The latter type of case is marked by differences in the effect of certain medicaments upon the patient. Eight patients are here described because their signs and symptoms of metabolic insufficiency were not relieved by protracted medication with desiccated thyroid preparations. Six of them improved subjectively and objectively when treated with 3, 5, 3′ L-triiodothyronine. The dosage had to be adjusted to the individual patient, but in general 50 mcg. per day was safe and effective Since this drug not only is effective and rapid but also differs from desiccated thyroid in its site of action, it is valuable in the treatment of metabolic insufficiency*

The effects of thyroid dysfunction on metabolism have long been recognized, even though the exact mechanisms are still unknown. In hypothyroidism, when the gland is absent or not functioning properly, the metabolic rate in various organ systems of the body is depressed.[1] Such depression results in symptoms of myxedema and in lethargy, emotional instability, dulness, and other "slowing down" processes. Moreover, the depression can be measured by basal metabolic rate tests and confirmed by serum protein-bound iodine and radioactive iodine (I^{131})—uptake tests that indicate a reduced output by the thyroid gland.[1]

Besides occurring in hypothyroidism, metabolic depression is known to exist also in patients who apparently have normal thyroid function.[2] Such patients show symptoms and physical signs that often mimic hypothyroidism, and they have a low-normal or subnormal basal metabolic rate (below -20%). At the same time, however, they have normal protein-bound iodine levels, I^{131} uptake, and cholesterol values, in other words, they have normal thyroid gland function A very small portion of these particular patients may have hypopituitarism, nephrosis, malnutrition, hypogonadism, adrenal cortical hypofunction (Addison's disease), or some other disorder. When these known causes for metabolic depression are excluded, however, there still remains a group of patients who show signs and symptoms due to a specific disorder. metabolic insufficiency or hypometabolism[3]

Since the discovery of 3,5,3′ L-triiodothyronine by Gross and Pitt-Rivers,[4] various investigators[5] have reported findings that seem to explain how a subnormal basal metabolic rate can coexist with apparent normal function of the thyroid gland. Specifically, these findings have suggested that, in the patient with metabolic insufficiency, thyroid products cannot properly be utilized in metabolic processes at the tissue level Freedberg and others,[2b] Lee,[6] and Kirk and Kvorning[7] have reported that patients with this disorder generally do not show symptomatic or metabolic responses to thyroid extract, thyroglobulin, or thyroxine. Such patients, however, have responded to treatment with L-triiodothyronine after failing to do so with thyroid preparations.[2] Because of these favorable reports, I undertook the present study to evaluate the clinical efficacy of L-triiodothyronine. The aims of the study were (1) to evaluate symptomatic and metabolic responses to L-triiodothyronine and (2) to compare these responses with those obtained with desiccated thyroid in previous treatments.

Assistant Professor, Metabolic Diseases, Graduate School of Medicine, University of Pennsylvania, Philadelphia, and Visiting Physician, Endocrine Clinic, Abington Memorial Hospital

Material and Method

Of eight patients (five females and three males) between the ages of 22 and 55 years given a diagnosis of metabolic insufficiency, all had basal metabolic rates between −28 and −36% on at least two repeated tests. None showed signs of metabolic depression attributable to malnutrition, psychoneurosis, anorexia nervosa, adrenal insufficiency, nephrosis, or other known disorders. Symptoms and physical signs seen in the group were chronic fatigability, stiffness of muscle and joint, sensitivity to cold, constipation, obesity, facial puffiness, dry hair and skin, and general lassitude. All the patients had been treated previously with 2 to 3 grains (0.13 to 0.19 gm.) of desiccated thyroid per day for as long as six months to five years before this study. With this therapy, however, none had gained more than transient, moderate relief of symptoms and none had shown a significant rise in basal metabolic rate (table 1).

Before L-triiodothyronine was given, desiccated thyroid was withdrawn from each patient for from one to five months. At the end of this rest period, basal metabolic rates ranged between −28 and −36%. Other thyroid function values, however, were within normal limits. Protein-bound iodine levels by the Barker method[8] ranged from 3.5 to 5.2 mcg. per 100 ml.; fasting serum cholesterol levels, from 186 to 240 mg. per 100 ml.; 24-hour I^{131} uptake (measured in four patients) ranged from 33 to 40%. In six patients, values of 24-hour excretion of neutral 17-ketosteroids, assayed by the Holtorff-Koch modification of the Zimmerman reaction, ranged from 9.2 to 14.8 mg. L-triiodothyronine was administered initially in doses of 12.5 to 25 mcg. daily; the dosage was then increased by 12.5 or 25 mcg. daily every two weeks. Maximum doses ranged between 50 and 100 mcg. daily (table 1). After four to eight weeks, basal metabolism tests were repeated. In three patients who were treated for a longer time, the basal metabolic rate was remeasured after several months.

TABLE 1.—*Effects of Desiccated Thyroid and of L-Triiodothyronine in Patients with Metabolic Insufficiency*

			Treatment with Desiccated Thyroid			Status 1 Mo. or More After Withdrawal of Desiccated Thyroid				Treatment with L-Triiodothyronine		
Case No.	No. of Yr. Symptoms Present	BMR Before All Treatment	Maximum Dosage, Grains/Day	Duration of Treatment, Yr.	BMR After Treatment, %	PBI, Mcg./100 Ml.	I^{131} Uptake (24 Hr.), %	Serum Cholesterol, Mg./100 Ml.	BMR, %	Maximum Dosage, Mcg./Day	BMR After Treatment, %	Remarks
1	10	-22	3	5	-28	4.5	..	210	-30	75	-12 (1 mo.) -10 (6 mo.)	Satisfactory response
2	8	-32	3	1	-34	3.5	33	220	-32	62.5	-16 (1 mo.) -12 (4 mo.)	Satisfactory response
3	2	-24	2	1	-28	4.5	..	186	-28	75	-12 (1½ mo.)	BMR dropped to -28% 2 mo. after patient voluntarily discontinued medication
4	5	-22	3	2	-28	3.8	30	220	-30	75	-12 (1½ mo.)	Satisfactory response
5	6	-28	3	1	-32	5.0	..	240	-30	100	-10 (1½ mo.) 16 (5 mo.)	Satisfactory response
6	2	-32	2	1	-34	5.2	40	186	..	62.5	-16 (2 mo.)	BMR dropped to -24% when patient voluntarily stopped medication; 1 mo. after resumption of medication, BMR -14%
7	8	-38	3	1	-40	3.8	..	210	-36	50	-36 (1 mo.)	No response to treatment
8	10	-36	2	½	-36	5.2	33	186	-28	50	-30 (1 mo.)	No response to treatment

Results

Symptomatic and metabolic responses were observed in six of the eight patients during one to two months of treatment with L-triiodothyronine (table 2). Symptoms of fatigue and of aching and stiffness in muscles and joints disappeared completely in the six patients who responded; in some patients, symptoms of constipation, sensitivity to cold, obesity, and facial puffiness also subsided or disappeared. During the same period, the basal metabolic rates in six of the eight patients rose to −16% or higher. The average elevation was 18%; the range, 16 to 20% (table 1 and figure). Two patients who had been hypersensitive to desiccated thyroid did not show metabolic or symptomatic responses to 50 mcg. of L-triiodothyronine daily. Typical responses are illustrated in three case histories below. The first describes a patient who showed a favorable response; the second, a patient who did not respond; and the third, a patient who responded but then had a relapse when the drug was voluntarily withdrawn.

CASE 1.—A patient, a 48-year-old male, had shown symptoms of fatigue, muscular aches, facial puffiness, loss of hair, sensitivity to cold, brittle nails, and obesity for three years. His basal metabolic rate in July, 1954, was −32%. During the year that followed, he was treated with up to 3 grains of desiccated thyroid daily with only transient relief of symptoms; he could not tolerate higher doses. In July, 1955, his basal metabolic rate was −34%. Desiccated thyroid was withdrawn, and in August, 1955, his basal metabolic rate was −32%; the protein-bound iodine level, 3.5 mcg. per 100 ml.; and I^{131} uptake, 33%. L-triiodothyronine was given in increasing dosage up to 62.5 mcg. daily. After one month (in September, 1955) his basal metabolic rate had risen to −16%. He had lost 6 lb. and reportedly "was able to perform a full day's work as a school principal for the first time in three years" because of the disappearance of fatigability, the clearing up of muscular pains in his legs, and the loss of a feeling of depression that had previously developed toward the latter part of his working day. Symptoms of facial puffiness and sensitivity to cold had also subsided. Three months later, on therapy with 50 mcg. of L-triiodothyronine daily, his basal metabolic rate was −12% and he remained improved.

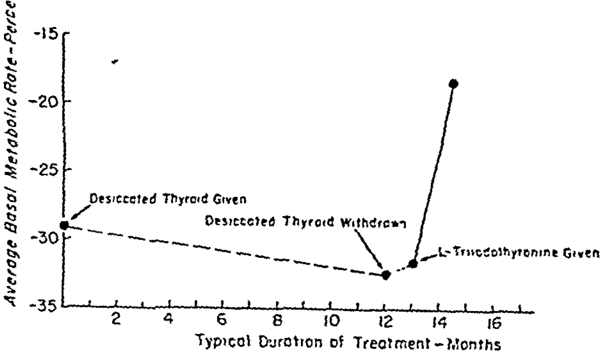
CASE 2.—A 28-year-old female patient had shown symptoms of inability to gain weight, chronic fatigability, constipation, sensitivity to cold, brittle nails, and arthralgic pains ever since adolescence. In November, 1953, her basal metabolic rate was −36%. For six months following that time, she was given up to 2 grains of desiccated thyroid daily, without relief of symptoms. Doses higher than this caused her to become nervous and irritable, and she developed palpitations. After six months, her basal metabolic rate was still −36%, and desiccated thyroid had to be withdrawn. In July, 1955, her basal metabolic rate was −28%; protein-bound iodine level, 5.2 mcg. per 100 ml.; and I^{131} uptake (24 hour), 33%. She was given L-triiodothyronine in increasing doses up to 50 mcg. daily for one month. During this time, she felt less fatigued but showed signs of increased nervousness, insomnia, and palpitations, so the drug was withdrawn. Her basal metabolic rate was −30% at this time.

Table 2.—*Symptomatic Responses in Six Patients During Four to Eight Weeks of Treatment with L-Triiodothyronine*

Symptoms	No. of Cases After Treatment with Desiccated Thyroid	No. of Patients Responding to Treatment with L-Triiodothyronine
Chronic fatigue	6	6
Muscle or joint aching, stiffness	6	6
Sensitivity to cold	4	2
Constipation	4	1
Obesity	4	1
Brittle nails	3	0
Facial puffiness	3	2

Case 3.—A 28-year-old female reported symptoms of fatigue, facial puffiness, muscular aches, constipation, and sensitivity to cold that had persisted for two years. In April, 1954, her basal metabolic rate was −32%. She was treated with 2 grains of desiccated thyroid daily for one year and could not tolerate higher doses due to palpitation and insomnia. After one year (in April, 1955) her basal metabolic rate was −34%. Desiccated thyroid was withdrawn, and after one month her protein-bound iodine level was 5.2 mcg. per 100 ml.; and I^{131} uptake (24 hour) was 40%. She was given L-triiodothyronine in increasing doses up to 62.5 mcg. daily. After two months (in September, 1955) her basal metabolic rate had risen to −16% and all of her symptoms had subsided. Because she felt so improved, she voluntarily discontinued medication. Within two weeks, symptoms of fatigue and muscular aching reappeared, and her basal metabolic rate had dropped to −24%. Treatment with L-triiodothyronine was resumed, and in one month her basal metabolic rate had risen to −14% and her symptoms of fatigue and muscular aching had subsided. She reportedly "felt so lively again and complained so little of fatigue" that her husband "wanted her never to discontinue the drug again."

Two patients (cases 7 and 8, table 1) who had been hypersensitive to desiccated thyroid developed insomnia, palpitation, and increased nervousness while taking 50 mcg. of L-triiodothyronine daily. In these cases, therapy was discontinued. Two other patients (cases 1 and 4, table 1) showed moderate palpitations while taking L-triiodothyronine; in one, side-reactions were not severe enough to warrant discontinuing use of the drug; in the other, side-reactions were eliminated by reducing the dosage from 75 mcg. daily to 37.5 mcg. daily, although a decrease in basal metabolic rate resulted. Dosage in the latter case had to be adjusted gradually to an intermediate level. Side-reactions, when they occurred, disappeared within several days after the use of the drug was discontinued or the drug was reduced in dosage. Of all the six patients who responded to treatment, conditions of none have shown signs of becoming refractory after two months of treatment with L-triiodothyronine. Three have been treated for as long as four months without their conditions becoming refractory to the drug.



The effects of desiccated thyroid and L-triiodothyronine on basal metabolic rates of patients with metabolic insufficiency (average response in eight patients).

Comment

All of the patients in this study had normal protein-bound iodine levels, and four were known to have normal I^{131}-uptake values. Therefore, it was concluded that the thyroid function in these patients was normal and that the output of their thyroid glands should have been adequate for proper metabolism. There was, then, some defect other than hypothyroidism responsible for their subnormal basal metabolic rates and for their clinical symptoms. Patients with this disorder reportedly do not usually respond to treatment with desiccated thyroid, thyroid extract, or thyroxine.[9] When the basic nature of the disorder is considered, however, the reason for this unresponsiveness is clear. If a patient has a deficient thyroid function, as evidenced by low protein-bound iodine level and low I^{131} -uptake values, he could be expected to respond to hormonal replacement therapy because he has a shortage of thyroid products. On the other hand, if a patient has a low basal metabolic rate but normal protein-bound iodine and normal I^{131} -uptake values, his disorder is not caused by lack of thyroid products, so he would not be relieved by hormonal replacement therapy. Indeed, this was true in the eight cases reported here: all the patients had been treated with desiccated thyroid for six months to five years without symptomatic response or elevation of basal metabolic rate.

Several reasons for the failure of thyroid replacement therapy to relieve metabolic insufficiency have been suggested in the literature. Reiss and Haigh[10] have proposed that there may be a defect in some patients that is due to insensitivity of the body tissues to thyroid hormone. Winkler and others[11] have suggested that perhaps the thyroid hormone is destroyed, stored, or rapidly inactivated in such patients. Freedberg and his associates[2] have suggested the possibility of a defect in the transformation of thyroxine to a more active form or an impermeability of the tissues to thyroxine.

The results of the present study have proved that L-triiodothyronine is definitely effective in treating patients with metabolic insufficiency who do not respond to desiccated thyroid. Considering the theoretical reasons above, it appears that L-triiodothyronine bypasses the specific defect involved, it may be more readily absorbed at the tissue level than desiccated thyroid is, or it may stimulate metabolic processes more efficiently.

It is interesting that, during treatment with desiccated thyroid, the basal metabolic rate of seven of the eight patients had dropped to slightly lower than pretreatment levels (table 1 and figure). These drops, which are statistically significant at the 0.01 level, may have been due to experimental error, a weight gain in the patients that would affect the calculation but not the total oxidation process, or a gradual worsening of the patients' metabolic processes with passing of time, since use of desiccated thyroid was not correcting the basic disorder. Inasmuch as identical techniques were used in all basal metabolic rate measurements, and since not all patients gained weight during treatment with desiccated thyroid, the last explanation seems the most likely. If any particular treatment is ineffective, the disorder will probably become more severe, as it may have become in these patients. Proof for the supposition, however, could not be found from the present laboratory and clinical data.

Summary and Conclusions

This study has demonstrated the effects of 3,5,3′ L-triiodothyronine in eight patients with metabolic insufficiency. Despite treatment with desiccated thyroid for six months to five years, each of the patients had symptomatic and physical abnormalities due to metabolic depression. The basal metabolic rates of the group ranged between −28 and −36%, although other thyroid function values were normal. Serum protein-bound iodine levels ranged between 3.5 and 5.2 mcg. per 100 ml.; serum cholesterol levels varied from 186 to 240 mg. per 100 ml. I^{131}-uptake values, measured in four patients, were also normal.

L-triiodothyronine was administered in increasing dosages until maximum doses of 50 to 100 mcg. daily were reached. Within one to two months, symptoms of chronic fatigue and aching in muscles and joints disappeared in six of the eight patients. Improvements ere also noted in weight, bowel function, and thermal gulation. Concomitantly, the basal metabolic rates in the six patients responding were elevated to −16% or higher. The average elevation was 18%, the range 16 to 20% above values measured after treatment with desiccated thyroid. Two of the patients with marked sensitivity to desiccated thyroid developed insomnia, increased nervousness, and palpitations while taking 50 mcg. daily of L-triiodothyronine. When the drug was withdrawn, however, the effects of overstimulation disappeared within several days. Two other patients, taking 75 mcg. daily, showed mild signs of overstimulation, but therapy was not discontinued. The remaining patients tolerated L-triiodothyronine satisfactorily.

In summary, L-triiodothyronine produced satisfactory symptomatic and physical improvement and elevation in basal metabolic rate. It is concluded, therefore that L-triiodothyronine is a rapid and effective metabolic stimulant and therapeutic agent for treating metabolic insufficiency. Further studies with this compound are warranted.

York and Keith roads.

The L-triiodothyronine used in this study was supplied as *Cytomel* by Smith, Kline & French Laboratories, Philadelphia.

References

1. Paschkis, K. E.; Rakoff, A. E., and Cantarow, A.: Clinical Endocrinology, New York, Paul B. Hoeber, Inc., 1954, pp. 164-193. Means, J. H.: Thyroid and Its Diseases, ed. 2, Philadelphia, J. B. Lippincott Company, 1948, pp. 534-548. Grollman, A.: Essentials of Endocrinology, ed. 2, Philadelphia, J. B. Lippincott Company, 1947, pp. 195-207.

2. *(a)* Freedberg, A. S.; Kurland, G. S., and Hamolsky, M. W.: Effect of L-Triiodothyronine Alone and Combined with L-*Thyroxine in* Non-myxedematous Hypometabolism: Preliminary Report, New England J. Med. **253**:57-60 (July 14) 1955. *(b)* Kurland, G. S.; Hamolsky, M. W., and Freedberg, A. S.: Studies in Non-Myxedematous Hypometabolism: I: Clinical Syndrome and Effects of Triiodothyronine, Alone or Combined with Thyroxine, J. Clin. Endocrinol. **15**:1354-1366 (Nov.) 1955.

3. Thurmon, F. M., and Thompson, W. O.: Low Basal Metabolism Without Myxedema, Arch. Int. Med. **46**:879-897 (Nov.) 1930. Thompson, W. O., and Thompson, P. K.: Low Basal Metabolism Following Thyrotoxicosis: II. Permanent Type Without Myxedema, J. Clin. Invest. **5**:471-501 (April) 1928. *Haines,* S. F., *and* Mussey, R. D.: Certain Menstrual Disturbances Associated with Low Basal Metabolic Rates Without Myxedema, J. A. M. A. **105**:557-560 (Aug. 24) 1935. Footnote 2*b*.

4. Gross, J., and Pitt-Rivers, R.: Identification of 3:5:3′ L-triiodo*thyronine* in Human Plasma, Lancet **1**:439-441 (March 1) 1952.

5. Lerman, J.: *Physiologic Activity of l-triio*dothyronine, J. Clin. Endocrinol. **13**:1341-1346 (Nov.) 1953. *Starr,* P., and Liebhold-Schueck, R.: Theory of Thyroid Hormone Action: Conclusions Derived from Differences in Effect of Sodium *l*-Thyroxine, Sodium *d*-Thyroxine, Triiodothyronine, and Potassium Iodide on Uptake of Radioactive Iodine by Thyroid Gland of Normal *Human Subjects,* A. M. A. Arch. Int. Med. **92**:880-888 (Dec.) 1953. Gross, J.; Pitt-Rivers, R., and Trotter, W. R.: Effect of 3:5:3′ L-Triiodo*thyronine in* Myxedema, Lancet **1**:1044-1045 (May 24) 1952. Footnote 2.

6. Lee, R. I.: Hypothyroidism: A Common Symptom, Ann. Int. Med. **9**:712-716 (Dec.) 1935.

7. Kirk E., and Kvorning, S. A.: Hypometabolism: Clinical Study of 308 Consecutive Cases, Acta med. scandinav., supp. *184*, pp. 3-83, *1946.*

8. Barker, S. B.; Humphrey, M. J., and Soley, M. H.: Clinical Determination of Protein-Bound Iodine, J. Clin. Invest. **30**:55-62 (Jan.) 1951.

9. *Footnotes 6* and 7.

10. *Reiss,* M., *and Haigh,* C. P.: Discussion *on* Hypothyroidism: Various Forms of Hypothyroidism in Mental Disorder, *Proc.* Roy. Soc. Med. **47**:889-893 (Oct.) 1954.

11. Winkler, A. W.; Lavietes, P. H.; Robbins, C. L., and Man, E. B.: *Tolerance to Oral Thyroid* and Reaction to *Intravenous Thyroxine in Subjects* Without Myxedema, J. Clin. Invest. **22**:535-544 (July) 1943.

CLINICAL NOTES

THE ANTIGRAVITY SUIT (G-SUIT) IN SURGERY

CONTROL OF BLOOD PRESSURE IN *THE SITTING* POSITION AND IN HYPOTENSIVE ANESTHESIA

W. James Gardner, M.D.
and
Donald F. Dohn, M.D., Cleveland

To meet the needs associated with high-speed flying, aviation medicine has developed an inflatable suit to be used for the prevention of blackouts that afflict the flyer when he pulls his plane sharply out of a fast dive. Because these suits were designed to counteract the force of gravity, which is multiplied many times during such maneuvers, they became known as antigravity suits or, more simply, as g-suits. The standard aviation garment consists of inflatable leggings and an abdominal binder, which, by constricting the lower part of the body, prevent pooling of blood. Wood and his co-workers [1] demonstrated the effectiveness of the g-suit in observations in the human centrifuge. Restall and Smirk [2] applied the principle to the study of hypotension produced with hexamethonium, while Seiker and his associates [3] described its mode of action in cases of postural hypotension occurring after sympathectomy.

For several years we employed an aviation antigravity suit to prevent postural hypotension during certain neurosurgical operations carried out with the

---

From the Department of *Neurological* Surgery, the Cleveland Clinic Foundation, and the Frank E. Bunts Educational Institute. *Fellow in* Neurological Surgery, Cleveland Clinic (Dr. Dohn).

From a paper read before the Harvey Cushing Society, Honolulu, T. H., April 16-18, 1956.

patient in the sitting position. The suit was put on the patient before he was placed in the chair, and, if a fall in blood pressure occurred during the operation, it could be combated by inflating the suit from a tank of gas. The disadvantage of the standard aviation garment, however, lay in the fact that it was awkward to put on the patient; therefore, unless the need could be clearly anticipated, it was not employed.

For this reason, a more easily applied g-suit was devised. It consists merely of two sheets of vinyl plastic sealed at the edges to form a large inflatable bladder. This is placed beneath the patient, the edges are folded over so as to enclose him from the rib margin to the ankles, and it is drawn snug by lacing. A manometer is attached to a tube leading from the upper part of the bladder; to a second tube leading from the lower end, a tank of gas is attached from which the bladder may be inflated in a matter of seconds (fig. 1). This suit has an advantage over the above-described aviation garment in that it also compresses the pelvic area and buttocks. Experience with this g-suit has shown that it is not necessary to enclose the legs separately to obtain the desired hemodynamic effect, that pressures in excess of 20 mm. Hg are seldom indicated, and that reduction of vital capacity does not result with pressures up to 40 mm. Hg.

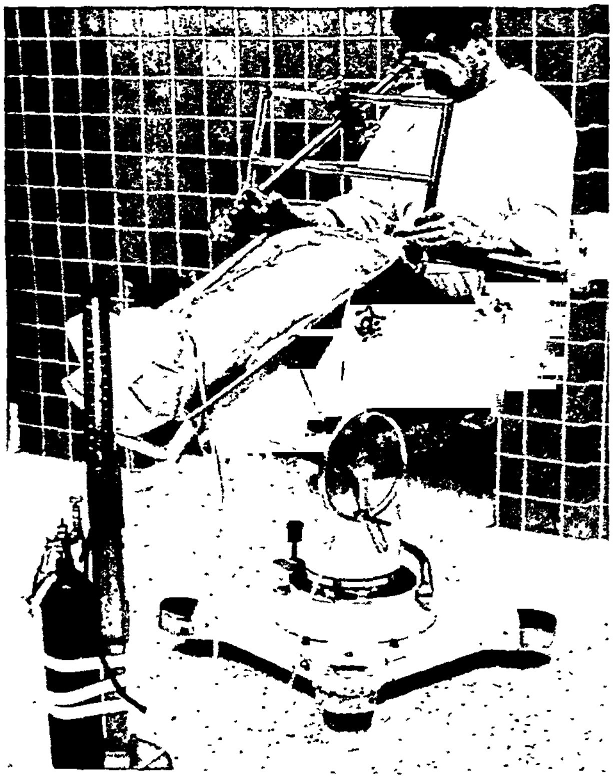


Fig. 1.—G-suit on patient in sitting position.

The efficacy of this type of g-suit was demonstrated in a diabetic patient with severe postural hypotension. This patient could not sit up without fainting. She was placed on a tilt table, and the g-suit was put on her. With the patient in the horizontal position, the intra-arterial pressure was recorded at 130/80 mm. Hg. When the table was tilted so that the head elevated 55 degrees above the horizontal, the blo pressure immediately fell to 50/20 mm. Hg, and the patient complained of feeling faint. The g-suit was then inflated to a pressure of 10 mm. Hg, and the blood pressure immediately was raised to 115/60 mm. Hg. The pressure in the g-suit was released, and the systolic blood pressure fell to a level below 50 mm. Hg. When the g-suit was again inflated to 10 mm. Hg, the blood pressure again rose to 115/60 mm. Hg (fig. 2).

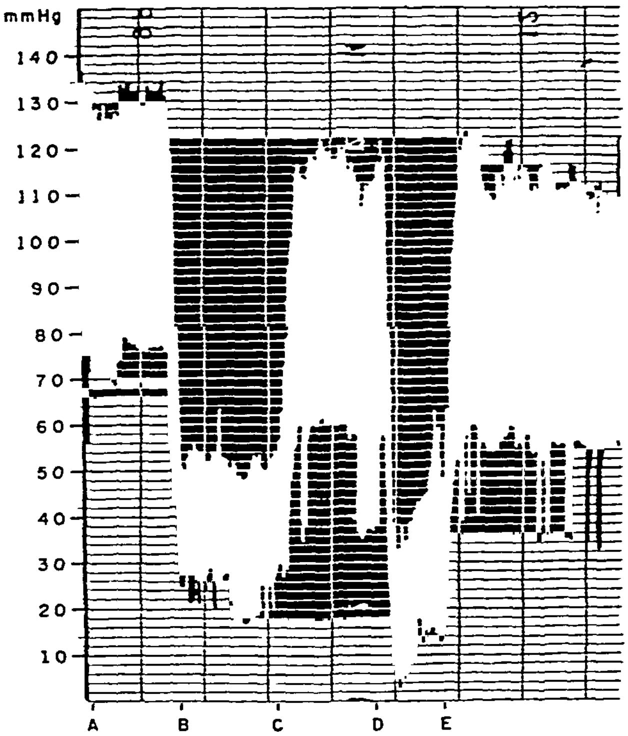


Fig. 2.—Intra-arterial recordings of blood pressure levels of patient with postural hypotension, taken with patient on tilt table; *A*, patient in horizontal position; *B*, patient's head raised 55 degrees; *C*, suit inflated to 10 mm. Hg, *D*, pressure in suit released; *E*, suit reinflated to 10 mm. Hg.

This suit has proved to be of value in cordotomies carried out with the patient in the sitting position, because in this operation the sympathetic pathways in the cord may be interrupted, resulting in the immediate development of postural hypotension (fig. 3). The g-suit has been helpful in overcoming the syncope in the sitting position that sometimes is observed in patients operated on under local anesthesia for herniation of the nucleus pulposus in the cervical region. Another advantage is that the increased venous filling that the g-suit creates decreases the possibility of air embolism during operations with the patient in this position.

The suit is useful also in operations with the patient in the supine position, when hypotension is to be induced either by drugs, by spinal anesthesia, or by bleeding (fig. 4). In this position, if the operating table is tilted so that the head is elevated, the hypotensive methods are more effective; and, in case the mark is overshot, the fall in blood pressure may be countered by inflating the g-suit. Inflation of the proved helpful when, toward the end of it is desired to raise the blood p porarily in order to determine whether hemostasis will be satisfactory when the effect of the hypotensive drug has been dissipated.

In a search of the literature for medical applications of the g-suit principle, it was discovered that Crile described a pneumatic suit in 1903.[1] His suit was constructed of a double layer of specially made rubber, and, when put on the patient and inflated by means of a bicycle pump, it exerted a uniform pressure upon the surface of the body and extremities. It constituted, in Crile's words, "an artificial peripheral resistance." The suit was used for the purpose of maintaining the blood pressure during operations on the head and neck with the patient in the semisitting position. He described the effect of the suit in restoring the blood pressure in several cases of serious blood loss during operations, but its use was plagued with technical failures because of the tendency for the suit to "spring a leak." In 1909, Crile[5] described a dramatic response in a case of hemorrhagic shock in these words:

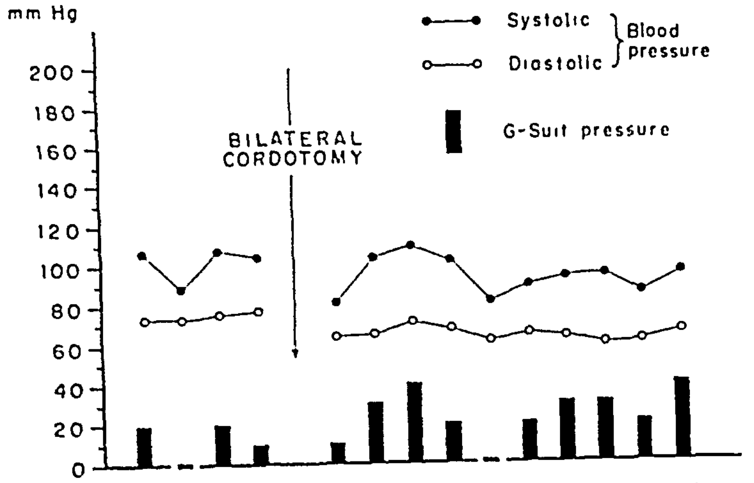


Fig. 3.—Blood pressure levels of patient with postural hypotension during cordotomy, with patient in sitting position.

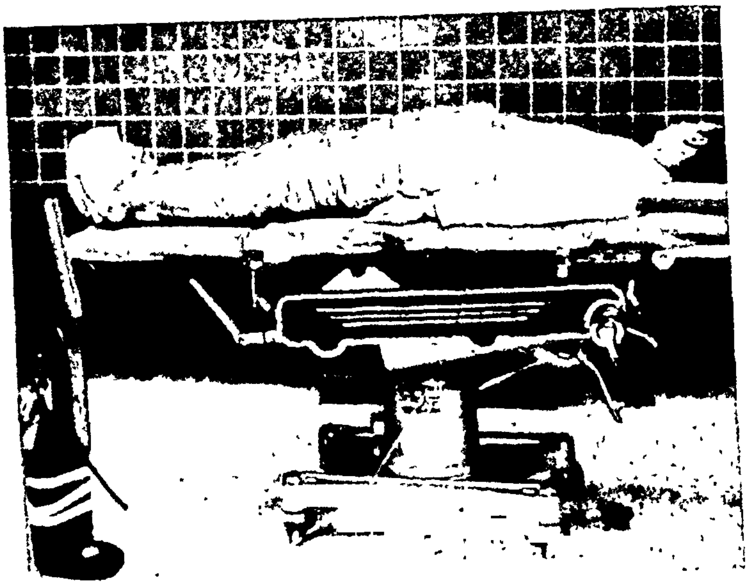


Fig. 4.—G-suit on patient in horizontal position

> A cut-throat patient was admitted to the wards of Lakeside Hospital, exsanguinated and pulseless. Saline infusion and stimulants had been given in maximum amounts during twelve hours, but the circulation always relapsed, and at the time of the application of the rubber suit the pulse was barely perceptible, the respiration gasping, and the patient unconscious. On applying firm pneumatic pressure up to the costal borders the pulse became immediately better, the blood pressure rising to 110 mm of mercury, and consciousness was regained. The suit was worn for twelve hours, when the condition had sufficiently improved to warrant a gradual decompression. Recovery followed.

This work of Crile's probably represents the earliest application of the principle of the modern aviation antigravity suit. It appears likely that Crile gave it up because of technical difficulties when improved methods made transfusion a safe procedure. We have recently seen two striking examples of the effectiveness of this principle in the treatment of hemorrhagic shock. Because of the multiplicity of factors involved in these cases, they will be described in a separate communication.

Summary

The principle of the antigravity suit (g-suit) used in aviation is effective in combating postural hypotension during operations with the patient in the sitting position. It is also helpful in the management of induced hypotension during operations with the patient in the supine position. A simplified g-suit, consisting of a plastic bladder, may be wrapped about the lower part of the body and inflated from a tank of gas. Crile applied this principle to the control of blood pressure during surgery more than 50 years ago.

2020 E. 93rd St. (6) (Dr. Gardner).

References

1. Wood, E. H.; Lambert, E. H.; Baldes, E. J., and Code, C. F.: Effects of Acceleration in Relation to Aviation, Fed. Proc. 5:327-344 (Sept.) 1946.

2. Restall, P. A., and Smirk, F. H.: Regulation of Blood Pressure Levels by Hexamethonium Bromide and Mechanical Devices, Brit. Heart J **14**: 1-12 (Jan.) 1952.

3. Seiker, H. O.; Burnum, J. B.; Hickman, J. B., and Penrod, K. E Treatment of Postural Hypotension with Counterpressure Garment, abstracted, Am. J. Med. **19**: 152-153 (July) 1955.

4. Crile, G. W.: Blood-Pressure in Surgery: Experimental and Clinical Research, Philadelphia, J. B. Lippincott Company, 1903, p. 288.

5. Crile, G. W.: Hemorrhage and Transfusion: Experimental and Clinical Research, New York, D. Appleton & Co., 1909, p. 139.

Use of Digitalis Before Surgery.—Digitalis is frequently used prophylactically in patients known to have paroxysms of cardiac arrhythmias. Thus it is well to digitalize an elderly patient in preparation for surgery if such a patient should give a history of previous bouts of auricular fibrillation or flutter. Patients with mitral stenosis in whom surgery is indicated should receive digitalis prior to surgery because of the high incidence of supraventricular arrhythmias during the operation or the post-operative period. On the other hand, the use of digitalis to prevent heart failure in individuals who have no signs of failure but merely enlarged hearts is not recommended because there are no physiologic data to support it. Many investigators over the years have repeatedly shown that cardiac output of both normal individuals and those with cardiomegaly is either unchanged or decreased upon digitalization. In fact, in some cases the decrease was up to 36 per cent. In addition, physiologic studies failed to show a change in venous pressure, mean auricular pressure, or right ventricular pressure. As Harvey has pointed out, these studies do not answer the question of prophylactic digitalization. The information which would be pertinent is the manner in which digitalization increases cardiac output under stress of exercise or operation. At present such information is not available.—T. Koppanyi, Ph.D., and J. J. Leonard, M.D., Cardiac Glycosides, *Medical Annals of the District of Columbia*, April, 1956.

GRADUATE MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL REPORT AND DIRECTORY OF APPROVED INTERNSHIPS AND RESIDENCIES IN THE UNITED STATES: ANNUAL REPORT ON APPROVED TECHNICAL SCHOOLS IN THE UNITED STATES, AND RÉSUMÉ OF CHANGES IN THE REQUIREMENTS OF EXAMINING BOARDS IN THE MEDICAL SPECIALTIES

PREPARED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF
THE AMERICAN MEDICAL ASSOCIATION

Arthur N. Springall, M.D., John Hinman, M.D., and Willard V. Thompson, M.D.

ANNUAL REPORT

The Council on Medical Education and Hospitals presents this 30th Annual Report on Internships and Residencies, which consists of statistical data and other information on training programs for interns and residents conducted in hospitals approved by the Council. All hospitals listed are located in the continental United States or in its territories and possessions (the Canal Zone, Hawaii, and Puerto Rico). The report is composed of descriptive material; statistical tables and graphs; information on the National Intern Matching Program, the Internship Review Committee, the revised "Essentials of an Approved Internship," the Residency Review Committees, and the Sears Roebuck Foundation; a brief report on foreign medical school graduates serving internships and residencies in approved hospitals; and the plan for future evaluation of the qualifications of foreign physicians who wish to come to this country for further medical training.

Each hospital approved for intern and/or resident training furnished detailed information regarding its training programs, and the material presented is based on this submitted information. The statistical data in the tables represent the intern and resident situations as of Sept. 1, 1955. Consequently, these figures are in some instances at variance with those presented in the lists of approved services, as the latter refer to appointments for the year beginning July 1, 1957.

Specially arranged lists of hospitals offering approved internships and residencies are published following the report. The first listing of hospitals includes those approved for the training of interns, listed according to location. As in previous years, information also includes the number of hospital beds, the number of annual admissions, the autopsy rate, the length of the program, the stipend, and the number and types of intern positions offered. A subsequent classification lists these hospitals according to types of internships.

In the residency section, the hospitals approved for resident training are listed according to medical specialties, giving statistical data, names of chiefs of services and additional pertinent information similar to that included in the internship section. Following this listing, hospitals approved for resident training are listed by state and city, giving the specialties for which each is approved.

This Annual Report and the lists referred to are reprinted as the Directory of Approved Internships and Residencies. The Council will furnish copies of this directory upon request.

The Council acknowledges the cooperation and assistance of medical staffs and hospital administrators, who have made the publication of this report possible by furnishing the statistical data on which it is based. The following organizations collaborated in approving residency programs:

- Advisory Board for Medical Specialties
- American Academy of General Practice
- American Board of Anesthesiology
- American Board of Dermatology
- American Board of Internal Medicine
  - Subspecialty Board on Allergy
  - Subspecialty Board on Cardiovascular Disease
  - Subspecialty Board on Gastroenterology
  - Subspecialty Board on Pulmonary Diseases
- American Board of Neurological Surgery
- American Board of Obstetrics and Gynecology
- American Board of Ophthalmology
- American Board of Orthopedic Surgery
- American Board of Otolaryngology
- American Board of Pathology
- American Board of Pediatrics
  - Subspecialty Board on Allergy
- American Board of Physical Medicine and Rehabilitation
- American Board of Plastic Surgery
- American Board of Preventive Medicine
- American Board of Proctology
- American Board of Psychiatry and Neurology
- American Board of Radiology
- American Board of Surgery
- American Board of Urology
- Board of Thoracic Surgery
- American College of Physicians
- American College of Surgeons

The Annual Report furnishes information on medical education at the internship and residency levels to medical students, medical educators, hospital administrators, and the entire medical profession. It is hoped that this information will also be of assistance to physicians beginning their professional careers who desire to further their medical education.

INTERNSHIPS

The number of hospitals approved for intern training and the number of approved internships are indicated in table 1. There were 867 approved hospitals offering 11,616 positions for the intern year beginning July 1, 1955, as compared with 850 approved hospitals

---

Miss Mary A. McGovern and Mrs. Helen Neitzel were responsible for much of the detail work in the preparation of the list of approved internships and residencies and the staff of the Bureau of Economic Research were responsible for the IBM statistical tabulations.

and 11,048 positions for the previous year, representing an increase of 17 hospitals (2%) and 568 internships (5%). The increase in the number of approved hospitals for the past 10 years is 14% (103 hospitals) and 3,077 internships (35%). Last year, the average number of interns per hospital was 12.9, as compared with the present figure of 13.3.

Hospitals outside the continental United States that are approved for intern training are represented by one in the Canal Zone; four in Hawaii; and seven in Puerto Rico.

In 1956, there were 6,845 graduates of approved American medical schools. When this figure is compared with the number of intern positions offered, there is a disparity of about 4,500 between the number of approved internships and the number of American graduates available to fill these positions. As stated later in this report, almost half of these vacancies were filled by graduates of foreign medical schools on Sept. 1, 1955. The number of vacant internships for the reported year is comparable to the number reported for the previous year, as indicated later in this report.

TABLE 1—*Approved Hospitals and Internships, 1947-1956*

Yr. of Publication	No. of Hospitals	No. of Internships*
1947	761	8,539
1948	807	9,118
1949	807	9,124
50	790	9,398
	828	10,044
	865	11,467
	856	11,006
	844	10,624
	850	11,048
95	867	11,616

*U. S. Army and U. S. Navy hospitals and those outside the United States not included in 1947 figures.

Since the Council published its first list of approved hospitals in 1914, there has been an increase of 44% in the number of approved hospitals and an increase of 275% in the number of approved internships.

Internships, by Type of Service

Table 2 gives a breakdown of approved internships by type of service, including the number and the percentage reported filled and vacant on Sept. 1, 1955. The total number of internships offered was 11,616. The total number of approved hospitals was 867; these hospitals offered 1,080 approved intern training programs. For the past three years, the percentage of rotating, straight, and mixed internships offered has not varied appreciably, with 89% rotating, 10% straight, and 1% mixed (fig. 1). Rotating services include both rotating general and rotating with emphasis on a particular service. Straight internships include straight service assignments to internal medicine, surgery, pediatrics, obstetrics-gynecology, and pathology. Mixed internships include services on which assignments are made to two or three of the four major services.

There is a slight increase (1%) in the over-all number of intern positions filled this year as compared to last year. Rotating internships were 83% filled on Sept. 1, 1955, straight internships 83%, and mixed internships 84%. These figures do not vary greatly from those quoted for the preceding year. Intern positions in obstetrics-gynecology increased from 40% to 60%, those in pathology from 57% to 64%. The number of vacant internships increased from 1,982 for the previous year to 2,013 for 1955. The number of filled positions increased from 9,066 (1954) to 9,603 (1955). The increased number of internships filled is attributed to an increase of foreign medical school graduates serving as interns, including both foreign medical school graduates having temporary visas and those having permanent visas.

TABLE 2.—*Number of Internships, by Type of Service, 1955-1956*

Type of Internship	No. of Approved Programs	No. of Internships Filled Sept. 1, 1955	 Vacant Sept. 1, 1955	 Percentage Filled
Rotating general	813	8,363	1,766	83
Other rotating	29	63	26	71
Totals	842	8,426	1,792	83
Mixed	25	114	21	84
Straight				
Internal medicine	73	563	62	90
Surgery	64	318	78	80
Pediatrics	44	129	28	82
Obstetrics-gynecology	8	21	14	60
Pathology	24	32	18	64
Totals	213	1,063	200	83
Grand totals	1,080*	9,603	2,013	83

* Number of intern-training programs in 867 approved hospitals.

In the revised "Essentials of an Approved Internship," adopted by the House of Delegates on Dec. 1, 1955, straight internships in pathology were continued. Approval for straight internships in obstetrics-gynecology has been discontinued, effective June 30, 1957. Two resolutions were introduced into the House of Delegates at the June, 1956, Annual Session in Chicago favoring the rotating internship. The Reference Committee on Medical Education and Hospitals made the following report concerning these resolutions:

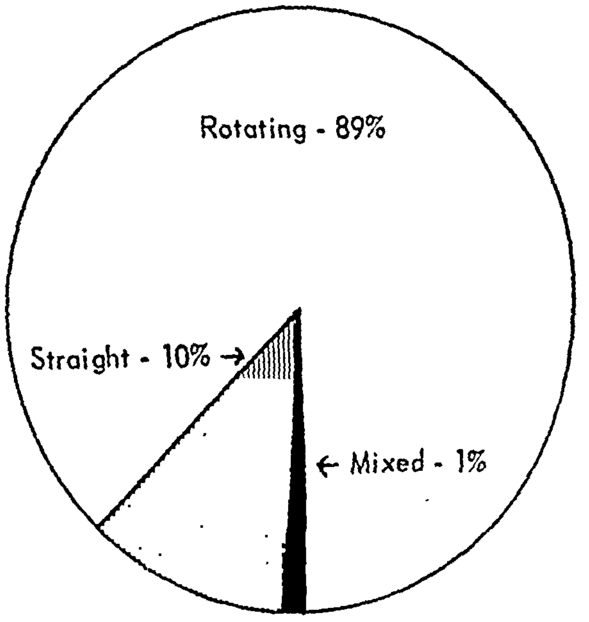


Fig. 1. Types of approved internships, 1953-1956.

> The Reference Committee believes that there is a growing body of opinion within the profession in favor of a rotating internship. It also recognizes the difficulties involved and the dangers to some established education programs were action taken precipitously to disapprove straight internships, which are about 10% of the total number now approved. It recommends the following substitute resolution for resolutions 11 and 38:

"*Resolved*, 1. That the Council on Medical Education and Hospitals be requested to increase its efforts to encourage rotating internships rather than straight internships in all hospitals approved for the latter.

"2. That a report of the results of this effort be submitted annually."

This portion of the report of the Reference Committee was adopted by the House of Delegates. The problem of the straight internship is not one that can be solved easily. It will require careful analysis and study over a period of time by medical educators, hospital administrators, and the professional staffs of hospitals.

Internships, by Type of Hospital Control

In table 3 the distribution of internships according to hospital control is indicated. Federal hospitals offered 603 (5%) of the 11,616 approved internships; nonfederal governmental hospitals offered 3,591 (31%) of the available internships; nongovernmental institutions offered 7,350 (63%) positions; and 72 internships (less than 1%) were offered by proprietary hospitals.

TABLE 3.—*Number of Internships, by Type of Hospital Control, 1955-1956*

Control	No. of Approved Hospitals	No. of Internships: Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled
Federal				
U. S. Army	7	187	...	100
U. S. Navy	17	176	...	100
U. S. Public Health Service	7	84	1	99
Veterans Administration	7	55	44	55
Other federal	3	48	8	86
Totals	41	550	53	93
Governmental (nonfederal)				
State	27	783	67	92
County	35	804	53	94
City	53	1,317	149	89
City-county	16	316	42	88
Totals	131	3,280*	311	91
Nongovernmental				
Church operated and related	294	2,244	768	74
Nonprofit corporations	390	3,469	869	79
Totals	684	5,713	1,637	78
Proprietary				
Partnership	2	16	...	100
Corporations unrestricted as to profit	9	44	12	79
Totals	11	60	12	83
Grand totals	867	9,603	2,013	83

The group of federal hospitals had the highest occupancy rate for interns, 93%, on Sept. 1, 1955. The Army hospitals and the Navy hospitals had a full complement, and the Public Health Service had a 99% occupancy rate. The nonfederal governmental hospitals had 91% of their positions filled; county hospitals had the highest rate in this group, 94%. The rate for the nongovernmental hospitals was 78% and for the proprietary hospitals was 79%.

The federal hospitals showed an increase in occupancy rate of 4% over the rate for the previous year. There was a 1% increase for the nonfederal governmental hospitals and an increase of 12% for the proprietary hospitals. The rate for the nongovernmental hospitals remained at the same figure as quoted for 1954.

The average number of internships filled for federal hospitals was 13.4 per hospital; for nonfederal governmental hospitals, 25.0; for nongovernmental hospitals, 8.4; and for proprietary hospitals 5.5. The average numbers of intern positions offered per hospital, considering all hospitals, was 13.3; the average number of interns on duty per hospital was 11.1.

In 1953, 8,275 internships were filled (78%); in 1954, 9,066 positions were filled (82%); and in 1955, 9,603 positions were filled (83%).

Internships, by Medical School Affiliation and Bed Capacity

The classification of hospitals into the categories of "major teaching," "minor teaching," and "nonaffiliated" is used in this report and in the following list of approved internships. These classifications are based on the degree to which medical schools utilize the hospitals for undergraduate medical education. A "major teaching" hospital is considered by the school as being a major unit in its undergraduate clinical clerkship program. A "minor teaching" hospital is one that is utilized to a limited extent for undergraduate instruction. A "nonaffiliated" hospital is one that is not designated by a medical school as participating in such a program. Based on this classification, a statistical analysis of approved internships is presented in table 4.

TABLE 4.—*Number of Internships, by Medical School Affiliation and Bed Capacity, 1955-1956*

Classification	No. of Approved Hospitals	No. of Internships: Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled
Nonaffiliated				
Less than 200 beds	167	753	214	78
200-299	258	1,651	561	75
300-499	178	1,803	452	80
500-over	51	952	132	88
Totals	654	5,159	1,359	79
Major teaching				
Less than 200 beds	11	77	40	66
200-299	19	227	54	81
300-499	52	893	131	87
500-over	65	2,591	236	92
Totals	147	3,794	461	89
Minor teaching				
Less than 200 beds	13	41	29	59
200-299	22	156	65	71
300-499	21	237	67	78
500-over	10	216	32	89
Totals	66	650	193	77
Grand totals	867	9,603	2,013	83

Major teaching hospitals (147) constituted 17% of the approved hospitals for the past year and offered 4,255 internships with an occupancy rate of 89%. Minor teaching hospitals (66), 8% of the approved hospitals, offered 843 internships, of which number 77% were filled. Nonaffiliated hospitals (654) were 75% of the total number of approved hospitals; 79% of the 6,518 positions offered by this group were filled on Sept. 1, 1955.

The rate of occupancy for approved hospitals was highest in the major teaching group, the rate being 89%. This figure was 4% higher than that for last year. The rates for the minor teaching and nonaffiliated hospitals were 77% and 79% respectively.

A study of the occupancy rate for these three groups of hospitals indicates that there is a definite trend for the larger hospitals to have a higher occupancy rate than the smaller hospitals. The combined occupancy rate for hospitals of less than 200 beds in all groups was 76%; that for hospitals of 500 beds or more in all groups was 90%. The trend in all three groups of hospitals in these classifications was that, as the size of the hospital increased, the occupancy rate increased.

Internships, by Census Region and State

A breakdown by states and regions of the internships filled and vacant on Sept. 1, 1955, is shown in table 5. As compared with the regional figures for positions occupied with those of last year, there is no great change for any region. The highest regional figure for occupany was in those hospitals outside the continental United States, the Canal Zone, Hawaii, and Puerto Rico, which had 96% of their intern positions filled. In the United States, the Pacific region with 87% again had the highest rate, although the New England and the Middle Atlantic regions had rates of 86% and 85% respectively. The lowest rate occurred in the East South Central region, the rate being 73%, a slight increase over last year's rate. Individual states having 90% occupancy or better were South Carolina, Connecticut, Vermont, Ohio, New York, New Jersey, District of Columbia, Louisiana, Arizona, Washington, Canal Zone (100%), Hawaii, and Puerto Rico. States with rates below 50% were North Dakota and Montana.

As could be expected from a study of the population of the United States, one-fourth of the approved hospitals are located in New York, New Jersey, and Pennsylvania. One-fourth of the filled internships occur in these states. Pennsylvania ranks lowest in rate of occupancy for the Middle Atlantic states, with 71%. As indicated previously, the occupancy rate for internships shows a 1% increase over last year. On Sept. 1, 1955, no approved internships were offered in Idaho, New Mexico, Nevada, and Wyoming.

Internship Stipends

There has been an increase in the average monthly cash stipend paid the intern in both affiliated and nonaffiliated hospitals. The average monthly stipend paid by the affiliated hospital for 1954 was $87; the figure for 1955 is $121, an increase of $34. For 1954, the stipend paid by the nonaffiliated hospital was $136, as compared with $169 for 1955.

Eighty-five per cent of the affiliated hospitals furnish full maintenance in addition to the stipend; 15% offer partial maintenance; 60% give additional perquisites such as uniforms and bonuses. Only three hospitals do not pay a cash stipend.

In the group of nonaffiliated hospitals, 88% furnish full maintenance, 10% partial maintenance. Twenty-one hospitals do not offer maintenance; more than half of the hospitals in this group reported additional perquisites for the interns. (All federal hospitals have been excluded from data regarding stipends.)

Figure 2 compares the range of stipends paid by affiliated and nonaffiliated hospitals. Although the average stipend paid by the affiliated hospital is $38 less than that paid by the nonaffiliated hospital, the occu-

Table 5.—*Number of Internships, by Census Region and State, 1955-1956*

Census Region and State	No. Approved Hospitals	No. of Internships: Filled Sept. 1, 1955	No. of Internships: Vacant Sept. 1, 1955	No. of Internships: Percentage Filled
New England				
Maine	4	26	4	87
New Hampshire	1	12	2	86
Vermont	2	21	2	91
Massachusetts	36	325	61	84
Rhode Island	7	48	16	75
Connecticut	21	181	13	93
Totals	71	613	98	86
Middle Atlantic				
New York	106	1,583	161	91
New Jersey	41	368	37	91
Pennsylvania	79	664	273	71
Totals	226	2,615	471	85
East North Central				
Ohio	51	641	65	91
Indiana	17	101	90	53
Illinois	61	696	128	84
Michigan	37	437	135	76
Wisconsin	22	170	43	80
Totals	188	2,045	461	81
West North Central				
Minnesota	14	178	32	85
Iowa	11	71	20	78
Missouri	25	302	116	72
North Dakota	4	9	13	41
South Dakota	3	17	4	81
Nebraska	9	36	31	54
Kansas	7	67	25	73
Totals	73	680	241	74
South Atlantic				
Delaware	3	26	7	79
Maryland	21	255	48	84
District of Columbia	12	182	21	90
Virginia	19	177	29	86
West Virginia	8	50	14	78
North Carolina	15	129	63	67
South Carolina	7	100	5	95
Georgia	12	132	35	82
Florida	13	137	22	86
Totals	110	1,188	244	83
East South Central				
Kentucky	9	74	29	73
Tennessee	15	184	61	75
Alabama	9	73	24	76
Mississippi	3	17	13	57
Totals	36	348	127	73
West South Central				
Arkansas	4	40	24	62
Louisiana	10	227	21	91
Oklahoma	7	63	21	75
Texas	27	340	93	79
Totals	48	670	159	81
Mountain				
Montana	3	4	7	37
Colorado	12	129	16	89
Arizona	6	56	6	90
Utah	7	55	21	72
Totals	28	244	50	81
Pacific				
Washington	15	174	13	93
Oregon	7	64	25	72
California	53	800	117	87
Totals	75	1,038	155	87
Territories and Possessions				
Canal Zone	1	18	..	100
Hawaii	4	65	2	97
Puerto Rico	7	79	5	94
Totals	12	162	7	96
Grand Totals	867	9,603	2,013	83

pancy rate for the former was about 10% higher than for the latter. From this fact, it is logical to conclude that financial consideration is not the decisive factor in choosing an internship. The letters FM and PM following the stipend quoted in the list of approved internships refer to "full maintenance" and "partial maintenance."

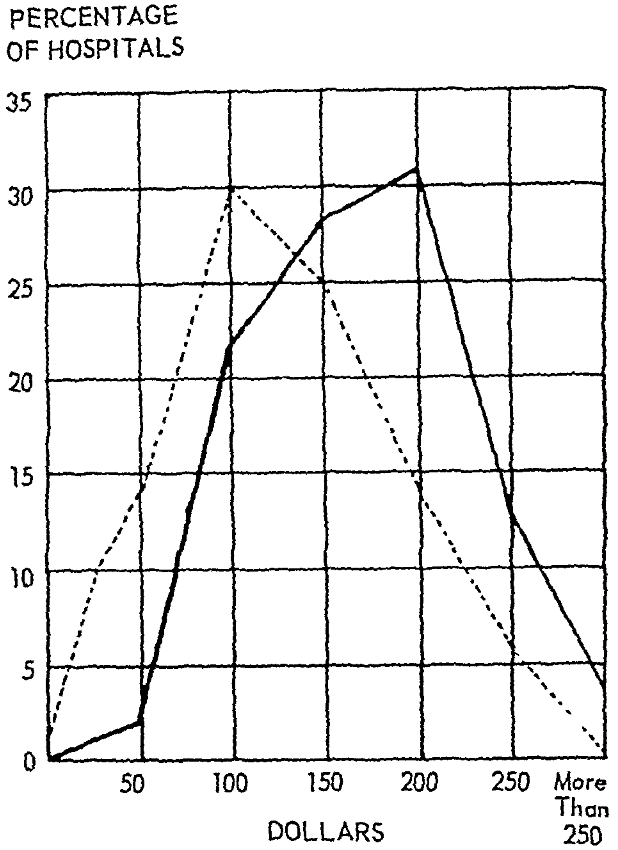


Fig 2 Monthly internship stipends, with federal hospitals excluded Solid line indicates nonaffiliated hospitals (206), dashed line affiliated hospitals (200). Abscissa gives upper level of stipend range

Autopsy Rates

It is a specific requirement for internship approval that hospitals maintain a minimum autopsy rate on hospital deaths of 25%. If an approved hospital does not maintain a 25% rate for two consecutive years, approval may be withdrawn. The autopsy rate is considered an accurate index of the interest of the medical staff and the hospital administration in scientific medical progress. Hospitals that consistently maintain a high autopsy rate display a sincere interest in medical education.

Table 6 lists the 20 federal hospitals and the 20 nonfederal hospitals conducting internships during the past year that had the highest autopsy rates for the reported period (1955). These hospitals are to be commended for their excellent work in this connection.

Fifteen hospitals (2%) had autopsy rates of less than the required 25%. These hospitals have been advised of their failure to meet the requirement and will be required to raise the rate for the next reporting period in order to qualify for continued approval.

National Intern Matching Program

The National Intern Matching Program has completed five years of successful operation as the agency through which medical school graduates receive appointments as interns in hospitals approved for such training by the Council on Medical Education and Hospitals. The primary function of the Program is to serve as a central clearing agency for medical students and hospitals; its aim is to provide an orderly method for giving effect to students' preferences regarding hospitals and hospitals' choice of students in the appointment of interns. This mechanical plan of matching interns and hospitals has proved more efficient than any other plan previously used and gives complete freedom of choice to both students and hospitals.

The policies under which the program operates are determined by organizations interested in internships. In addition to the Council on Medical Education and Hospitals, these organizations are the American Hospital Association, the Association of American Medical Colleges, the American Protestant Hospital Association, the Catholic Hospital Association, and the Student American Medical Association. The policy-making body of the National Intern Matching Program is composed of representatives from these groups. liaison representatives from the Federal Services, and a student representative

TABLE 6.—*Internship Hospitals with Highest Autopsy Rates. 1955*

	Federal	
1.	U S Naval Hospital, Corona, Calif	97
2	U S Naval Hospital, Jacksonville, Fla	97
3	U. S Naval Hospital, Bremerton, Wash	96
4	U. S Naval Hospital, Oceanside, Calif	95
5	Letterman Army Hospital, San Francisco	94
6	Fitzsimons Army Hospital, Denver	92
7.	Walter Reed Army Hospital, Washington, D C	91
8	U. S. Naval Hospital, Bethesda, Md	90
9	U. S. Naval Hospital, Portsmouth, Va	90
10	Veterans Administration Center, Los Angeles	87
11	Brooke Army Hospital, Fort Sam Houston, San Antonio, Texas	87
12	U S Naval Hospital, San Diego, Calif	86
13	Veterans Administration Hospital, Oklahoma City	86
14	U. S Naval Hospital, Great Lakes, Ill	85
15	U. S Naval Hospital, Oakland, Calif	84
16	U S Naval Hospital, Philadelphia	83
17	Tripler Army Hospital, Honolulu, Hawaii	83
18	U. S Naval Hospital, Chelsea, Mass	82
19	Veterans Administration Hospital, Long Beach, Calif	81
20	Valley Forge Army Hospital, Phoenixville, Pa	81
	Nonfederal	
1	Childrens Hospital, Los Angeles	93
2	Colorado General Hospital, Denver	93
3	University of Illinois Research and Educational Hospitals, Chicago	90
4	Milwaukee Children's Hospital, Milwaukee	89
5	Rochester General Hospital, Rochester, N Y	84
6	University of Minnesota Hospitals, Minneapolis	83
7	Salt Lake County General Hospital, Salt Lake City	83
8	Mary Fletcher Hospital, Burlington, Vt	82
9	St Louis Children's Hospital, St Louis	81
10	University of Nebraska Hospital, Omaha	81
11	Children's Hospital, Buffalo	81
12	University Hospital, Madison, Wis	80
13	Mary Hitchcock Memorial Hospital, Hanover, N H	80
14	University of Chicago Clinics, Chicago	79
15	St Joseph Mercy Hospital, Ann Arbor, Mich	79
16	Long Island Jewish Hospital, New Hyde Park, N Y	79
17	University of California Hospital, San Francisco	78
18	Evanston Hospital, Evanston, Ill	78
19	Peter Bent Brigham Hospital, Boston	78
20	Children's Medical Center, Boston	77

Hospitals eligible to participate in the program must be approved by the Council on Medical Education and Hospitals. Students eligible to join the program are those seeking first-year internships in these hospitals. Each student is provided with a Directory of Participating Hospitals, and each hospital receives a Directory of Participating Students. Students apply where they wish, to as many hospitals as they desire. Hospitals are free to interview any participating student and use their own interview and evaluation techniques. Upon completion of interview, each student submits to the Program office a ranking list showing the hospitals to which he has applied in order of preference. Hospitals also submit ranking lists of students who have applied to them. These lists, together with the intern quotas for each hospital, form the basis of the matching operation. Hospitals are matched with those students ranked highest on their list to the limit of their quota, unless those students prefer another hospital which also has given them a high ranking. Thus each student receives the highest choice hospital on his list that has a place for him. It is the individual responsibility of student and hospital to determine what will be acceptable to them prior to submitting ranking lists. The Program covers internships beginning between April 1 and Dec. 31. Lists are received by the National Intern Matching Program in January; the actual matching begins in February; and results are announced the middle of March.

Participation in the fifth program, completed in March 1956, included 98% of all hospitals approved by the Council and 97% of all United States medical school seniors. Of the 6,821 students in the program, 6,588 (97%) were matched. Of the 233 unmatched students, more than 100 applied to only one or two hospitals, thereby reducing their chances of being matched. Of the students matched, 74% received their first choice, 15% their second choice, 6% their third choice, and 5% their fourth choice or lower.

There were 11,459 positions offered by the 821 participating hospitals; 17% of these hospitals completely filled their quotas, 53% partially filled them, and 30% of these hospitals had no interns matched to them.

During the past year, hospital and student participation was at the highest level in the history of the program. Indications are that participation in the Program for 1957-1958 will equal and probably surpass previous years.

Internship Review Committee

The Internship Review Committee was established in 1954 and is composed of representatives of organizations concerned with and interested in intern training programs. In addition to the representatives of the Council on Medical Education and Hospitals, there is a representative from the Association of American Medical Colleges; the American Hospital Association, the Federation of State Medical Boards of the United States; and the American Academy of General Practice.

The purposes of the Committee are (1) to review reports of surveys of intern training programs and make recommendation to the Council for approval or disapproval; (2) to recommend to the Council such revisions of the requirements for intern education as are considered appropriate; and (3) to recommend to the Council such revisions in policy concerning all aspects of intern education as are considered appropriate.

In its period of operation, the Committee has become increasingly aware of the necessity for reasonable flexibility in the interpretation of the requirements for internship approval and of the advisability of giving a hospital an opportunity to bring its deficient program of training up to standard before approval is withdrawn. When a hospital does not measure up to the requirements for approval, it is warned that its approved status is in jeopardy and advised regarding the specific corrections that should be made. Sufficient time for correction of these deficiencies is permitted before approval is actually withdrawn. This policy serves to emphasize the consultant attitude of the Committee and of the Council in respect to training programs.

The Committee is functioning effectively and is filling a real need in its work. It is currently doing a great deal to maintain and improve the standards of intern education and is continually working toward this objective.

Revised Essentials of an Approved Internship

The House of Delegates adopted the revised "Essentials of an Approved Internship" as presented by the Council on Dec. 1, 1955. This revision incorporated the changes and recommendations made by the Ad Hoc Committee on Internships. The principal changes made were 1. The "one-fourth rule" will be applied. 2. Straight internships in pathology will be approved 3 Stress was placed upon the educational function of the internship as being primary.

The "one-fourth rule" states: "A hospital which for two successive years does not obtain one-fourth of its stated complement of interns may be disapproved for intern training." Early in January, 1956, a copy of the revised Essentials was sent to the Administrator and to the Chairman of the Intern Committee in each hospital approved for the training of interns; attention was called to the "one-fourth rule" in the covering letter. In May, 1956, the following interpretation was given by the Council staff to this rule:

1. All interns serving in a hospital are considered in computing the percentage of quota filled; this includes graduates of both American and foreign medical schools.

2. The percentage of the quota filled will be calculated on the basis of (*a*) the quota published in the 1955 Internship and Residency Number of THE JOURNAL, (*b*) the number of interns on duty on Sept. 1, 1956, as reported by the hospital. (Similar statistics will furnish the basis for computing the percentage of quota filled in following years.)

3. If an approved hospital fails to meet the requirements of the "one-fourth rule," a letter of warning will be sent to the hospital the first year; if it does not fill the required percentage for two successive years, approval may be withdrawn.

4. Intern quotas may be changed upon written request to the Council.

5 Application of the "one-fourth rule" will obtain beginning in January, 1958. Any approved hospital that does not fill one-fourth of its intern quota for the two successive years 1956-1957 and 1957-1958 may have its internship approval removed at that time.

In the revised Essentials it is specifically pointed out that if the primary function of the internship is not educational. approval is in jeopardy.

✓

Interns and Residents from Foreign Countries

The Institute of International Education conducted a survey in September, 1955, of foreign medical school graduates serving internships and residencies in hospitals approved for this training by the Council on Medical Education and Hospitals.[1] These foreign physicians came from 84 countries and were nonimmigrants, expecting to return to their own countries on completion of their medical training.

There were 6,033 foreign physicians reported by McCormack and Feraru [1] in this study serving as members of the house staffs of approved hospitals, an increase of 20% over the figures determined in a similar survey in September, 1954. Of this number, 1,859 were interns and 4,174 were residents. The six countries having the largest representation were: the Philippine Islands, 1,065; Canada, 584; Mexico, 489; Germany, 364; Turkey, 320; and Italy, 260. These six countries were listed in the same order in last year's survey.

One-fourth (1,533) of these foreign physicians were located in New York. There were 485 in Ohio; 415 in Pennsylvania; 398 in New Jersey; 371 in Massachusetts; and 359 in Illinois. The two largest groups receiving resident training were in general medicine and general surgery; obstetrics-gynecology and pathology ranked third and fourth, respectively, in numbers.

The present policy of the Council is that graduates of foreign medical schools may be appointed to the intern and resident staff of a hospital without jeopardizing the approved status of the hospital. However, following the adoption of the report of the Cooperating Committee on Evaluation of Graduates of Foreign Medical Schools by the House of Delegates at the Annual Session in June, 1956, in Chicago, plans are now being crystallized for evaluation of foreign physicians coming to the United States to serve internships and residencies. The proposed program of evaluation is outlined in the Report of the Council on Medical Education and Hospitals.[2] The emphasis in this program is placed on the evaluation of the medical qualifications of the individual foreign-trained physician who wishes to come to the United States. The program is designed to establish two principal criteria in regard to each foreign-trained physician: (1) that he is a graduate of a bona fide medical school; and (2) that, as nearly as can be measured, he has reached a level of educational attainment comparable to that of students in American schools at the time of graduation. These criteria are to be established by evaluation of the physician's medical credentials in view of predetermined minimal standards and examination of the physician for factual knowledge of medicine.

It is believed that implementation of this proposed program will afford hospitals needed assurance in regard to the medical qualifications of foreign-trained physicians seeking positions as interns and residents. It is anticipated that this program will be in effect in one year.

THE SEARS ROEBUCK FOUNDATION

Physicians completing their graduate training and who may require financial assistance in initiating the establishment of medical practice units in areas considered medically deficient will be interested in investigating the program financed by the Sears Roebuck Foundation. This Foundation has made two grants of $125,000 to a revolving assistance fund administered by a Medical Advisory Board appointed by the Trustees of the American Medical Association. These grants are dispersed by the Board in the form of 10-year, nonsecured, supplemental loans ranging from $1,000 to $25,000. Interest ranges from zero to 6%, depending on the rapidity of payment. All loans are designed to make up the difference between what can be raised through normal lending agencies and the total amount needed. All funds collected in the form of interest and principal go into the revolving fund, thereby making the program self-perpetuating and providing the "seed" principal of growth and expansion at the same time. It is estimated that, within 10 years, this fund will amount to over $2,000,000 because of this growth factor, which will do much to meet the needs of medical distribution.

The purpose of the plan is to encourage physicians to locate in communities where their services are most urgently needed. Because of the limited funds available at this time, all loans are competitive, thereby insuring that loans reach communities and physicians with the greatest need. Preference is given to physicians—specialists or general practitioners—who desire to go to rural or rapidly growing suburban areas where medical care in inadequate.

All applications are reviewed by the territorial or area Medical Advisory Board members, where they are approved or rejected. If approved, they are then presented to the entire Board, where all applications approved by the various area Advisory Boards are reviewed and final decisions made. The Board reviews applications on the following grounds:

1. Professional qualifications.
2. Availability and quality of medical service in the community. (Loans are intended primarily to create units, but consideration is also given to improving and expanding existing units.)
3. Soundness of the plan for providing medical care.
4. Financial initiative of applicant, thus insuring that loans are supplemental.
5. No loan will be granted for the purpose of refinancing existing debt or to be used for cost of living while establishing practice.

This statement regarding the Sears Roebuck Foundation is presented in this issue of The Journal for the information of medical school and hospital administrators, officials of local and state medical societies, and others whose advice is sought by young physicians in regard to sources of financial assistance. Physicians interested in applying for the Sears Roebuck assistance should contact their school, hospital, or county or state medical society for applications and more detailed information.

RESIDENCIES

Residency training in the United States continues to expand. The Council now approves residencies in 30 specialties and subspecialties, aviation medicine having been added in the past year. These programs are conducted in 1,202 general or special hospitals. Residency Review Committees, composed of representatives of the Council and the appropriate American Board, have been organized in dermatology, neurological surgery, ophthalmology, orthopedic surgery, pediatrics, physical medicine, preventive medicine, proctology, psychiatry, radiology, and urology. Residency Review Committees in surgery, plastic surgery, and otolaryngology include representatives of the American College of Surgeons, and the American College of Physicians is represented on the Committee for internal medicine. In four specialties, anesthesiology, obstetrics-gynecology, pathology, and thoracic surgery, the Council approved programs in concurrence with the board concerned with each organization taking unilateral action.

Table 7.—*Number of Residencies, by Specialty, 1955-1956*

Specialty	No. of Approved Programs	No. of Residencies: 1st-Yr. Appointments: Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled	Total Appointments (All Yr.): Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled
Allergy	21	16	4	80.0	26	9	74.3
Anesthesiology	205	418	92	83.0	912	186	83.1
Cardiovascular disease	36	37	9	80.4	64	17	79.0
Contagious disease	5	6	1	85.7	9	1	90.0
Dermatology-syphilology	77	86	18	82.7	244	38	86.5
Gastroenterology	29	18	4	81.8	51	12	81.0
General practice	168	374	138	73.0	444	194	69.6
Internal medicine	609	1,818	382	82.6	4,016	925	81.3
Malignant disease	9	14	4	77.8	22	7	75.9
Neurological surgery	96	70	21	76.9	266	44	85.8
Neurology	96	102	50	67.1	206	110	65.2
Obstetrics	19	82	8	91.1	122	10	92.4
Gynecology	11	13	2	86.7	43	2	95.6
Obstetrics-gynecology	406	763	76	90.9	1,847	197	90.4
Occupational medicine	1	.....	1	0.0	.....	2	0.0
Ophthalmology	165	203	40	83.5	529	89	85.6
Orthopedic surgery*	210	227	38	85.7	711	105	87.1
Orthopedic surgery†	39	26	15	63.4	70	37	65.4
Orthopedic surgery‡	14	9	2	81.8	21	6	77.8
Otolaryngology	119	129	43	75.0	327	108	75.2
Pathology	571	568	279	67.1	1,269	697	64.5
Pediatrics	265	637	101	86.3	1,294	198	86.7
Physical medicine	57	29	51	36.2	76	99	43.4
Plastic surgery	37	33	9	78.6	75	16	82.4
Proctology	13	5	5	50.0	19	10	65.5
Psychiatry	279	759	333	70.0	1,950	746	72.3
Pulmonary diseases	102	161	71	68.9	227	96	70.3
Radiology	411	462	202	69.6	1,192	431	73.4
Surgery A§	529	1,536	197	89.6	4,551	464	90.7
Surgery B‖	119	165	54	75.3	210	81	72.2
Thoracic surgery	71	64	10	86.5	115	17	89.5
Urology	221	142	60	70.3	487	137	78.0
Totals	5,043	9,005	2,323	79.5	21,425	5,091	80.8

* Full training including children's orthopedics.
† Full training without children's orthopedics.
‡ Less than full training.
§ Surgery A includes programs leading to certification by the American Board of Surgery.
‖ Surgery B includes programs approved as offering training in general surgery in preparation for a residency in a surgical specialty.

The following section of the report presents statistical data on the number of residencies by type of hospital control and by bed capacities of the hospital in which the training is conducted. The number of residencies filled and vacant represent the situation as of Sept. 1, 1955. The total number of residency appointments available increased from 25,486 reported last year to 26,516 this year, an increase of 4.5%. The number of residents serving rose from 20,494 to 21,425, also about 4.5%. The percentage of residencies filled was 81%, or almost exactly the same as it had been for the two years immediately preceding. These figures seem to indicate that although the number of residency positions increased the rate of increase was smaller than that of the previous year, when 1,858 positions were added, an increase of 8%.

Number of Residencies, by Specialties

Table 7 presents a breakdown by specialties of the number of approved programs, the number of first-year appointments filled and vacant as of Sept. 1, 1955, and the total number of appointments filled and vacant for the same date. There were 5,043 separate residency programs conducted last year, and they offered a total of 26,516 appointments, including 11,328 at the first-year level.

The number of hospitals approved for training varied from one offering training in occupational medicine to 609 offering training in internal medicine. Eight specialties—internal medicine, obstetrics and gynecology, pathology, pediatrics, psychiatry, radiology, and surgery—accounted for more than three-fourths of all residencies offered, with 20,245 positions out of a total of 26,516. There were less than 100 appointments in each of the following specialties: allergy, 35; cardiovascular disease, 81; contagious disease, 10; gastroenterology, 63; malignant diseases, 29; plastic surgery, 91; proctology, 29; occupational medicine, 2.

The percentage range of first-year residencies filled varied from 36.2% of those in physical medicine to 91.1% of those in obstetrics. Similarly, for appointments at all levels, the percentage filled in physical medicine was the lowest, 43.4%, while those in straight gynecology had the highest occupancy rate, 95.6%.

Of those specialties constituting the majority of residencies offered, pathology, as last year, showed the lowest occupancy rate for all years 64.5% (first-year through fourth-year appointments), while surgery showed the highest, 90.7%. Specialties in which more than 25% of residencies were vacant included the following: allergy, general practice, neurology, pathology, physical medicine, proctology, psychiatry, and pulmonary disease. It should be noted that a relatively high number of appointments were offered in both pathology and psychiatry.

The percentage of first-year positions filled, 79.5%, was approximately the same as those filled at all levels, 80.8%.

In summary, the increase of residency appointments, both absolute and percentage-wise, was less in 1955-1956 than in 1954-1955, and the percentages of occupancy at all levels remained approximately the same.

Residencies, by Type of Hospital Control

A breakdown of residency appointment by type of hospital control is presented in table 8. Residency programs were offered in 120 federal hospitals, 315 other governmental (nonfederal) hospitals, 737 nongovernment institutions, and 30 proprietary hospitals. The total number of residency appointments was about equally divided between governmental and nongovernmental hospitals, with those in the former category offering 13,108 residencies and those in the latter, 13,408.

The Veterans Administration accounted for about three-fourths of the total, with 3,067 residency positions offered out of 4,065 for all federal hospitals. The occupancy rate for all federal hospitals, including the Veterans Administration, was 73.2%, slightly below that for the nation as a whole. Comparable figures for last year showed 72% of residencies in federal hospitals filled, and 80% for all hospitals. Considering appointments in all categories, the occupancy rate varied from 53.8% in United States Air Force hospitals to 87.3% in city-controlled hospitals. Since only three hospitals, offering only 20 programs with 89 available positions, are included in the category "other federal," it does not seem statistically sound to compare the percentage of positions filled, 94.4%, with those of the larger groups of government hospitals. Considering appointments in all categories, the occupancy rate varied from 56% in United States Army hospitals to 87.3% in city-controlled institutions. If first-year appointments only are considered, the disparity in occupancy rates between federal and all other hospitals is even more marked. The United States Army reported 56% of their first-year appointments filled, the United States Navy 60%, the United States Air Force 60%, the Veterans Administration 67.7%, the United States Public Health Service 92.1%, and other federal hospitals 90.3%. The rates for other governmental (nonfederal) hospitals did not vary so widely, ranging from 80.3% for state-controlled institutions to 86.1% for those that were county-controlled. The total number of residencies offered by federal institutions did not change appreciably, although there was a slight decrease, with a slight increase in occupancy rate.

TABLE 8.—*Number of Residencies, by Type of Hospital Control, 1955-1956*

			No. of Residencies					
			First-Yr. Appointments			Total Appointments (All Yr.)		
Control	No. of Approved Hospitals	No. of Approved Programs	Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled	Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled
Federal								
U. S. Air Force	3	5	6	4	60.0	7	6	53.8
U. S. Army	12	84	98	77	56.0	285	220	56.4
U. S. Navy	8	75	75	50	60.0	150	117	56.2
U. S. Public Health Service	8	32	35	3	92.1	98	26	79.0
Veterans Administration	86	502	787	375	67.7	2,353	714	76.7
Other federal	3	20	25	3	90.3	84	5	94.4
Totals	120	718	1,029	512	66.8	2,977	1,088	73.2
Governmental (Nonfederal)								
State	159	533	1,354	332	80.3	3,457	759	82.0
County	63	282	630	102	86.1	1,343	236	85.1
City	75	446	1,118	189	85.5	2,496	362	87.3
City-county	13	72	105	23	82.0	241	49	83.1
Hospital district	5	23	41	8	83.7	81	19	81.0
Totals	315	1,356	3,248	654	83.2	7,618	1,425	84.2
Nongovernmental Nonprofit								
Church operated and church related	267	985	1,364	409	76.9	3,154	903	77.7
Other nonprofit	470	1,935	3,310	727	82.0	7,571	1,633	82.3
Totals	737	2,920	4,674	1,136	80.4	10,725	2,536	80.9
Proprietary								
Individual	3	5	2	2	50.0	5	3	62.5
Partnership	4	9	10	4	71.4	18	6	75.0
Corporation	23	35	42	15	73.7	82	33	71.3
Totals	30	49	54	21	72.0	105	42	71.4
Grand totals	1,202	5,043	9,005	2,323	79.5	21,425	5,091	80.8

TABLE 9.—*Number of Residencies, by Bed Capacity, 1955-1956*

			No. of Residencies					
			First-Yr. Appointments			Total Appointments (All Yr.)		
Classification	No. of Approved Hospitals	No. of Approved Programs	Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled	Filled Sept. 1, 1955	Vacant Sept. 1, 1955	Percentage Filled
Less than 25 beds	1	2	2	2	50.0	6	6	50.0
25-49	21	25	18	12	60.0	51	19	72.9
50-99	57	61	118	17	87.4	252	52	82.9
100-199	217	417	653	164	79.9	1,308	303	81.2
200-299	309	1,016	1,317	390	77.2	2,783	771	78.3
300-499	300	1,680	2,435	685	78.0	5,691	1,517	79.0
500-over	293	1,823	4,407	1,044	80.8	11,205	2,348	82.7
Other	4	19	55	9	85.9	129	75	63.2
Grand totals	1,202	5,043	9,005	2,323	79.5	21,425	5,091	80.8

Number of Residencies, by Hospital Bed Capacities

Excluding hospitals of less than 100 beds, the hospitals offering residency training are, roughly speaking, about equally divided into four categories: 100 to 199 bed capacity, 200 to 299, 300 to 499, and over 500 beds (table 9). The number of residencies in these hospitals, however, varied greatly, with those of 100 to 199 beds offering 1,611 positions, or approximately 6% of the total, and those with over 500 beds having 13,553 positions, or 52% of the total. Hospitals with 200 to 299 and 300 to 499 beds offered an additional 10,762 residencies, or 40% of the total. Hospitals of less than 100 beds and programs in institutions of undesignated bed capacities accounted for the remaining 2%.

Hospitals of less than 100 beds are usually of special type, providing services in one or two specialties, often for only one or two years. They include hospitals for children's orthopedic surgery; eye, ear, nose, and throat; obstetrics; pediatrics; special fields of psychiatry; and similar specialized fields. In these hospitals the admission rate approximates that for a service in a larger general hospital.

While the average number of residencies per hospital may not be too important, it is of some significance in considering the distribution of residents. The averages are as follows: 100 to 199 beds, 7.4 residents per hospital; 200 to 299 beds, 11.5 residents; 300 to 499 beds, 24 residents; and 500 and over, 46 residents per hospital. Since the total number of beds for all hospitals in each category has not been computed, the average number per resident cannot be accurately given. Using the mean number of beds for each category, however, it can be estimated that the number of beds per resident varies from 17 in the 300 to 499 group to 22 in 200 to 299 category. A further variable in considering these rough estimates is, of course, the specialty itself; the number of beds that would be adequate for an obstetric service, for example, would be insufficient to support a program in orthopedic surgery.

On the basis of these incomplete data it appears that the number of residencies is generally in proportion to the size of the hospital. This generalization does not, of course, eliminate the possibility that in individual hospitals the resident may be "overloaded" or the hospital may have a disproportionately large resident staff. It does show, however, that there is, on the average, a reasonable number of beds per resident in the majority of hospitals approved for residency training.

RÉSUMÉ

This report on internships and residencies has presented factual information concerning internships and residencies in hospitals approved by the Council, including an analysis of nine statistical tables and two graphs. Information is also given on the activities of the review committees for internships and residencies; the National Intern Matching Program; the Essentials of an Approved Internship; stipends for interns; autopsy rates; and a brief review of the situation regarding house staff positions occupied by foreign medical school graduates and plans for evaluation of their qualifications. A short statement is included regarding the Sears Roebuck Foundation.

On Sept. 1, 1955, 6,123 intern and resident training programs were sponsored by 1,373 hospitals. Of this total number of hospitals, 171 were approved for the training of interns only, 506 were approved for the training of residents only, and 696 were approved for the training of both interns and residents. Since 1954, there has been an increase of 5% in the number of internships offered, from 11,048 to 11,616. During the same period, there has been a similar increase of 4% in the number of approved residencies, from 25,486 to 26,516.

The percentage of intern positions filled was 83%, as compared with 82% for the year 1954. The occupancy rate for residencies was 81%, as compared with 80% for the previous year. On Sept. 1, 1955, there were 9,603 interns and 21,425 residents on duty in hospitals approved by the Council, a total of 31,028 interns and residents. Fourteen per cent of American physicians are serving as interns and residents in approved hospitals.

It is pointed out that, although the problem of evaluating the qualifications of foreign medical school graduates is presently of great importance, the plan for evaluation of the foreign physician coming to this country for further medical training is expected to become effective within a period of one year. It is anticipated that this program, when in operation, will accomplish much toward the solution of the problems of foreign-trained physicians.

The lists of approved internships and residencies are up to date as of Sept. 1, 1956. It is the sincere hope of the Council that this report will be of value and assistance to those interested in medical education at the internship and residency levels.

ANNUAL REPORT ON APPROVED TECHNICAL SCHOOLS

Medical Record Librarians

Background.—In 1942, the American Association of Medical Record Librarians requested the American Medical Association to evaluate educational programs in medical record library science. The Council formulated standards that were adopted by the House of Delegates of the American Medical Association in June, 1943. Subsequent revisions in standards were made in 1945 and 1949. The first list of 10 approved schools was published in 1944.

With the work done in close collaboration with the committee on education and registration and the education director of the American Association of Medical Record Librarians, who conducts periodic surveys, training programs and new applications are reviewed and recommendatory action is submitted to the Council for final action on approval.

Significant studies in medical record library science to assist the continued development of the field have been initiated during the past year by the American Association of Medical Record Librarians.

Present Status.—At the present time there are 29 schools approved for training medical record librarians, or an increase of 4 schools since Oct. 8, 1955 The 134 students enrolled in the senior class of degree programs and in certificate programs in 1955 represented a total of 19 more students than were in training the previous year. The training capacity of the schools inceased 12% to a total of 269 students during the same one-year period. Similarly, the number of graduates during 1955 was 134, which represents an encouraging increase of almost 18% over 1954.

Depending upon the students' previous education, both degree and certificate recognition are available following satisfactory completion of the required educational program in medical record library science. Among the 20 certificate programs of one year's duration, 15 require two years of college or an R.N. degree, one accepts only students with two years of college, and 4 require a degree prior to admission. Nine schools offer a four-year educational program that lead to a degree and admit qualified high school graduates. In addition there are two degree programs of 12 months' duration that admit qualified students who have completed three years of preparatory college education. Since two schools offer both degree and certificate courses, there are 20 certificates and 11 degree courses available in the 29 approved schools. Only three schools are not conducted by or in affiliation with a college or university.

The beginning dates for courses are predominately in September, several begin in the winter, and a few in June or July. Tuition ranges from $125 to $600, and one school requires none.

Application for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Inquiries regarding the registration of qualified medical record librarians should be addressed to the American Association of Medical Record Librarians, 510 N. Dearborn St., Chicago 10.

Medical Record Technicians

Background.—To alleviate the acute shortage of trained personnel in medical record library science, the American Association of Medical Record Librarians recommended that consideration be given to the establishment of additional training programs for students directly out of high school. In cooperation with the committee on education and registration of the American Association of Medical Record Librarians, the Council developed standards that were approved by the House of Delegates of the American Medical Association in December, 1953. These standards are prepared for the training of the medical record technician who, working under the supervision of a qualified medical record librarian or a medical record committee, performs the technical tasks associated with the maintenance and custody of medical records.

As in the case of schools for medical record librarians, the Council evaluates educational programs and new applications and surveys schools in close collaboration with the American Association of Medical Record Librarians. The training of medical record technicians should be conducted in acceptable general hospitals having a minimum of 4,000 annual admissions. These admissions should include an adequate distribution of patients in the various clinical services commonly found in general hospitals. Candidates for admission to an approved school should be proficient in typing and preferably also in shorthand. They should have completed the requirements for high school graduation or should have passed a college entrance examination for admission to an accredited college or university. The minimum length of training is nine months and should include theoretical instruction in anatomy, medical terminology, and medical records, with additional practical training in admitting and discharge procedures, indexing, preparation of reports, and other activities associated with the medical record department.

Present Status.—There are eight schools approved by the Council for training medical records technicians. These schools report a training capacity for 50 students with an enrollment of 35 in 1955. Qualified high school graduates are accepted for courses of from 9 to 12 months' duration. There were 28 graduates in 1955.

Application for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Special forms will be supplied for this purpose, and, when the required information has been received, the proposed training program will be reviewed in collaboration with the Committee on Education and Registration of the American Association of Medical Record Librarians. The institutions applying for Council approval will, in all instances, receive full information and every possible assistance in the planning and development of training programs in accordance with present standards. There continues to be an acute shortage of qualified medical record librarians and medical record technicians. Excellent opportunities exist for graduating students. Inquiries on career opportunities and the registration of qualified medical record personnel should be addressed to the American Association of Medical Record Librarians, 510 North Dearborn St., Chicago 10.

Medical Technologists

Background.—In 1928 the American Society of Clinical Pathologists established its board of registry of medical technologists in an effort to elevate educational standards for medical technologists. Realizing the need for survey visits to schools, the society requested the Council on Medical Education and Hospitals of the American Medical Association to aid in the study of training programs in 1933. Essentials of an acceptable school were formulated by the Council with the cooperation of the society and ratified by the House of Delegates of the American Medical Association in May, 1936. The first list of 96 schools approved by the Council was published in The Journal on August 29, 1936.

In its efforts to assist hospitals in the development of training programs, the Council has continuously cooperated with the American Society of Clinical Pathologists, the board of schools of medical technology, and the board of registry of the society. The board of schools was established by the society in 1949 to serve in an advisory capacity to the Council in matters relating to standards and the evaluation of educational programs. Revisions of the standards occurred in 1941, 1943, 1947, 1949, and 1953. In 1956, the requirement for training in electrocardiographic technique was deleted from the curriculum in the "Essentials of an Acceptable School of Medical Technology." The Board and Council encourage that such training be continued when the pathologist-director considers it advisable.

The board of schools assists the Council in the evaluation of new applications and annual reevaluations of approved schools. A survey program is carried out by regional surveyors appointed by the board of schools. These pathologists visit all new schools and, in addition, periodically revisit approved schools. An extensive resurvey of existing educational program is actively in progress by pathologists appointed by the Board who make an invaluable contribution to the program in experience and time. The recommendations of the Board on new applications and existing schools of medical technology are submitted to the Council for its consideration.

Present Status.—There are 618 schools presently approved by the Council, or an increase of 4% over the 593 approved as of Oct. 8, 1955. This is a net increase of 25 training programs, representing 36 newly approved schools and 11 that have been discontinued or disapproved. The 1955 student enrollment has risen 17% to 2,790, as compared with the 2,384 reported for 1954. The occupancy rate in 1955 was 62% in programs having a training capacity for 4,532 students. The number of graduates continues to increase. There were 1,956 in 1954 and 2,078 in 1955. It should be noted that the increases in student enrollment, occupancy rate, and number of graduates reflects the concerted recruitment efforts of the many persons associated with the College of American Pathologists, American Society of Clinical Pathologists, American Society of Medical Technologists, and the National Committee for Careers in Medical Technology, sponsored by these organizations, as well as the recruitment activities of the faculties of approved schools and affiliated colleges and universities.

The admission requirement to an approved school of medical technology is two years of college education, including certain required courses, in a college or university accredited by a recognized association. Eighty-one per cent or 500 training programs base admission on this minimum requirement; 71 (11%) require three years of preclinical college education; and 47, or 8%, require a degree for admission.

There has been an increase in the number of hospital schools that have affiliated with colleges and universities. Such affiliations are encouraged, since they assist in the development of well-organized training programs suitably integrated with the college curriculum and also serve as a continuing source of students. A total of 423 hospital schools (68%) have established college or university affiliations. College credit is granted for the hospital training in 385 schools. If properly integrated, a degree is available upon competion of three years of college education and one year of hospital training. While the preparatory collegiate education is longer in duration, it is the hospital course that is directly concerned with the technical training of medical technologists. The hospital should assume full responsibility for the 12-month course. Active liaison with the college is recommended through regularly scheduled meetings of a jointly constituted advisory or coordinating committee. At present only 45% of schools so coordinate.

The minimum duration of the hospital course acceptable for approval is 12 months. There are now 542 schools, or 88%, providing a course of 12 month duration. The remaining 76 schools (12%) offer pr grams of from 12½ to 36 months.

Tuition is required by 157 (25%) and a minim breakage fee by 79, or 13%, of the schools. Studen receive a stipend in 256 (43%). Room and board a offered in 171 (28%), board, often consisting lunches only, in 142 (24%), and 3 schools offer roo only. The remaining 297 (48%) offer neither roo nor board.

There were eight states in which schools graduat 75 or more students in 1955. Table 10 presents son aspects of the educational activity in the schools these eight states, arranged in order of number schools.

All states, the District of Columbia, the Canal Zon Hawaii, and Puerto Rico have approved schools.

Application for approval of a school for the traini of medical technologists should be made to the Cou cil on Medical Education and Hospitals of the Ame can Medical Association, 535 N. Dearborn St., Chica 10. Forms will be supplied for this purpose on reque and should be completed by the director of the labor tory requesting this approval. Inquiries regarding t registration of qualified medical technologists shoul be addressed to the Board of Registry of Medic Technologists, 611 W. Howard St., Post Office Bo 1209, Muncie, Ind.

TABLE 10.—*Educational Activity in Schools of Eight Sta Graduating Seventy-Five or More Students in 1955*

State	Schools No.	Enrollment	Capacity	Graduat
Pennsylvania	50	188	373	151
Ohio	43	200	350	132
Michigan	34	161	267	101
Illinois	34	133	204	93
New York	33	117	219	109
Texas	29	151	278	105
California	23	172	205	141
Wisconsin	19	108	128	99
Subtotal	265	1,230	2,024	931
Grand total, all states	618	2,790	4,532	2,079
% grand total	43	44	45	45

Occupational Therapists

Background.—In 1933, the American Occupation Therapy Association requested the House of Delegate of the American Medical Association to undertake survey of educational programs for occupationa therapists. The Board of Trustees instructed the Coun cil on Medical Education and Hospitals to develo standards and survey existing schools. The "Essentia of an Acceptable School of Occupational Therapy were first published in THE JOURNAL, May 4, 1935. Th first list of six approved schools appeared in 1938. Th Essentials were revised in 1938 and 1949 in coopera tion with the advisory groups to the Council on Med ical Education and Hospitals at that time.

These groups were the Council on Physical Medicine and Rehabilitation of the American Medical Association and the American Occupational Therap Association. In 1955, the Council on Physical Medicine and Rehabilitation became the Council on Medical Physics, and, although close liaison continues, it no longer functions in an advisory capacity on occupational therapy educational matters. New applications are reviewed by physician advisory groups and the American Occupational Therapy Association, surveys are conducted, and recommendatory action is submitted to the Council on Medical Education and Hospitals for action.

Increased attention is being given to procedures for more frequent periodic reevaluation of existing educational programs. Joint physician-therapist survey teams are being planned in close cooperation with the American Occupational Therapy Association to assure continuing liaison with the schools. The American Occupational Therapy Association, with the assistance of other organizations, has foresightedly initiated conferences and basic studies with which to better plan for the needed expansion in the field.

Present Status.—There are currently 30 schools approved by the Council for training occupational therapists. Since the U. S. Army occupational therapy course has been put on a stand-by basis and is not listed as an active program, there were 29 schools accepting students in 1955. All data are based on reports from the 29 active schools. These institutions reported 1955 enrollments as follows: senior class degree (460); postdegree certificate (134); nondegree certificate (5); master's degree (19); and 477 students in their clinical year. Student capacity for these several courses is 731 for the senior class degree, 235 for the postdegree and nondegree certificate, approximately 72 for the master's degree, and not limited in the clinical year. It is encouraging to note that the total enrollment of 618 and a student capacity of more than 1,038, exclusive of the clinical year, reflect gradual but continuing increases in the number of students in training and the training potential of these 29 approved schools. Graduates numbered 551 as compared with 489 in 1954 which continues the upward trend over the past several years. It should be noted that three schools in the process of reorganization or organized within the past several years reported no graduates but can be expected to graduate students in the near future.

Both certificate and degree recognition are available in occupational therapy, depending upon the type and integration of the student's preparatory collegiate training prior to his entering the professional curriculum. Certificate programs, generally of 18-24 months' duration, are offered by 19 schools that, in all but one instance, require a degree for admission. Educational programs of four to five years that lead to a degree are available in 23 schools that will admit qualified high school graduates. Four schools offer degree programs of approximately two years' duration to qualified applicants with two years of preparatory collegiate education. Interested undergraduate students are encouraged to contact individual schools, however, to determine the specific requirements of a given school for admission to its certificate or degree course in occupational therapy. Tuition varies in accord with university fees. The majority of courses begin in February and September.

Application by schools for approval of an educational program in occupational therapy should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Forms will be supplied for this purpose on request. They should be completed by the administrator of the institution requesting approval. Inquiries regarding career opportunities in the field of occupational therapy and the registration of qualified therapists should be addressed to the American Occupational Therapy Association, 250 W. 57th St., New York 19.

Physical Therapists

Background.—From 1928 to 1936 the approval of educational programs in this field was sponsored by the American Physical Therapy Association. On request of that association, the Council developed standards that were adopted by the House of Delegates and published with the first list of approved schools in 1936. The Council, in cooperation with its advisory groups, the Council on Physical Medicine and Rehabilitation of the American Medical Association and the American Physical Therapy Association, has periodically submitted revised standards to the House of Delegates, which were adopted in 1943, 1949, and 1955. The most recent revision is the result of four years of intensive discussion and study. In 1955, the Council on Physical Medicine and Rehabilitation became the Council on Medical Physics, with which there continues close liaison on matters pertaining to physical therapy but which no longer functions in an advisory capacity on physical therapy education. Applications of new schools are reviewed in collaboration with two groups, the recently appointed Advisory Committee on Physical Therapy Education of the Council on Medical Education and Hospitals, and the American Physical Therapy Association. The Advisory Committee on Physical Therapy Education consists of nine physician members representing the fields of physical medicine and rehabilitation, orthopedic surgery, psychiatry and neurology, internal medicine, pediatrics, general surgery, and medical education. In addition, there are three physical therapists, two nominated by the American Physical Therapy Association and one nominated by the American Registry of Physical Therapists. Surveys of new and existing schools are conducted by joint physician-therapist teams and recommendatory action submitted by the advisory groups to the Council for action. Active liaison with the medical directors, therapist educational administrators, and other members of the teaching faculties in approved schools is being implemented through more frequent periodic surveys.

Present Status.—There are, at present, 37 schools approved by the Council for training physical therapists, or an additional two schools since Oct. 8, 1955. The student training capacity for the senior class of degree programs and in certificate programs was 1,068 on the basis of 1955 annual reports. In addition, there was an estimated training capacity for at least 86 master's degree students. The 1955 enrollment for senior degree and certificate students was 748 students, or 70% occupancy. Intensive recruitment continues the upward trend in enrollment noted over the past several years. The number of degree and certificate graduates has increased significantly to 710, as compared to 609 in 1954. Unfortunately, data are not available on the increasing number of graduates in the master's degree programs offered in nine schools.

Certificate and/or degree recognition in physical therapy is available depending upon the students' preparatory education prior to entering the professional curriculum. Most schools offer both degree and certificate programs, although seven offer only the certificate program and seven others only the degree program.

Certificate programs in 30 schools vary in length from 12 to 34 months and admit students with two or more years of college or those who have graduated from a nationally accredited school of nursing after a three-year course. Many of the 30 degree programs of four years' duration admit qualified students directly out of high school. Degree recognition in physical therapy is offered to qualified students with two to three years of collegiate education upon satisfactory completion of degree programs of shorter duration. Since admission requirements vary in individual schools, interested high school students and those with two or more years of college or who have graduated from a nationally accredited professional school of nursing should contact the individual school of their choice for specific requirements. The tuition in all teaching centers closely parallels college fees. Most courses begin in February or early fall.

Application for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Forms will be supplied for this purpose on request. They should be completed by the administrator of the institution requesting this approval. Inquiries regarding voluntary registration of qualified therapists should be addressed to the American Registry of Physical Therapists, 30 N. Michigan Ave., Chicago 2. Information on requirements for state registration or licensure is available from the Board of Examiners of the states concerned. Inquiries regarding careers in the field of physical therapy should be addressed to the American Physical Therapy Association, 1790 Broadway, New York 19.

X-Ray Technicians

Background.—Prior to 1944, the approval of schools of x-ray technology had been carried on as a function of the American Registry of X-Ray Technicians. In 1943, the Council on Medical Education and Hospitals of the American Medical Association undertook the evaluation of educational programs for x-ray technicians at the request of the registry, which is sponsored by the American College of Radiology and the American Society of X-Ray Technicians. With the assistance of the college and the registry, standards were developed and adopted by the House of Delegates of the American Medical Association in June, 1944, and December, 1955. The most recent revision of the standards has been developed in close cooperation with the advisory groups and incorporates a suggested basic curriculum, which is presented as a guide. Particularly encouraged is progressive training in therapy to afford students at least one month's practical experience intramurally or through affiliation.

The Council has been ably assisted by the American College of Radiology, the American Registry of X-Ray Technicians, and the American Society of X-Ray Technicians. Schools making application for approval are surveyed by state and regional councilors appointed by the American College of Radiology. Approved schools are also periodically resurveyed by radiologists appointed by the college, and these radiologists are currently revisiting approved schools. Their generous contribution of time and experience are a major asset in the program. All data are reviewed by the advisory committee to the American Society of X-Ray Technicians of the American College of Radiology and recommendations submitted to the Council for consideration.

Present Status.—At present there are 456 schools approved by the Council on Medical Education and Hospitals for training x-ray technicians. This represents a net increase of 34 schools, or an increase of 8% over the number approved as of Oct. 8, 1955. There has been a 307% increase in the number of approved schools since the first published list of 112 in 1945. Enrollment has increased 302, or 12%, to a total of 2,915 students during the last year, in which total training capacity has risen to 3,555 from 3,184, or an increase of 11%. The number of graduates in 1955 was 1,822 as compared with 1,523 in 1945, a 20% increase.

The minimum admission requirement is high school graduation or the passing of a standard equivalency test. A total of 433 schools (95%) admit students directly out of high school, 13 schools (3%) require one year of college, 9 schools (2%) require two years of college, and one school accepts only R.N.'s. Of the above 456 schools, 3 will accept an applicant with either an R.N. or two years of college and, as noted, one school accepts R.N.'s only.

The length of training in 241 (53%) is 24 months, 12 months in 144 (32%), 18 months in 69, or 15%, and 36 months in two schools. Tuition is required by 172 (38%) of approved schools and 60% pay students a stipend. There are collegiate affiliations established in 168 schools (37%). College credit is granted for training satisfactorily completed in the hospital training program in 14%, or 66 schools.

There are 40 approved schools in Illinois, 34 in Pennsylvania, 29 in Ohio, 25 in Texas, 24 in California, 21 in Michigan, 20 in New York, 19 in Missouri, 18 in Massachusetts, 16 each in Minnesota and Wisconsin, and 12 or fewer in all but one of the remaining states, the District of Columbia, and Hawaii. One state does not have a school.

Applications for approval of schools of x-ray technology should be submitted to the Council on Medical Education and Hospitals of the American Medical Association, 535 N. Dearborn St., Chicago 10. Inquiries regarding registration of qualified x-ray technicians should be addressed to the American Registry of X-Ray Technicians, Metropolitan Building, Minneapolis 1.

References

1. McCormack, J. E., and Feraru, A.: Alien Interns and Residents in the United States, 1955-1956, J. A. M. A. **161**: 322-324 (May 26) 1956.

2. Report of the Council on Medical Education and Hospitals, Organization Section, J. A. M. A. **161**: 159-161 (May 12) 1956.

APPROVED INTERNSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1956

HOSPITALS, 862, INTERNSHIPS, 12,013

The following general hospitals, investigated and approved by the Council on Medical Education and Hospitals, are considered in position to furnish acceptable intern training in accordance with standards adopted by the American Medical Association. Three types of internships are approved by the Council—rotating, mixed, and straight:

1. A rotating internship is defined as one that provides supervised experience in internal medicine, surgery, pediatrics, obstetrics, and their related subspecialties, together with experience in laboratory and radiologic diagnosis.
2. A mixed internship is defined as one that provides supervised experience in two or more, but not in all, of the clinical divisions named.
3. A straight internship is defined as one that provides supervised experience in a single department, although it may include limited opportunity for work in a related subspecialty. Straight internships are now approved in internal medicine, surgery, pediatrics and pathology.

Hospitals approved for internships that are used by medical schools for undergraduate clinical clerkships on inpatient services have been identified in the following lists by the symbols X and x. Hospitals have been identified with symbol X when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with the symbol x when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program. Certain internships in hospitals designated as teaching hospitals may not provide for assignments to teaching services. Other internships may provide for only a portion of the internship period being spent on teaching services. Prospective interns desiring specific information concerning internship assignments to teaching services in a hospital are ~~advised~~ to communicate with the dean of the medical school with which the hospital is affiliated. Medical school affiliations are indicated by footnotes 10 to 89 placed immediately after the symbol X or x. The list of medical schools appears on page 312. The plus (+) sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships. The beginning stipends for Federal hospitals have not been listed; they are established in accordance with government pay tables. When applying for internships in Air Force, Army, Navy or Public Health Service hospitals, applications should be directed to the medical departments of the Air Force, Army, Navy, or the United States Public Health Service and not to the individual hospitals. Although applications are made to the service rather than to the individual hospitals, all of the services ask students to list three hospitals in order of preference. Every possible effort is made to place successful candidates in accordance with their desires. Because of the needs of the service it should be understood that students may, in some instances, be assigned to other hospitals than those for which they have indicated a preference.

Hospitals listed below (pages 291 to 311) make first year internship appointments through the National Intern Matching Program, Inc. The number and type of internships as listed represent appointments for the intern year 1957-1958.

FEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES ARMY—Hospitals, 8; Internships, 150										
Letterman Army Hospital +1-4-x15 Presidio, San Francisco	Fed	900	10,898	Req	91	12	No	...	150 Rotating General Office of the Surgeon General, Department of the Army, Washington 25, D. C. Attn. Chief Personnel Division	00411
Fitzsimons Army Hospital +1-4 Denver 8	Fed	1,270	9,315	Req	92	12	No	...		
Walter Reed Army Hospital +1-4-x19-20 (Army Medical Center) 6825 16th St., N. W., Washington 12, D. C.	Fed	1,250	13,748	Req	91	12	100	...		
Valley Forge Army Hospital +1-4 Phoenixville, Pa.	Fed	1,060	6,319	Req	81	12	101	...		
William Beaumont Army Hospital +4 Hayes Ave., El Paso, Texas	Fed	800	12,654	Req	66	12	No	...		
Brooke Army Hospital +1-3-4 Brooke Army Medical Center Fort Sam Houston, San Antonio, Texas	Fed	1,713	14,128	Req	87	12	No	...		
Madigan Army Hospital +-4-x86 Fort Lewis, Tacoma 9, Wash	Fed	670	11,220	Req	74	12	No	...		
Tripler Army Hospital + Moanalua Gardens, Honolulu, T. H.	Fed	1,200	20,739	Req	83	12	No	...		
UNITED STATES AIR FORCE—Hospitals, 11; Internships, 84										
U S Air Force Hospital + Lackland Air Force Base San Antonio, Texas	Fed	900	12,716	Req	70	12	No	...	84 Rotating General Directorate of Staffing and Education, Office of the Surgeon General, Headquarters, U. S. Air Force, Washington 25, D C	00311
60 of the above 84 Air Force internships are divided among the Army hospitals listed above										
UNITED STATES NAVY—Hospitals, 17; Internships, 200										
U S Naval Hospital +1-4 Corona, Calif.	Fed	800	12,245	Req	97	12	No	...	200 Rotating General Bureau of Medicine and Surgery, Navy Department, Washington 25, D C.	00211
U S Naval Hospital 1-3 Mare Island (Vallejo), Calif.	Fed	300	3,837	Req	67	12	No	...		
U. S Naval Hospital +1-4-5 8750 Mountain Blvd, Oakland 14, Calif	Fed	1,270	14,426	Req	84	12	No	...		
U S Naval Hospital 1 Camp Pendleton, Oceanside, Calif.	Fed	1,107	11,779	Req	95	12	No	...		
U S Naval Hospital +1-4 Park Blvd., San Diego 31, Calif.	Fed	2,150	25,912	Req	86	12	No	...		
U S Naval Hospital 1-3 Jacksonville 14, Fla.	Fed	492	7,347	Req	97	12	No	...		
U S Naval Hospital 1-3 Pensacola, Fla	Fed	647	6,068	Req	53	12	No	...		
U S Naval Hospital +1-3-4 Great Lakes, Ill	Fed	850	12,603	Req	85	12	No	...		
U S Naval Hospital +1-3-x19 Rockville Pike, Bethesda 14, Md.	Fed	1,000	14,400	Req	99	12	No	...		
U S Naval Hospital +1-3-4-x38-40 Chelsea 50, Mass	Fed	550	7,828	Req	82	12	No	...		

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

FEDERAL—Continued

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
UNITED STATES NAVY—Continued										
U. S. Naval Hospital +1-4 Linden Blvd., St. Albans 25, N. Y.	Fed	1,225	10,809	Req	61	12	No	...		
U. S. Naval Hospital 1 Camp LeJeune, N. C.	Fed	750	10,113	Req	72	12	No	...		
U. S. Naval Hospital +1-3-4 17th and Pattison Ave., Philadelphia 45	Fed	1,000	10,984	Req	83	12	No	...		
U. S. Naval Hospital 1 3rd and Cypress Sts., Newport, R. I.	Fed	567	6,737	Req	66	12	No	...		
U. S. Naval Hospital 1-3 Charleston, S. C.	Fed	300	5,171	Req	47	12	No	...	200 Rotating General Bureau of Medicine and Surgery, Navy Department Washington 25, D. C	0211
U. S. Naval Hospital +1-3-4 Portsmouth, Va.	Fed	1,450	20,117	Req	90	12	No	...		
U. S. Naval Hospital 1-3 Naval Base, Bremerton, Wash.	Fed	330	1,333	Req	96	12	No	...		
UNITED STATES PUBLIC HEALTH SERVICE—Hospitals, 7; Internships, 80										
U. S. Public Health Service Hospital +1-4-5 15th Ave. and Lake St., San Francisco 18, Calif.	Fed	470	1,786	Req	69	12	102	...		
U. S. Public Health Service Hospital +1-4-5 210 State St., New Orleans 18, La.	Fed	393	1,724	Req	78	12	103	...		
U. S. Public Health Service Hospital +1-4 31st St. and Wyman Park Dr., Baltimore 11, Md.	Fed	365	1,585	Req	78	12	104	...	74 Rotating General 6 Mix. Med. Surg. Public Health Service Hospitals, Public Health Service, Department of Health, Education and Welfare Washington 25, D. C. Attn. Chairman Committee on Residents and Interns	0011 [illegible]
U. S. Public Health Service Hospital +1-4-5 77 Warren St., Boston 35, Mass.	Fed	268	3,188	Req	77	12	No	...		
U. S. Public Health Service Hospital +1-4 Bay St. and Vanderbilt Ave., Staten Island 1, N. Y.	Fed	837	8,267	Req	72	12	105	...		
U. S. Public Health Service Hospital 1-4 Hampton Blvd., Norfolk 8, Va	Fed	271	3 160	Req	62	12	106	...		
U. S. Public Health Service Hospital +1-4-x86 1131 14th Ave. S., Seattle 44, Wash	Fed	352	1,345	Req	..	12	107	...		
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE—Hospitals, 2; Internships, 30										
Freedmen's Hospital +1-3-4-X21 6th and Bryant Sts., N. W., Washington 25, D. C.	Fed	487	8,491	Req	46	12	No	171FM	18 Rotating General	7611
Saint Elizabeths Hospital +1-3-4-x19-20 2700 Nichols Ave., S. E., Washington 20, D. C.	Fed	411	1,319	Req	50	12	108	233	12 Rotating General	8411
VETERANS ADMINISTRATION—Hospitals, 7; Internships, 106										
Veterans Administration Hospital +1-3 5901 E. 7th St., Long Beach 4, Calif	Fed	1,600	9,967	Req	81	12	109	...	24 Rotating General 6 Straight Medicine	[illegible] [illegible]
Veterans Administration Center +1-5-X13 Wilshire and Sawtelle Blvds., Los Angeles 25, Calif.	Fed	1,221	15,050	None	87	12	110	...	24 Rotating General 6 Straight Medicine	[illegible] [illegible]
Veterans Administration Hospital +1-3-X23 5908 Peachtree Rd., N. E., Atlanta 19, Ga	Fed	300	1,552	Req	61	12	111	...	9 Straight Medicine	[illegible]
Veterans Administration Hospital +1-X66 921 N. E. 13th St., Oklahoma City 4, Okla	Fed	434	4,128	None	86	12	112	...	4 Straight Medicine	[illegible]
Veterans Administration Hospital +1-5-X79 4500 S. Lancaster Rd., Dallas 2, Texas	Fed	317	3,303	Req	71	12	113	...	16 Straight Medicine	[illegible]
Veterans Administration Hospital +1-3-X79 McKinney, Texas	Fed	593	5,315	None	77	12	113	...	10 Straight Medicine	[illegible]
Veterans Administration Hospital +X82 12th Ave. and E St., Salt Lake City 13	Fed	191	2,269	Req	77	12	114	...	3 Rotating General 4 Straight Medicine	[illegible]

NONFEDERAL

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ALABAMA—Hospitals, 9; Internships, 118										
Birmingham Baptist Hospital +1 708 Tuscaloosa Ave., Birmingham 11	Church	300	12,841	Req	44	12	115	200-250FM	10 Rotating General	[illegible]
Carraway Methodist Hospital +1-3 2506 16th Ave. N., Birmingham 4	Church	240	10,094	Req	34	12	No	200FM	9 Rotating General	[illegible]
St. Vincent's Hospital 2701 Ninth Ct. S., Birmingham 5	Church	200	7,397	Req	31	12	115	225-250FM	8 Rotating General	[illegible]
South Highlands Infirmary 1-3 1127 S. 12th St., Birmingham 5	Corp	158	5,818	Req	30	12	115	250PM	6 Rotating General	[illegible]
University Hospital and Hillman Clinic +1-4-X10 619 S. 19th St., Birmingham 3	State	660	20,475	Req	43	12	116	100FM	36 Rotating General 12 Straight Medicine 3 Straight Pediatrics	[illegible] [illegible] [illegible]
Lloyd Noland Hospital +1-3 Fairfield	NPCorp	273	9,110	Req	44	12	No	200FM	13 Rotating General	[illegible]
Holy Name of Jesus Hospital 1-3 Moragne Park, Gadsden	Church	140	6,638	Req	33	12	No	150PM	4 Rotating General	0011
Mobile County Hospital +1-3 850 St. Anthony St., Mobile 16	CyCo	260	6,788	Req	73	12	No	150FM	12 Rotating General	[illegible]
Druid City Hospital 1 809 Birmingham Rd., Tuscaloosa	CyCo	231	12,272	Req	26	12	No	200-250FM	5 Rotating General	[illegible]
ARIZONA—Hospitals, 6; Internships, 60										
Good Samaritan Hospital +1 1033 E. McDowell Rd., Phoenix	Church	314	11,678	None	37	12	117	150FM	15 Rotating General	0011
Maricopa County General Hospital +1-3 3135 W. Durango St., Phoenix	County	404	6,710	Req	48	12	No	150-200PM	4 Rotating General	[illegible]
Memorial Hospital 1-3 1200 S. 5th Ave., Phoenix	NPCorp	189	7,249	Req	31	12	117	150FM	10 Rotating General	0111
St. Joseph's Hospital +1-3 350 W. Thomas Rd., Phoenix	Church	325	16,347	Req	52	12	117	150-200FM	15 Rotating General	0211
St. Mary's Hospital and Sanatorium +1-3 St Mary's Rd., Tucson	Church	315	13,428	Req	44	12	118	100FM	9 Rotating General	[illegible]
Tucson Medical Center +1-3 E. Grant Rd. and Beverly Blvd., Tucson	NPCorp	205	8,552	Req	52	12	118	100FM	7 Rotating General	[illegible]
ARKANSAS—Hospitals, 3; Internships, 71										
Arkansas Baptist Hospital +1 1700 W. 13th St., Little Rock	Church	305	14,081	None	28	12	No	200FM	16 Rotating General	[illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the Americ Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperat

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ARKANSAS—Continued										
St. Vincent Infirmary +$^{1-3}$ Markham and Hayes Sts., Little Rock	Church	310	11,193	Req	39	12	119	200FM	12 Rotating General	01711
University Hospital +^{1}-X11 12th and McAlmont Sts., Little Rock	State	197	6,427	Req	58	12	120	135	24 Rotating General 5 Straight Medicine 3 Straight Surgery 3 Straight Pediatrics 8 Mixed (Med.-Ped.)	01811 01832 01833 01834 01845
CALIFORNIA—Hospitals, 44; Internships, 822										
General Hospital of Riverside County +$^{1-5}$ 9851 Magnolia Ave., Arlington	County	321	4,405	Req	46	12	121	185PM	5 Rotating General	85011
Herrick Memorial Hospital +$^{1-3-4}$ 2001 Dwight Way, Berkeley 4	NPCorp	201	8,323	Req	72	12	No	100FM	6 Rotating General	02011
San Joaquin General Hospital +$^{1-5}$ French Camp	County	700	7,853	Req	58	12	No	150PM	15 Rotating General	02111
General Hospital of Fresno County +$^{1-4}$ 4475 E. Ventura Ave., Fresno 2	County	632	10,082	Req	37	12	No	195	20 Rotating General	02211
Glendale Sanitarium and Hospital +^{1} 1509 E. Wilson Ave., Glendale 6	Church	292	9,861	Req	59	12	No	152PM	12 Rotating General	02311
Loma Linda Sanitarium and Hospital +$^{1-3}$-x12 Loma Linda	Church	166	6,417	Req	53	12	No	192PM	10 Rotating General	02411
St. Mary's Long Beach Hospital +^{3} 509 E. 10th St., Long Beach 13	Church	250	15,342	Req	35	12	No	125FM	8 Rotating General	02611
Seaside Memorial Hospital +$^{1-3}$ 1401 Chestnut Ave., Long Beach 13	NPCorp	356	15,832	Req	30	12	122	75FM	15 Rotating General	02711
California Hospital +$^{1-3}$ 1414 S. Hope St., Los Angeles 15	Church	305	13,727	Req	49	12	123	125FM	13 Rotating General	02911
Cedars of Lebanon Hospital +$^{1-3}$ 4833 Fountain Ave., Los Angeles 29	NPCorp	466	15,277	Req	52	12	122	90FM	14 Rotating General	03011
Childrens Hospital +$^{1-3}$-X14 4614 Sunset Blvd., Los Angeles 27	NPCorp	266	8,769	Req	93	12	No	75FM	2 Straight Pediatrics	03134
Hospital of the Good Samaritan +$^{1-3}$ 1212 Shatto St., Los Angeles 17	Church	475	14,606	Req	50	12	124	140FM	10 Rotating General	03211
Los Angeles County Hospital +$^{1-4}$-X12-14-x13 1200 N. State St., Los Angeles 33	County	3,243	86,607	Req	34	12	No	160FM	150 Rotating General	03311
Presbyterian Hospital-Olmsted Memorial +$^{1-3}$ 1322 N. Vermont Ave., Los Angeles 27	Church	300	11,517	Req	34	12	No	140FM	10 Rotating General	03511
Queen of Angels Hospital +$^{1-3}$ 2301 Bellevue Ave., Los Angeles 26	Church	476	19,069	Req	51	12	125	125FM	16 Rotating General	03611
St. Vincent's Hospital +$^{1-3}$ 2131 W. 3rd St., Los Angeles 57	Church	237	10,161	Req	39	12	No	125FM	6 Mixed (Med.-Surg.-Ob.-Gyn.)	03722
Santa Fe Coast Lines Hospital + 610 S. St. Louis St., Los Angeles 23	NPCorp	196	5,321	Req	62	12	124	125FM	9 Rotating General	03811
University of California Hospital +$^{1-3}$-X13 10833 Le Conte Ave., Los Angeles 24	State	320	.....	Req	..	12	No	50PM	10 Straight Medicine 9 Straight Surgery 5 Straight Pediatrics 2 Straight Pathology	95632 95633 95634 95637
White Memorial Hospital +$^{1-3}$-X12 1720 Brooklyn Ave., Los Angeles 33	Church	218	8,534	Req	60	12	No	134PM	16 Rotating General	04011
Highland-Alameda County Hospital +$^{1-4-5}$ 2701 14th Ave., Oakland 6	County	429	13,481	Req	51	12	126	100FM	34 Rotating General	04111
Kaiser Foundation Hospital +$^{1-3}$ 280 W. MacArthur Blvd., Oakland 11	NPCorp	300	11,266	None	74	12	No	170	22 Rotating General	04211
Orange County General Hospital $^{1-3}$ 12071 Santa Ana Blvd., Orange	County	574	5,422	Req	55	12	No	192	20 Rotating General	04311
Collis P. and Howard Huntington Memorial Hospital +$^{1-3}$ 100 Congress St., Pasadena 2	NPCorp	289	11,338	Req	58	12	127	187	9 Rotating General	04411
Sacramento County Hospital +$^{1-5}$ 2315 Stockton Blvd., Sacramento 17	County	732	12,523	Req	59	12	No	120FM	24 Rotating General	04611
San Bernardino County Charity Hospital +-x12 780 E. Gilbert St., San Bernardino	County	411	7,124	Req	56	12	No	130PM	14 Rotating General	04711
Mercy Hospital +$^{1-3}$ Hillcrest Dr., San Diego 3	Church	335	17,606	Req	61	12	No	150FM	12 Rotating General	04811
San Diego County General Hospital +$^{1-4-5}$ N. Front St., San Diego 3	County	789	8,887	Req	44	12	128	125FM	15 Rotating General	04911
Children's Hospital +$^{1-3}$-x16 3700 California St., San Francisco 18	NPCorp	220	6,818	Req	58	12	No	100FM	6 Rotating General	05011
Franklin Hospital +$^{1-3}$ 14th and Noe Sts., San Francisco 14	NPCorp	250	7,288	Req	48	12	No	150FM	16 Rotating General	05111
French Hospital +$^{1-3}$ 4131 Geary Blvd., San Francisco 18	NPCorp	205	6,006	Req	35	12	129	100FM	10 Rotating General	05211
Kaiser Foundation Hospital +$^{1-3}$ 2425 Geary Blvd., San Francisco 15	NPCorp	208	8,474	Req	73	12	No	100FM	16 Rotating General	95011
Mary's Help Hospital +$^{1-3}$ 145 Guerrero St., San Francisco 3	Church	180	7,707	Req	39	12	No	100FM	6 Rotating General	05311
Mount Zion Hospital +$^{1-3}$ 1600 Divisadero St., San Francisco 15	NPCorp	294	11,259	Req	66	12	No	100FM	14 Rotating General	05411
St Luke's Hospital +$^{1-3}$ 1580 Valencia St., San Francisco 10	Church	229	8,991	Req	47	12	No	100FM	8 Rotating General	05611
St. Mary's Hospital +$^{1-3}$ 2200 Hayes St., San Francisco 17	Church	327	11,708	Req	64	12	No	100-150FM	15 Rotating General	05711
San Francisco Hospital +$^{1-4-5}$-X15-16 1001 Potrero Ave., San Francisco 10	CyCo	1,190	20,554	Req	47	12	130	140		
Stanford University Service Office of the Dean Stanford University School of Medicine 2398 Sacramento St., San Francisco 15									20 Rotating General	05911
University of California Service Dr. Leon Goldman San Francisco Hospital									31 Rotating General	05811
Southern Pacific General Hospital +$^{1-3}$ 1400 Fell St., San Francisco 17	NPCorp	450	6,499	Req	63	12	131	125FM	23 Rotating General	06011
Stanford University Hospitals +$^{1-3}$-X15 Clay and Webster Sts., San Francisco 15	NPCorp	351	11,655	Req	64	12	No	25FM	7 Straight Medicine 7 Straight Surgery 1 Straight Pediatrics	06132 06133 06134
University of California Hospitals +$^{1-3}$-X16 (Herbert C. Moffitt Hospital) Parnassus and First Aves., San Francisco 22 Dr. J. B. Saunders, Dean University of California School of Medicine, San Francisco 22	State	470	9,833	Req	78	12	132	161	16 Rotating General 10 Straight Medicine 9 Straight Surgery 5 Straight Pediatrics 2 Straight Pathology	06211 06232 06233 06234 06237

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
CALIFORNIA—Continued										
Santa Clara County Hospital +1 Los Gatos Rd., San Jose 28	County	451	4,069	Req	69	12	No	135FM	16 Rotating General	06311
Santa Barbara Cottage Hospital +1-3 320 W. Pueblo St., Santa Barbara	NPCorp	220	6,678	Req	75	12	133	175FM	10 Rotating General	06411
St. John's Hospital +-x13 1328 22nd St., Santa Monica	Church	222	12,017	Req	60	12	No	150PM	6 Rotating General	06511
Santa Monica Hospital 1-3 1250 16th St., Santa Monica	Church	236	12,597	Req	40	12	134	125FM	8 Rotating General	06611
Harbor General Hospital +1-4-X13 1124 W. Carson St., Torrance	County	730	11,177	Req	53	12	No	75FM	34 Rotating General	06711
COLORADO—Hospitals, 11; Internships, 136										
Glockner-Penrose Hospital +1-3 2200 N. Tejon St., Colorado Springs	Church	210	5,895	Req	71	12	No	150FM	2 Rotating General	06811
General Rose Memorial Hospital +1-3 1050 Clermont St., Denver 20	NPCorp	250	11,603	Req	63	12	No	250FM	9 Rotating General	06911
Mercy Hospital +1-3 1619 Milwaukee St., Denver 6	Church	250	11,251	Req	49	12	No	150FM	9 Rotating General	[illegible]
Porter Sanitarium and Hospital +1-3 2525 S. Downing St., Denver 10	Church	210	8,134	Req	44	12	136	165	10 Rotating General	07111
Presbyterian Hospital +1-3 19th Ave. and Gilpin St., Denver 18	Church	198	8,194	....	71	12	137	75FM	10 Rotating General	07211
St. Anthony Hospital +1-3 W. 16th and Quitman Sts., Denver 4	Church	215	10,576	Req	52	12	No	150FM	9 Rotating General	07311
St. Joseph's Hospital +1-3 1818 Humboldt St., Denver 18	Church	355	11,055	Req	58	12	137	75FM	11 Rotating General	07411
St. Luke's Hospital +1-3 601 E. 19th Ave., Denver 3	Church	417	15,571	Req	63	12	137	75FM	12 Rotating General	07511
University of Colorado Medical Center Colorado General Hospital +1-X17 4200 E. 9th Ave., Denver 20	State	271	6,005	None	93	12	No	50FM	16 Rotating General 12 Community Rotating	07611 07610
Denver General Hospital +1-3-4-X17 W. 6th Ave. and Cherokee St., Denver 4	CyCo	440	8,017	Req	65	12	135	105PM	16 Rotating General 16 Community Rotating	07711 07710
Weld County General Hospital 1 1801 16th St., Greely	County	220	6,839	Req	48	12	No	100FM	4 Rotating General	85311
CONNECTICUT—Hospitals, 21; Internships, 201										
Bridgeport Hospital +1-3 267 Grant St., Bridgeport 10	NPCorp	387	13,457	Req	39	12	No	190FM	8 Rotating General 2 Straight Medicine 2 Straight Surgery	07911 07932 07933
St. Vincent's Hospital +1-3 2820 Main St., Bridgeport 6	Church	368	15,776	Req	50	12	No	250	15 Rotating General	08011
Bristol Hospital 1-3 Newell Rd., Bristol	NPCorp	169	6,416	Req	43	12	No	150FM	2 Rotating General	92311
Danbury Hospital +1-3 95 Locust Ave., Danbury	NPCorp	167	6,507	Req	38	12	No	200FM	6 Rotating General	08111
Greenwich Hospital +1-3 Perryridge Rd., Greenwich	NPCorp	215	6,888	Req	77	12	No	100FM	9 Rotating General	08211
Hartford Hospital +1-3-4 80 Seymour St., Hartford 15	NPCorp	724	28,883	Req	65	24	No	50FM	18 Rotating General	08311
Hartford Municipal Hospital and Health Center +1-3 2 Holcomb St., Hartford 5	City	176	3,910	Req	52	12	No	120FM	9 Rotating General	08411
Mount Sinai Hospital 3 500 Blue Hills Ave., Hartford 12	NPCorp	115	5,651	Req	33	12	No	200FM	4 Rotating General	[illegible]
St. Francis Hospital +1-3-4 114 Woodland St., Hartford 5	Church	578	20,083	Req	53	12	No	75FM	15 Rotating General	[illegible]
Manchester Memorial Hospital 1-3 71 Haynes St., Manchester	NPCorp	163	7,531	Req	47	12	138	300PM	4 Rotating General	[illegible]
Meriden Hospital +1-3 181 Cook Ave., Meriden	NPCorp	215	8,283	Req	40	12	No	150FM	4 Rotating General	[illegible]
Middlesex Memorial Hospital +1-3 28 Crescent St., Middletown	NPCorp	168	7,058	....	47	12	No	150FM	6 Rotating General	[illegible]
New Britain General Hospital +1-3 92 Grand St., New Britain	NPCorp	288	10,317	Req	64	12	No	175FM	8 Rotating General	08911
Grace-New Haven Community Hosp. +1-3-4-X18 789 Howard Ave., New Haven 4	NPCorp	659	19,560	Req	56	12	139	25FM	14 Straight Medicine 13 Straight Surgery 7 Straight Pediatrics 6 Straight Pathology	[illegible] [illegible] [illegible] [illegible]
Hospital of St. Raphael +-3 1450 Chapel St., New Haven 11	Church	370	12,511	Req	38	12	No	100FM	12 Rotating General	[illegible]
Lawrence and Memorial Associated Hosps. +1-3 365 Montauk Ave., New London	NPCorp	221	9,714	Req	36	12	No	200FM	4 Rotating General	09211
Norwalk Hospital +1-3 24 Stevens St., Norwalk	NPCorp	310	11,118	Req	49	12	No	125FM	6 Rotating General	09311
William W. Backus Hospital 3 326 Washington St., Norwich	NPCorp	145	6,181	Req	31	12	No	200PM	3 Rotating General	[illegible]
Stamford Hospital +1-3 190 W. Broad St., Stamford	NPCorp	297	9,829	Req	55	12	No	100FM	10 Rotating General	09511
St. Mary's Hospital +1-3-4 56 Franklin St., Waterbury 6	Church	317	13,733	Req	43	12	No	200FM	7 Rotating General	09611
Waterbury Hospital +1-4 64 Robbins St., Waterbury 8	NPCorp	364	14,736	Req	58	12	No	200FM	7 Rotating General	09711
DELAWARE—Hospitals, 3; Internships, 34										
Delaware Hospital +1-3-4 501 W. 14th St., Wilmington 1	NPCorp	377	13,268	Req	72	12	No	150FM	16 Rotating General	09811
Memorial Hospital +1-3-4-x68 1501 Van Buren St., Wilmington 6	NPCorp	261	6,963	Req	57	12	No	150FM	12 Rotating General	09911
Wilmington General Hospital +1-3 Chestnut at Broom St., Wilmington 5	NPCorp	187	6,900	Req	40	12	No	150FM	6 Rotating General	10011
DISTRICT OF COLUMBIA—Hospitals, 9; Internships, 157										
Central Dispensary and Emergency Hosp. +1-3-4 (Washington Hospital Center) 1711 New York Ave., N.W., Washington 6	NPCorp	300	8,325	Req	54	12	140	200FM	15 Rotating General	[illegible]
Dist. of Columbia General Hosp. +1-3-4-X19-20-x21 19th and E. Sts., S.E., Washington 3	City	1,203	21,927	Req	51	12	No	128	50 Rotating General	[illegible]
Doctors Hospital +1-3 1815 Eye St., N.W., Washington 6	Corp	238	9,851	Req	74	12	141	150PM	6 Rotating General	[illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
DISTRICT OF COLUMBIA—Continued										
Garfield Memorial Hospital $^{+1-3}$ (Washington Hospital Center) 10th and Florida Ave., N.W., Washington 1	NPCorp	295	10,747	Req	68	12	142	200FM	15 Rotating General	80011
Georgetown University Hospital $^{+1-3}$-X19 3800 Reservoir Rd., N.W., Washington 7	Church	365	15,599	....	66	12	143	50FM	9 Straight Medicine	80132
George Washington University Hospital $^{+1-3}$-X20 901 23rd. St., N.W., Washington 7	NPCorp	410	15,982	Req	65	12	108	125PM	13 Rotating (Med. Maj.) 11 Rotating (Surg. Maj.) 1 Rotating (Path. Maj.)	80212 80213 80286
Providence Hospital $^{+1-3-4}$ 2nd and D. Sts., S.E., Washington 3	Church	270	10,665	Req	62	12	No	175FM	18 Rotating General	80311
Sibley Memorial Hospital $^{+1-3}$ 1150 N. Capitol St., Washington 2	Church	253	10,221	Req	44	12	No	100FM	9 Rotating General	80511
Washington Sanitarium and Hospital $^{1-3}$ 7600 Carroll Ave., Washington 12	Church	240	7,923	Req	36	12	140	136PM	10 Rotating General	25411
FLORIDA—Hospitals, 9; Internships, 126										
Duval Medical Center $^{+1-3}$ 2000 Jefferson St., Jacksonville 8	County	335	8,457	Req	44	12	No	125FM	18 Rotating General	10111
St. Luke's Hospital $^{+1}$ 9th St. and Boulevard, Jacksonville 8	NPCorp	215	9,990	Req	34	12	No	200PM	6 Rotating General	10211
St. Vincent's Hospital $^{+1-3}$ Barrs and St. Johns Ave., Jacksonville 4	Church	250	14,637	Req	54	12	No	200FM	18 Rotating General	10311
Jackson Memorial Hospital $^{+1-4}$-X22 1000 N.W. 17th St., Miami 36	County	844	25,402	Req	55	12	144	*60FM*	45 Rotating General	10411
St. Francis Hospital $^{+1-3}$ 250 W. 63rd St., Miami Beach 41	Church	200	7,058	Req	40	12	No	100FM	5 Rotating General	10511
Sacred Heart Hospital $^{+1-3}$ 1010 N. 12th Ave., Pensacola	Church	130	6,259	Req	38	12	No	200FM	3 Rotating General	10611
Mound Park Hospital $^{+1-3}$ 7th St. and 6th Ave. S., St. Petersburg 5	City	281	9,422	Req	34	12	145	260PM	12 Rotating General	91111
Tampa Municipal Hospital $^{+1-3}$ Davis Islands, Tampa 6	City	300	13,024	Req	52	12	146	200FM	15 Rotating General	10911
St. Mary's Hospital $^{1-3}$ 900 49th St., West Palm Beach	Church	200	6,980	Req	25	12	147	200PM	4 Rotating General	91411
GEORGIA—Hospitals, 11; Internships, 177										
Athens General Hospital 797 Cobb St., Athens	County	160	4,789	Req	36	12	No	275PM	4 Rotating General	85611
St. Mary's Hospital $^{1-3}$ 360 N. Milledge Ave., Athens	Church	100	4,162	Req	40	12	148	225FM	3 Rotating General	11011
Crawford W. Long Memorial Hospital $^{+1-3}$ 35 Linden Ave. N.E., Atlanta 3	Church	481	21,710	Req	40	12	149	100FM	18 Rotating General	11111
Georgia Baptist Hospital $^{+1}$ 300 Boulevard N.E., Atlanta 12	Church	475	20,268	Req	55	12	No	265FM	20 Rotating General	11211
Grady Memorial Hospital $^{+1-3-4}$-X23 36 Butler St., S.E., Atlanta 3	County	670	19,424	Req	62	12	No	10FM	8 Rotating General ^{6} 16 Straight Medicine 16 Straight Surgery 4 Straight Pediatrics	11311 11332 11333 11334
Piedmont Hospital $^{+1}$-x23 551 Capitol Ave., Atlanta	NPCorp	132	6,614	None	50	12	149	225PM	10 Rotating General	11411
[illegible]	Church	281	12,077	Req	42	12	149	150FM	12 Rotating General	11511
[illegible]	City	421	12,810	....	31	12	No	150PM	24 Rotating General	11611
[illegible] 19th St. and 8th Ave., Columbus	City	226	10,257	Req	33	12	No	200FM	12 Rotating General	11811
Emory University Hospital $^{+1-3}$-X23 Emory University	NPCorp	309	11,575	Req	64	12	No	165	6 Straight Medicine 6 Straight Surgery 2 Straight Pathology	11932 11933 11936
Macon Hospital $^{+1-3}$ 840 Pine St., Macon	CyCo	284	14,547	Req	38	12	No	200FM	16 Rotating General	12011
ILLINOIS—Hospitals, 53; Internships, 790										
MacNeal Memorial Hospital $^{+1-3}$ 3249 S. Oak Park Ave., Berwyn	NPCorp	271	11,047	Req	42	12	No	100-150FM	12 Rotating General	12111
St Francis Hospital $^{1-3}$ 12948 S. Gregory St., Blue Island	Church	160	6,556	Req	60	12	No	175FM	6 Rotating General	93211
American Hospital $^{+1-3}$ 850 W. Irving Park Rd., Chicago 13	NPCorp	152	5,246	Req	51	12	No	50FM	5 Rotating General	12311
Augustana Hospital $^{+1-3}$ 411 W. Dickens Ave., Chicago 14	Church	320	9,213	Req	60	12	No	100FM	10 Rotating General	12411
Chicago Wesley Memorial Hospital $^{+1-3}$-X26 250 E. Superior St., Chicago 11	Church	568	17,123	None	65	12	150	50FM	32 Rotating General	16211
Columbus Hospital $^{+3}$-x26 2520 N. Lakeview Ave., Chicago 14	Church	350	10,699	....	37	12	151	75FM	20 Rotating General	12611
✓ Cook County Hospital $^{+1}$-X25-26-27-29 1825 W. Harrison St., Chicago 12	County	3,200	71,390	Req	38	12	No	50FM	124 Rotating General	12711
Edgewater Hospital $^{1-3}$ 5700 N. Ashland Ave., Chicago 26	NPCorp	276	9,301	Req	42	12	No	100FM	12 Rotating General	12811
Englewood Hospital $^{+3}$ 6001 S. Green St., Chicago 21	NPCorp	154	6,524	Req	41	12	No	150FM	6 Rotating General	12911
Evangelical Hospital $^{1-3}$ 5421 S. Morgan St., Chicago 9	Church	195	7,854	None	45	12	No	150FM	9 Rotating General	13011
Grant Hospital $^{+1}$-X29 551 W. Grant Pl., Chicago 14	NPCorp	240	7,707	Req	57	12	150	200FM	9 Rotating General	13211
Hospital of St. Anthony de Padua $^{+1-3}$ 2875 W. 19th St., Chicago 23	Church	208	7,072	Req	43	12	No	200FM	8 Rotating General	13511
Illinois Central Hospital $^{+1-3}$-x29 5800 Stony Island Ave., Chicago 37	NPCorp	282	7,098	Req	66	12	153	164FM	14 Rotating General	13611
Illinois Masonic Hospital $^{+1-3}$ 836 Wellington Ave., Chicago 14	NPCorp	360	12,264	Req	50	12	No	100FM	12 Rotating General	13711
Jackson Park Hospital $^{1-3}$ 7531 Stony Island Ave., Chicago 49	Corp	146	4,839	None	43	12	No	150FM	8 Rotating General	13811
Loretto Hospital $^{+1-3}$X27 645 S. Central Ave., Chicago 44	Church	150	5,329	Req	64	12	No	150-200FM	6 Rotating General	13911
Lutheran Deaconess Home and Hospital $^{+3}$ 1138 N. Leavitt St., Chicago 22	Church	188	6,354	None	35	12	No	150FM	5 Rotating General	14011
Mercy Hospital $^{+1-3}$-X27 2537 S. Prairie Ave., Chicago 16	Church	356	9,321	Req	50	12	No	100FM	15 Rotating General	14111

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations. Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
ILLINOIS—Continued										
Michael Reese Hospital +[1-3]-X25-26 2929 S. Ellis Ave., Chicago 16	NPCorp	732	19,752	Req	65	12	154	75FM	38 Rotating General 1 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	14211 14232 14233 14234
Mount Sinai Hospital +[1-3]-X25 2750 W. 15th Pl., Chicago 8	NPCorp	373	12,226	Req	51	12	No	50FM	10 Rotating General 2 Straight Surgery	14411 14433
Norwegian-American Hospital +[1-3] 1044 N. Francisco Ave., Chicago 22	NPCorp	173	6,357	Req	40	12	No	200FM	10 Rotating General	14511
Passavant Memorial Hospital +[1-3]-X26 303 E. Superior St., Chicago 11	NPCorp	263	8,610	None	74	12	150	25FM	12 Rotating General	14611
Presbyterian Hospital +[1]-X29 1753 W. Congress St., Chicago 12	Church	432	13,632	Req	71	12	No	100FM	26 Rotating General	14711
Provident Hospital +[1-3] 426 E. 51st St., Chicago 15	NPCorp	203	6,551	Req	49	12	No	175FM	9 Rotating General 1 Straight Surgery	14811 14833
Ravenswood Hospital +[1-3] 1931 W. Wilson Ave., Chicago 40	NPCorp	207	8,090	....	61	12	No	75FM	6 Rotating General 1 Rotating (Med Major) 1 Rotating (Surg Maj.) 1 Rotating (Ob.-Gyn Major)	14911 14912 14913 14915
Resurrection Hospital [3] 7435 W. Talcott Ave., Chicago 31	Church	186	8,118	Req	71	12	No	200FM	9 Rotating General	23711
Roseland Community Hospital [3] 45 W. 111th St., Chicago 28	NPCorp	101	3,981	....	18	12	No	175FM	5 Rotating General	[illegible]
St. Anne's Hospital +[1-3] 4950 W. Thomas St., Chicago 51	Church	396	12,811	Req	39	12	No	200FM	12 Rotating General	[illegible]
St. Bernard's Hospital [1-3] 6337 S. Harvard Ave., Chicago 21	Church	189	9,095	None	27	12	No	150FM	8 Rotating General	15311
St. Elizabeth Hospital +[3] 1431 N. Claremont Ave., Chicago 22	Church	273	9,917	None	29	12	No	200FM	10 Rotating General	[illegible]
St. Joseph Hospital +[1-3]-X27 2100 N. Burling St., Chicago 14	Church	197	6,125	Req	60	12	No	200FM	8 Rotating General	[illegible]
St. Luke's Hospital +[1-3]-X26-x29 1439 S. Michigan Ave., Chicago 5	NPCorp	522	14,476	Req	70	12	No	50FM	32 Rotating General	[illegible]
St. Mary of Nazareth Hospital +[1] 1120 N. Leavitt St., Chicago 22	Church	270	8,650	Req	41	12	No	200FM	10 Rotating General	15711
South Chicago Community Hospital [1-3] 2320 E. 93rd St., Chicago 17	NPCorp	250	9,806	Req	33	12	No	150FM	8 Rotating General	[illegible]
South Shore Hospital +[1-3] 8015 S. Luella Ave., Chicago 17	NPCorp	163	6,337	Req	32	12	155	150 200FM	7 Rotating General	[illegible]
Swedish Covenant Hospital +[1-3] 5145 N. California Ave., Chicago 25	Church	230	6,272	None	36	12	No	150FM	8 Rotating General	[illegible]
University of Chicago Clinics +[1, 3-4]-X28 950 E. 59th St., Chicago 37	NPCorp	662	16,072	Req	79	12	No	150PM	36 Rotating General	[illegible]
University of Illinois Research and *Educational Hospitals* +[1, 4]-X29 840 S. Wood St., Chicago 12	*State*	*600*	*9,860*	*Req*	*90*	*12*	*No*	*50FM*	*36 Rotating General*	[illegible]
Walther Memorial Hospital [1-3] 1116 N. Kedzie Ave., Chicago 51	Church	172	6,922	Req	23	12	No	100FM	6 Rotating General	[illegible]
Woodlawn Hospital +[1-3] 6060 Drexel Ave., Chicago 37	NPCorp	150	4,513	Req	50	12	No	100FM	6 Rotating General	[illegible]
Decatur and Macon County Hospital +[1] 2300 N. Edward St., Decatur	NPCorp	257	9,412	Req	34	12	156	225PM	10 Rotating General	[illegible]
St. Mary's Hospital [3] 129 N. 8th St., East St. Louis	Church	320	10,179	....	31	12	No	150FM	12 Rotating General	[illegible]
Memorial Hospital of Du Page County [1-3] 189 Avon Rd., Elmhurst	NPCorp	187	10,148	Req	18	12	No	200FM	8 Rotating General	[illegible]
Evanston Hospital +[1]-X26 2650 Ridge Ave., Evanston	NPCorp	325	10,928	Req	78	12	No	50FM	18 Rotating General	[illegible]
St. Francis Hospital +[1] 355 Ridge Ave., Evanston	Church	383	14,231	Req	61	12	No	150FM	16 Rotating General	[illegible]
Little Company of Mary Hospital +[1] 2800 W. 95th St., Evergreen Park 42	Church	167	18,110	....	31	12	No	150FM	15 Rotating General	[illegible]
Oak Park Hospital [1-3] 525 Wisconsin Ave., Oak Park	Church	212	8,321	Req	36	12	No	150FM	10 Rotating General	[illegible]
West Suburban Hospital +[1] 518 N. Austin Blvd., Oak Park	NPCorp	320	12,385	Req	18	12	No	200FM	12 Rotating General	[illegible]
Methodist Hospital of Central Illinois +[1] 221 N. Glen Oak Ave., Peoria	Church	347	12,581	Req	58	12	No	125FM	16 Rotating General	17311
St. Francis Hospital +[1] 530 N. Glen Oak Ave., Peoria	Church	611	17,105	Req	46	12	No	200FM	18 Rotating General	17511
Rockford Memorial Hospital +[1-3] 2400 N. Rockton Ave., Rockford	NPCorp	191	7,345	Req	64	12	No	150FM	8 Rotating General	17711
St. Anthony Hospital +[1-3] 1401 E. State St., Rockford	Church	240	8,688	Req	18	12	No	150FM	6 Rotating General	[illegible]
Swedish-American Hospital + 1316 Charles St., Rockford	NPCorp	200	8,230	Req	16	12	No	150FM	6 Rotating General	17911
INDIANA—Hospitals, 17; Internships, 201										
St. Catherine Hospital [1-3] 4321 Fir St., East Chicago	Church	318	10,946	Req	51	12	No	200FM	7 Rotating General	18111
Protestant Deaconess Hospital [3] 600 Mary St., Evansville 10	Church	278	12,933	Req	39	12	No	150FM	4 Rotating General	[illegible]
St. Mary's Hospital [1-3] 3700 Washington Ave., Evansville 15	Church	178	7,652	Req	49	12	No	250PM	8 Rotating General	[illegible]
Lutheran Hospital 3024 Fairfield Ave., Fort Wayne 6	Church	240	7,335	Req	37	12	No	200 250FM	6 Rotating General	[illegible]
Parkview Memorial Hospital [1-3] 2200 Randallia Dr., Fort Wayne 3	NPCorp	212	9,368	Req	36	12	No	200 250FM	8 Rotating General	[illegible]
St. Joseph's Hospital +[1-3] 700 W. Berry St., Fort Wayne 2	Church	271	9,755	Req	41	12	No	200 250FM	6 Rotating General	[illegible]
Methodist Hospital +[1] 1600 W. 6th Ave., Gary	Church	242	16,133	...	39	12	No	175PM	10 Rotating General	[illegible]
St. Mary's Mercy Hospital [1-3] 540 Tyler St., Gary	Church	251	10,129	None	42	12	No	200FM	8 Rotating General	[illegible]
St. Margaret Hospital + 25 Douglas St., Hammond	Church	350	11,051	None	34	12	No	300FM	12 *Rotating General*	[illegible]
Indianapolis General Hospital +[1-4]-X30 960 Locke St., Indianapolis 7	County	691	12,014	Req	48	12	No	150PM	12 Rotating General	[illegible]
Indiana University Medical Center +[1-4]-X30 1100 W. Michigan St., Indianapolis 7	State	196	11,319	None	69	12	157	115FM	26 Rotating General 4 Straight Surgery	[illegible] [illegible]
Methodist Hospital +[1] 1604 N. Capitol Ave., Indianapolis 7	Church	640	26,471	Req	38	12	No	215PM	18 Rotating General	[illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
INDIANA—Continued										
St Vincent's Hospital *1-3 120 W. Fall Creek Pkwy., Indianapolis 7	Church	288	12,770	Req	46	12	No	200PM	11 Rotating General	[illegible]
St Elizabeth Hospital *1 1021 N 14th St, Lafayette	Church	287	9,736	Req	35	12	No	150FM	10 Rotating General	[illegible]
Ball Memorial Hospital *1 2401 University Ave, Muncie	NPCorp	250	10,786	Req	16	12	No	250PM	8 Rotating General	[illegible]
Memorial Hospital *1 604 N Main St, South Bend 1	NPCorp	225	9,676	Req	42	12	No	[illegible]	7 Rotating General	[illegible]
St. Joseph's Hospital 1-3 401 N Notre Dame Ave, South Bend 22	Church	174	7,284	None	32	12	No	215	6 Rotating General	[illegible]
IOWA—Hospitals, 8; Internships, 70										
Mercy Hospital 1-3 835 6th Ave S.E., Cedar Rapids	Church	217	8,001	Req	41	12	No	200FM	4 Rotating General	[illegible]
St Luke's Methodist Hospital *1-3 1026 A Ave, N E, Cedar Rapids	Church	206	11,897	Req	37	12	No	150FM	6 Rotating General	19711
Mercy Hospital 1-X47 420 E Washington Ave, Council Bluffs	Church	158	6,384	Req	21	12	No	150FM	4 Rotating General	[illegible]
Broadlawns, Polk County Hospital *1-3 18th and Hickman Rd, Des Moines 14	County	214	4,270	Req	[illegible]	12	No	170FM	12 Rotating General	19911
Iowa Methodist Hospital *1-3 1200 Pleasant St, Des Moines [illegible]	Church	395	14,903	Req	32	12	No	150FM	12 Rotating General	[illegible]
Mercy Hospital *1-3 4th and Ascension Sts, Des Moines 14	Church	300	8,843	Req	58	12	158	175FM	8 Rotating General	[illegible]
Mercy Hospital *1-2 214 N Van Buren St, Iowa City	Church	190	7,156	....	25	12	No	150FM	4 Rotating General	[illegible]
State University of Iowa Hospitals *1-2-4-X31 Newton Rd, Iowa City	State	896	19,679	Req	72	12	No	125FM	20 Rotating General	[illegible]
KANSAS—Hospitals, 7; Internships, 89										
Bethany Hospital 1-3 12th St and Reynolds Ave, Kansas City 7	Church	159	7,168	None	47	12	No	150FM	8 Rotating General	[illegible]
Providence Hospital 1 18th St and Barnett Ave, Kansas City 2	Church	150	7,329	Req	44	12	159	225PM	6 Rotating General	20611
St Margaret's Hospital *1-3 8th St and Vermont Ave, Kansas City 8	Church	[illegible]	5,935	Req	45	12	No	225FM	6 Rotating General	20711
University of Kansas Medical Center *1-3-4-X32 39th and Rainbow Blvd, Kansas City 3	State	346	11,534	....	74	12	No	40PM	12 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology 3 Mixed (Med.-Surg.-Ped.) 1 Mixed (Path.-Med.) 1 Mixed (Path.-Surg.)	[illegible]
St Francis Hospital *1-3 925 N Emporia Ave, Wichita 5	Church	525	20,911	Req	41	12	160	125FM	20 Rotating General	[illegible]
Wesley Hospital *1-3 550 N Hillside Ave, Wichita 6	Church	[illegible]	15,587	Req	34	12	160	170FM	16 Rotating General	21011
Wichita St Joseph Hospital *1-3 3400 Grand Ave, Wichita 17	Church	325	12,294	Req	26	12	160	150FM	12 Rotating General	21111
KENTUCKY—Hospitals, 9; Internships, 104										
St Elizabeth Hospital 1-3 21st and Eastern Ave, Covington	Church	304	12,615	Req	34	12	No	200FM	12 Rotating General	[illegible]
Good Samaritan Hospital * 310 S Limestone St, Lexington	Church	315	[illegible]	Req	22	12	No	150FM	12 Rotating General	[illegible]
St Joseph Hospital *1-3 544 W 2nd St, Lexington	Church	256	9,336	Req	46	12	No	200FM	8 Rotating General	21511
Kentucky Baptist Hospital 3 810 Barret Ave, Louisville 4	Church	345	14,812	Req	34	12	161	200FM	10 Rotating General	21611
Louisville General Hospital *1-3-4-X33 323 E Chestnut St, Louisville 2	CyCo	500	10,153	Req	26	12	162	70FM	22 Rotating General 4 Straight Medicine 3 Straight Pediatrics	21711 [illegible] [illegible]
Norton Memorial Infirmary *1-3 231 W Oak St, Louisville 3	NPCorp	250	10,955	Req	39	12	164	[illegible]	6 Rotating General	[illegible]
St Anthony Hospital *1-3 1313 St Anthony Pl, Louisville 4	Church	210	9,400	Req	30	12	163	200PM	5 Rotating General	[illegible]
St Joseph Infirmary *1-3 735 Eastern Pkwy, Louisville 17	Church	436	17,943	Req	23	12	No	175FM	16 Rotating General	[illegible]
SS Mary and Elizabeth Hospital 1-3 1307 S 12th St, Louisville 10	Church	178	8,744	Req	39	12	164	200FM	4 Rotating General	[illegible]
LOUISIANA—Hospitals, 10; Internships, 240										
Baton Rouge General Hospital *[illegible] 3600 Florida St, Baton Rouge 9	Church	[illegible]	14,533	Req	[illegible]	12	165	100FM	[illegible] Rotating General	[illegible]
Charity Hospital of Louisiana *1-3-4-X34-35 1532 Tulane Ave, New Orleans 12	State	[illegible]	[illegible]	Req	[illegible]	12	No	75FM	120 Rotating General	[illegible]
Hotel Dieu *1-3 2004 Tulane Ave, New Orleans 16	Church	[illegible]	13,112	Req	40	12	No	150FM	12 Rotating General	[illegible]
Mercy Hospital 3 301 N Jefferso [illegible] 3	Church	[illegible]	[illegible]	Req	43	12	No	170FM	8 Rotating General	[illegible]
Ochsner Foundation [illegible] 1516 Jefferson Highway, New Orleans 21	NPCorp	[illegible]	7,211	Req	82	12	No	75FM	4 Straight Medicine	[illegible]
Southern Baptist Hospital *1 2700 Napoleon Ave, New Orleans 15	Church	[illegible]	19,962	Req	[illegible]	12	No	165	[illegible] Rotating General	[illegible]
Touro Infirmary *1-[illegible]-X35 3516 Prytania St, New Orleans 15	NPCorp	[illegible]	[illegible]	Req	[illegible]	12	No	75FM	[illegible] Rotating General	[illegible]
Confederate Memorial Medical Center *1 1541 Kings Highway, Shreveport	State	[illegible]	[illegible]	Req	34	12	No	[illegible]	[illegible] Rotating General	[illegible]
North Louisiana Sanitarium 1 1120 Louisiana Ave, Shreveport	Corp	[illegible]	[illegible]	Req	37	12	[illegible]	225FM	3 Rotating General	[illegible]
T. E. Schumpert Memorial Sanitarium 1 941 Margaret Pl, Shreveport 15	Church	107	[illegible]	Req	47	12	[illegible]	[illegible]	2 Rotating (Surg.-Ma[illegible]	[illegible]
MAINE—Hospitals, 4; Internships, 30										
Eastern Maine General Hospital *1 489 State St, Bangor	NPCorp	297	9,644	Req	45	12	No	75FM	8 Rotating General	[illegible]
Central Maine General Hospital *1-3 [illegible] Main St, Lewiston	NPCorp	220	7,166	Req	[illegible]	12	No	125FM	8 Rotating General	.....

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MAINE—Continued										
St. Mary's General Hospital $^{1-3}$ 318 Sabattus St., Lewiston	Church	150	4,172	Req	27	12	No	125FM	4 Rotating General	23511
Maine General Hospital +$^{1-3}$ 22 Arsenal St., Portland 4	NPCorp	340	9,122	Req	41	12	No	75FM	12 Rotating General	23611
MARYLAND—Hospitals, 18; Internships, 281										
Baltimore City Hospitals +$^{1-3-4}$-X36-37 4940 Eastern Ave., Baltimore 24	City	1,150	12,640	Req	60	12	167	50FM	12 Rotating General 7 Straight Medicine 6 Straight Pediatrics 2 Straight Pathology 2 Mixed (Med.-Ped.) 2 Mixed (Ped.-Med.)	23711 23732 23734 23736 23753 23754
Bon Secours Hospital +^{3} 2025 W. Fayette St., Baltimore 23	Church	170	6,912	Req	30	12	No	225FM	6 Rotating General	23811
Church Home and Hospital +$^{1-3}$ Broadway and Fairmount Aves., Baltimore 31	Church	184	5,770	Req	19	12	No	175FM	8 Rotating General 1 Straight Medicine	23911 23932
Franklin Square Hospital +$^{1-3}$ 110 N. Calhoun St., Baltimore 23	NPCorp	165	5,095	Req	31	12	168	200FM	8 Rotating General	24011
Hospital for Women +$^{1-3}$ Lafayette Ave. and John St., Baltimore 17	NPCorp	151	6,590	Req	46	12	No	200FM	4 Mixed (Med.-Ob.-Gyn.)	24109
Johns Hopkins Hospital +$^{1-3-4}$-X36 601 N. Broadway, Baltimore 5	NPCorp	997	22,612	Req	66	12	169	20FM	14 Straight Medicine 10 Straight Medicine (Private Wards) 19 Straight Surgery 20 Straight Pediatrics 3 Straight Pathology	24232 24233 24233 24234 24236
Lutheran Hospital +$^{1-3}$ 730 Ashburton St., Baltimore 16	Church	191	7,783	Req	46	12	No	200FM	7 Rotating General	24311
Maryland General Hospital +$^{1-3}$ Linden Ave. and Madison St., Baltimore 1	Church	230	7,045	Req	41	12	No	200FM	10 Rotating General	24411
Mercy Hospital +$^{1-3-4}$-X37 Calvert and Saratoga Sts., Baltimore 2	Church	300	10,612	Req	50	12	No	225PM	16 Rotating General	24511
Provident Hospital and Free Dispensary +$^{1-3-4}$ 1514 Division St., Baltimore 17	NPCorp	137	3,718	Req	11	12	No	100FM	8 Rotating General	24611
St. Agnes Hospital +^{1} 1000 Caton Ave., Baltimore 29	Church	217	8,059	Req	52	12	167	100FM	9 Rotating General	24711
St. Joseph's Hospital +^{3} 1400 N. Caroline St., Baltimore 13	Church	250	7,466	Req	39	12	104	200FM	8 Rotating General	24811
Sinai Hospital +$^{1-3-4}$ 1714 E. Monument St., Baltimore 5	NPCorp	312	12,119	Req	52	12	No	100FM	16 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics	24911 24932 24933 24934
South Baltimore General Hospital +$^{1-3}$ 1213 Light St., Baltimore 30	NPCorp	181	5,817	None	35	12	No	140FM	8 Rotating General	25011
Union Memorial Hospital +$^{1-3}$ 33rd and Calvert Sts., Baltimore 18	NPCorp	312	9,998	Req	43	12	No	200FM	16 Rotating General	25111
University Hospital +$^{1-3-4}$-X37 Redwood and Greene Sts., Baltimore 1	State	582	14,168	Req	46	12	No	25FM	32 Rotating General 2 Straight Medicine 2 Straight Pediatrics	25211 25232 25234
*Suburban Hospital +$^{1-3}$ 8600 Old Georgetown Rd., Bethesda 14	NPCorp	125	6,180	Req	41	12	142	100-200FM	4 Rotating General	....
Prince George's General Hospital +$^{1-3}$-x19 Cheverly	County	235	10,644	Req	43	12	No	150FM	14 Rotating General	9611
✓ **MASSACHUSETTS—Hospitals, 34; Internships, 388**										
Beverly Hospital +$^{1-3}$ Herrick and Heather Sts., Beverly	NPCorp	186	6,463	Req	66	12	No	50FM	6 Rotating General	[illegible]
Beth Israel Hospital +$^{1-3-4}$-X39-40 330 Brookline Ave., Boston 15	NPCorp	325	11,439	Req	52	12	170	25FM	10 Straight Medicine 5 Straight Surgery	[illegible]
Boston City Hospital +$^{1-3-4}$-X38-39-40 818 Harrison Ave., Boston 18 Chrm. Com. Internship Exams	City	3,067	33,686	None	45	12	No	92FM	16 Straight Medicine 16 Straight Medicine 16 Straight Medicine 8 Straight Surgery 8 Straight Surgery 8 Straight Surgery 4 Straight Pediatrics 5 Straight Pathology	[illegible]
	I and III II and IV V and VI I III V	Medical Tufts . . . Fernando Biguria, M. D. Medical Harvard . . . Wm. B. Castle, M. D. Medical Boston Univ. . . . Kermit Katz, M. D. Surgical Tufts Surgical Boston Univ. Surgical Harvard Straight Specialties, Boston Univ. Pathology								
Carney Hospital +$^{1-3}$ 2100 Dorchester Ave., Boston 24	Church	280	10,176	Req	44	12	171	100FM	12 Rotating General	[illegible]
Children's Medical Center +$^{1-3-4}$-X38 [illegible], Boston 15	NPCorp	401	10,124	Req	77	12	172	FM	5 Straight Pediatrics 2 Straight Pathology	[illegible]
[illegible] Hospital +$^{1-3-4}$-X39 Fruit St., Boston 14	NPCorp	869	22,663	Req	68	12	173	33FM	13 Straight Medicine 8 Straight Surgery 7 Straight Pediatrics 1 Straight Pathology	[illegible]
Massachusetts Memorial Hospitals +$^{1-3}$X38 750 Harrison Ave., Boston 18	NPCorp	328	7,638	Req	64	12	174	25FM	10 Straight Medicine 6 Straight Surgery 1 Straight Pathology	[illegible]
New England Center Hospital +$^{1-3}$-X40 Harrison Ave. and Bennet St., Boston 11	NPCorp	202	6,041	Req	66	12	175	41FM	10 Straight Medicine 8 Straight Surgery	[illegible]
New England Hospital +$^{1-3}$ Dimock St. and Columbus Ave., Boston 19	NPCorp	150	3,757	Req	35	12	176	35FM	4 Rotating General	[illegible]
Peter Bent Brigham Hospital +$^{1-3-4}$-X39 721 Huntington Ave., Boston 15	NPCorp	280	6,278	Req	78	12	177	25FM	12 Straight Medicine 6 Straight Surgery	[illegible]
St. Elizabeth's Hospital +$^{1-3}$-X40 736 C[illegible] St., Boston (Brighton) 35	Church	400	12,993	Req	66	12	No	95FM	12 Rotating General	[illegible]
Brockt[illegible] 680 Cent[illegible] St., [illegible] 11	NPCorp	189	7,121	Req	51	12	No	250FM	4 Rotating General	26711
[illegible] City Hospital +^{1}-x40 [illegible] Cambridge 39	City	216	6,315	Req	50	12	No	100FM	12 Rotating General	26811
[illegible] +$^{1-3}$-x39 330 Mount Auburn St., Cambridge 38	NPCorp	216	7,459	Req	53	12	178	100FM	6 Rotating General	[illegible]
Truesdale Hospital +$^{1-3}$ 1820 Highland Ave., Fall River	NPCorp	152	4,490	Req	53	12	179	100FM	8 Rotating General	27011
Union Hospital $^{1-3}$ 300 Hanover St., Fall River	NPCorp	184	6,161	Req	38	12	No	100-150FM	6 Rotating General	[illegible]
Holyoke Hospital $^{1-3-4}$ 575 Beech St., Holyoke	NPCorp	180	5,776	Req	33	12	No	100FM	2 Rotating General 2 Mixed (Med.-Surg.)	27311 [illegible]
Lawrence General Hospital +$^{1-3}$ 1 Garden St., Lawrence	NPCorp	187	6,817	Req	59	12	No	100FM	4 Rotating General	27411

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MASSACHUSETTS—Continued										
Lowell General Hospital +1 3 295 Varnum Ave, Lowell	NPCorp	210	6,218	Req	38	12	No	100-150FM	2 Rotating General	27511
St John's Hospital 3 14 Bartlett St, Lowell	Church	183	6,729	Req	40	12	No	100FM	5 Rotating General	27611
St Joseph's Hospital 1 3 830 Merrimack St, Lowell	Church	189	6,783	Req	38	12	No	125FM	4 Rotating General	27711
Lynn Hospital +1 3 212 Boston St, Lynn	NPCorp	248	11,393	Req	42	12	No	100FM	10 Rotating General	27811
St Luke's Hospital +1 3 101 Page St, New Bedford	NPCorp	339	11 163	Req	22	12	No	150FM	6 Rotating General	27911
Newton Wellesley Hospital +1-3 2014 Washington St, Newton Lower Falls 62	NPCorp	235	7,753	Req	44	12	No	120FM	6 Rotating General	28011
St Luke's Hospital 1 3 379 East St, Pittsfield	Church	150	4,650	Req	48	12	No	150FM	3 Rotating General	28211
Quincy City Hospital +1 3 114 Whitwell St, Quincy 69	City	251	11,374	Req	59	12	No	137FM	12 Rotating General	28311
Salem Hospital +1 3 4 81 Highland Ave, Salem	NPCorp	244	7 861	Req	31	12	No	110 150FM	6 Rotating General	28411
Mercy Hospital 3 233 Carew St, Springfield 4	Church	340	11,984	Req	27	12	No	150-200FM	6 Rotating General	28511
Springfield Hospital +1 3 759 Chestnut St, Springfield 7	NPCorp	321	9,518	Req	48	12	180	75FM	8 Rotating General	28611
Wesson Memorial Hospital 1 3 140 High St, Springfield 5	NPCorp	159	6,380	None	51	12	180	100FM	4 Rotating General	28711
Waltham Hospital 1-x40 Hope Ave, Waltham 54	NPCorp	155	5,589	Req	32	12	No	200FM	4 Rotating General	28811
Memorial Hospital +1 3 4 119 Belmont St, Worcester 5	NPCorp	294	11,192	Req	55	12	No	100FM	9 Rotating General	28911
St Vincent Hospital +1 3 25 Winthrop St, Worcester 10	Church	307	12,816	Req	47	12	No	150FM	16 Rotating General	29011
Worcester City Hospital +3 4 71 Jacques Ave, Worcester 9	City	436	11,374	Req	51	12	No	115FM	24 Rotating General	29111
✓MICHIGAN—Hospitals, 37; Internships, 610										
St Joseph Mercy Hospital +1 3-x41 326 N Ingalls St, Ann Arbor	Church	385	10,504	Req	79	12	No	200FM	14 Rotating General	29211
University Hospital +1-3-4-X41 1313 E Ann St, Ann Arbor	State	1,008	20,040	....	72	12	181	117	3 Rot (Anes Major) 2 Rot (Derm Major) 12 Rot. (Gen Prac Maj) 8 Rot (Med Major) 2 Rot (Neuro Major) 3 Rot (Ob Gyn Major) 1 Rot (Ophth Major) 1 Rot (Otol. Major) 2 Rot (Path Major) 3 Rot (Ped Major) 2 Rot (Phys Med & Rehab Major) 14 Rot (Surg. Major)	29377 29375 29381 29312 29374 29315 29379 29378 29386 29314 29380 29313
Leila Y Post Montgomery Hospital +1-3 9 Emmett St, Battle Creek	Church	175	7,681	Req	52	12	No	200FM	4 Rotating General	29411
Mercy Hospital 1-3 960 Agard St, Benton Harbor	NPCorp	161	5,910	Req	40	12	No	225FM	6 Rotating General	96011
Oakwood Hospital +1-3 18101 Oakwood Blvd, Dearborn 8	NPCorp	232	19,733	Req	50	12	182	250	10 Rotating General	94611
Detroit Memorial Hospital +1 1420 St Antoine St, Detroit 26	NPCorp	322	10,791	Req	51	12	183	230FM	14 Rotating General	29611
Evangelical Deaconess Hospital +1-3 3245 E Jefferson Ave, Detroit 7	Church	185	7,936	Req	35	12	184	262PM	8 Rotating General	29711
Grace Hospital +1-3 4160 John R St, Detroit 1	NPCorp	741	28,397	Req	49	12 24	No	250PM	24 Rot General (12 mo) 6 Rot General (24 mo)	29811 29816
Harper Hospital +1-3 3825 Brush St., Detroit 1	NPCorp	616	23,979	Req	48	12	183	200	36 Rotating General	29911
Henry Ford Hospital +1-3 2799 W Grand Blvd, Detroit 2	NPCorp	806	22,910	Req	63	12	No	200	40 Rotating General	30011
Mount Carmel Mercy Hospital +1-3-4 6071 W Outer Dr, Detroit 35	Church	556	23,169	Req	52	12	No	200FM	24 Rotating General	30211
Providence Hospital +1 2500 W Grand Blvd, Detroit 8	Church	362	14,342	Req	54	12	185	250PM	12 Rotating General	30311
Receiving Hospital +1-X42 1326 St Antoine St, Detroit 26	City	700	20,174	Req	72	12	186	245	66 Rotating General	29511
St John Hospital +1-3 22101 Moross Rd, Detroit 36	Church	272	14,000	Req	43	12	No	250FM	12 Rotating General	91511
St Joseph Mercy Hospital + 2200 E Grand Blvd, Detroit 11	Church	250	9,209	Req	51	12	187	225FM	9 Rotating General	30411
Sinai Hospital +1 4 6767 W Outer Dr, Detroit 35	NPCorp	220	9,355	Req	53	12	183	225FM	15 Rotating General	92511
Woman's Hospital +1-3 432 E Hancock Ave, Detroit 1	NPCorp	354	11 430	Req	69	12	188	250PM	12 Rotating General	30511
Wayne County General Hospital and Infirmary +1-3-x-42 Eloise	County	3,448	12,070	Req	35	12	189	276FM	36 Rotating General	30611
Hurley Hospital +1-3 6th Ave and Begole St, Flint 2	City	457	21,460	Req	63	12	No	250PM	30 Rotating General	30711
McLaren General Hospital +1 401 Ballenger Hwy, Flint 2	NPCorp	250	11 169	Req	53	12	190	250PM	12 Rotating General	86611
St Joseph Hospital +1-3 302 Kensington Ave, Flint 2	Church	280	13 907	Req	57	12	No	275FM	12 Rotating General	30811
Blodgett Memorial Hospital +1-3 1840 Wealthy St, S E Grand Rapids 6	NPCorp	314	11,175	Req	70	12	No	200FM	12 Rotating General	30911
Butterworth Hospital +1-3 300 Bostwick Ave, N E, Grand Rapids 3	NPCorp	419	16,198	Req	65	12	No	200FM	16 Rotating General	31011
St Mary's Hospital +1-3 200 Cherry St, S E, Grand Rapids 3	Church	330	10,978	Req	50	12	No	200FM	14 Rotating General	31111
Bon Secours Hospital +1-3 468 Cadieux Rd, Grosse Pointe 30	Church	157	6,504	Req	46	12	188	250FM	6 Rotating General	99611
Highland Park General Hospital +1 369 Glendale Ave, Highland Park 3	City	338	11,330	Req	46	12	187	250FM	14 Rotating General	31211
Borgess Hospital +1-3 1521 Gull Rd, Kalamazoo 62	Church	240	8,562	Req	43	12	No	200FM	4 Rotating General	31311
Bronson Methodist Hospital +1 252 E Lovell St, Kalamazoo 8	Church	250	8,480	Req	56	12	No	240	6 Rotating General	31411

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations. —Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MICHIGAN—Continued										
Edward W Sparrow Hospital +$^{1-3}$ 1215 E Michigan Ave, Lansing 12	NPCorp	296	13,877	None	59	12	No	300	16 Rotating General	31511
St Lawrence Hospital +$^{1-3}$ 1210 W Saginaw St, Lansing 15	Church	275	12,319	None	62	12	No	300FM	12 Rotating General	31611
Midland Hospital ^{1} 1005 Orchard Dr, Midland	NPCorp	153	6,632	Req	61	12	No	250FM	6 Rotating General	31711
Pontiac General Hospital +$^{1-3}$ 461 W Huron St, Pontiac 18	City	198	12,118	Req	54	12	191	275PM	13 Rotating General	31811
St Joseph Mercy Hospital +$^{1-3}$ 900 Woodward Ave, Pontiac 19	Church	310	15,190	Req	67	12	No	250FM	12 Rotating General	31911
Saginaw General Hospital +$^{1-3}$ 1447 N Harrison St, Saginaw	NPCorp	220	9,422	Req	65	12	192	275	6 Rotating General	32011
St Luke's Hospital +^{1} 705 Cooper St, Saginaw	Church	113	7,116	Req	61	12	No	250PM	6 Rotating General	32111
St Mary's Hospital + 830 S Jefferson Ave, Saginaw	Church	175	8,012	Req	16	12	No	310	6 Rotating General	32211
James Decker Munson Hospital $^{1-3}$ 6th St, Traverse City	NPCorp	191	6,559	Req	50	12	No	225PM	6 Rotating General	32311
MINNESOTA—Hospitals, 14; Internships, 217										
St Luke's Hosital +^{1} 915 E 1st St, Duluth 11	NPCorp	355	13,964	Req	72	12	193	75FM	18 Rotating General	32411
St Mary's Hospital +$^{1-3}$ 429 E 3rd St, Duluth 11	Church	285	10,886	Req	68	12	193	75FM	12 Rotating General	32511
Minneapolis General Hospital +$^{1-4}$-X43 619 S 5th St, Minneapolis 15	City	491	6,896	Req	65	12	No	50FM	39 Rotating General	32911
Mount Sinai Hospital +$^{1-3}$ 737 E 22nd St, Minneapolis 4	NPCorp	215	9,281	Req	59	12	No	100FM	10 Rotating General	[illegible]
Northwestern Hospital +$^{1-3}$ 810 E. 27th St, Minneapolis 7	NPCorp	258	11,169	Req	64	12	No	175FM	8 Rotating General 1 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics	33011 33032 33033 33034
St Barnabas Hospital +$^{1-3}$ 920 S. 7th St, Minneapolis 4	Church	274	12,994	Req	62	12	194	195PM	10 Rotating General	33111
St. Mary's Hospital +$^{1-3}$ 2500 S. 6th St, Minneapolis 6	Church	325	14,825	Req	57	12	195	150FM	12 Rotating General	33211
Swedish Hospital +$^{1-3}$ 914 S 8th St, Minneapolis 4	NPCorp	420	17,390	None	47	12	No	150FM	8 Rotating General	33311
University of Minnesota Hospitals +$^{1-3-4}$-X43 412 Union St., S E, Minneapolis 14	State	639	11,900	Req	83	12	196	50FM	12 Rotating General 6 Straight Medicine 9 Straight Surgery 9 Straight Pediatrics	33411 33432 33433 33434
Ancker Hospital +$^{1-3}$-X43 495 Jefferson Ave, St. Paul 1	Cy Co	850	8,337	Req	59	12	No	75FM	26 Rotating General	33511
Bethesda Hospital $^{1-3}$ 559 Capitol Blvd, St Paul 1	Church	172	8,850	Req	47	12	197	200FM	6 Rotating General	33611
Charles T. Miller Hospital +$^{1-3}$ 125 W. College Ave, St. Paul 2	NPCorp	360	11,617	Req	58	12	198	100FM	13 Rotating General	33711
St Joseph's Hospital +$^{1-3}$ 69 W. Exchange St, St Paul 2	Church	284	11,144	Req	60	12	No	100FM	12 Rotating General	33811
St. Luke's Hospital $^{1-3}$ 287 N. Smith Ave, St Paul 2	NPCorp	140	6,452	Req	52	12	199	150FM	4 Rotating General	33911
MISSISSIPPI—Hospitals, 3; Internships, 40										
Mississippi Baptist Hospital +$^{1-3}$ 1190 N. State St, Jackson	Church	308	14,556	Req	28	12	No	100FM	12 Rotating General	34011
University Hospital +^{1}-X44 2500 N. State St, Jackson 2	State	355	......	Req	55	12	No	200	24 Rotating General	[illegible]
Mercy Hospital Street Memorial +$^{1-3}$ 900 Crawford St, Vicksburg	Church	142	4,019	Req	33	12	200	100FM	4 Rotating General	34111
MISSOURI—Hospitals, 24; Internships, 414										
St Louis County Hospital +$^{1-3}$ 601 S Brentwood Blvd, Clayton 5	County	200	3,670	Req	63	12	No	150FM	10 Rotating General	34211
Kansas City General Hospital No 1 +^{1}-X32 24th and Cherry Sts, Kansas City 8	City	418	7,600	Req	56	12	No	75FM	30 Rotating General	34311
Menorah Medical Center +$^{1-3}$-X32 4949 Rockhill Rd., Kansas City 10	NPCorp	333	10,692	Req	64	12	No	250FM	16 Rotating General	34411
Research Hospital +$^{1-3}$ 2300 Holmes St, Kansas City 8	NPCorp	257	7,902	Req	59	12	159	175FM	8 Rotating General	34511
St. Joseph Hospital +$^{1-3}$ 2510 E Linwood Blvd, Kansas City 28	Church	321	12,968	Req	52	12	No	200FM	12 Rotating General 2 Straight Surgery	34711 34733
St Luke's Hospital +$^{1-3}$ 4400 J. C. Nichols Pkwy., Kansas City 11	Church	459	13,979	Req	67	12	159	150FM	18 Rotating General	34811
St Mary's Hospital +$^{1-3}$ 101 Memorial Dr., Kansas City 8	Church	290	10,808	None	58	12	159	150FM	12 Rotating General	34911
Trinity Lutheran Hospital $^{1-3}$ 3901 Wyandotte St, Kansas City 8	Church	150	6,189	Req	50	12	159	200FM	8 Rotating General	35011
Missouri Methodist Hospital +^{1} 8th and Faraon St, St Joseph 51	Church	300	8,291	Req	35	12	No	175FM	8 Rotating General	35111
St Joseph's Hospital $^{1-3-4}$ 923 Powell St, St Joseph 19	Church	116	6,005	Req	29	12	No	250FM	4 Rotating General	35211
Barnes Hospital +$^{1-3}$-X46 600 S Kingshighway Blvd, St Louis 10	NPCorp	957	25,585	Req	76	12	No	10FM	10 Str Med (Ward) 14 Str Med (Private) 14 Straight Surgery 5 Straight Pathology	35332 35331 [illegible] [illegible]
Christian Hospital $^{1-3}$ 4411 N. Newstead Ave, St Louis 15	Church	135	5,021	Req	39	12	No	175FM	5 Rotating General	35411
De Paul Hospital +$^{1-3}$ 2415 N Kingshighway Blvd, St Louis 13	Church	350	11,857	Req	43	12	No	150FM	12 Rotating General	35511
Evangelical Deaconess Hospital +$^{1-3}$ 6150 Oakland Ave, St Louis 10	Church	254	7,219	Req	45	12	201	150FM	8 Rotating General	35611
Homer G Phillips Hospital +$^{1-4}$-X46 2601 N Whittier St, St Louis 13	City	689	16,878	Req	44	12	No	155	40 Rotating General	35711
Jewish Hospital +$^{1-3-4}$ 216 S. Kingshighway Blvd, St Louis 10	NPCorp	295	9,775	Req	48	12	No	75FM	15 Rotating General	35811
Lutheran Hospital $^{1-3}$ 2639 Miami St, St Louis 18	Church	171	5,958	Req	42	12	No	150FM	12 Mixed (Med Surg-Ob Gyn)	35922
Missouri Baptist Hospital +$^{1-3}$ 919 N Taylor Ave, St Louis 8	Church	186	11,072	None	43	12	No	125FM	12 Rotating General 2 Rot (Med Major) 2 Rot. (Surg Major)	36011 [illegible] [illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
MISSOURI—Continued										
St Anthony's Hospital +1 3-x45 3520 Chippewa St, St Louis 18	Church	256	9 031	None	23	12	202	100FM	4 Rotating General	25111
St John's Hospital +1 3-x45 307 S Euclid Ave, St Louis 10	Church	358	11 359	Req	43	12	No	150FM	18 Rotating General	25211
St Louis Children's Hospital +1-X46 500 S Kingshighway Blvd, St Louis 10	NPCorp	175	3,234	Req	81	12	203	10FM	8 Straight Pediatrics	40234
St Louis City Hospital +1 3-X45-46 1515 Lafayette Ave, St Louis 4	City	1 050	14 613	Req	57	12	No	142	60 Rotating General	25311
St Luke's Hospital +1 5535 Delmar Blvd, St Louis 12	Church	325	6 726	Req	64	12	No	100FM	11 Rotating General	25411
St Mary's Group of Hospitals +1 3-X45 1407 S Grand Blvd, St Louis 4	Church	711	19 692	Req	58	12	201	85FM	16 Rotating General 8 Straight Medicine 8 Straight Surgery 2 Straight Pediatrics	25511 25537 25533 25534
MONTANA—Hospitals, 3, Internships, 11										
Butte Community Memorial Hospital +1 3 400 S Clark St, Butte	NPCorp	142	4 986	Req	32	12	No	150FM	3 Rotating General	94711
St James Hospital 3 Silver and Idaho St, Butte	Church	160	5,369	Req	39	12	No	150FM	4 Rotating General	35611
Montana Deaconess Hospital +1 3 1109 6th Ave, N, Great Falls	Church	198	5 314	Req	39	12	No	100PM	4 Rotating General	35711
NEBRASKA—Hospitals, 9; Internships, 71										
Bryan Memorial Hospital 1 3-x48 4848 Sumner St, Lincoln 6	Church	170	3 954	Req	61	12	No	200-300FM	4 Rotating General	36811
Lincoln General Hospital +1 3-x48 2315 S 17th St, Lincoln 2	NPCorp	173	5 782	Req	43	12	No	200PM	4 Rotating General	36911
St Elizabeth Hospital +1-X47 1145 South St, Lincoln 2	Church	250	9 603	Req	43	12	No	250PM	6 Rotating General	37011
Bishop Clarkson Memorial Hospital +1 3-x48 Dewey Ave at 44th St, Omaha 5	Church	182	8 557	Req	52	12	204	150FM	10 Rotating General	37111
Creighton Memorial—St Joseph's Hospital +1-X47 2315 S 10th St, Omaha 8	Church	[illegible]	15,567	Req	49	12	205	150FM	12 Rotating General	37211
Immanuel Hospital +1-x48 34th St and Fowler Ave, Omaha 11	Church	121	5 023	Req	54	12	206	200FM	5 Rotating General	37311
Nebraska Methodist Hospital +1 3-x48 3612 Cuming St, Omaha 3	Church	257	8 442	None	66	12	207	235PM	10 Rotating General	37411
St Catherine's Hospital 1-X47 Forest Ave and 9th St, Omaha 8	Church	200	8,299	Req	50	12	No	200FM	8 Rotating General	37511
University of Nebraska Hospital +1 3-X48 42nd St and Dewey Ave, Omaha 5	State	164	3 620	Req	81	12	208	150PM	12 Rotating General	37611
NEW HAMPSHIRE—Hospitals, 1; Internships, 14										
Mary Hitchcock Memorial Hospital +1-X49 2 Maynard St, Hanover	NPCorp	274	7 164	Req	59	12	No	80PM	14 Rotating General	37711
✓**NEW JERSEY—Hospitals, 41; Internships, 428**										
Atlantic City Hospital +1 3 26 S Ohio Ave, Atlantic City	NPCorp	242	8 570	Req	29	12	209	150FM	12 Rotating General	37811
Bayonne Hospital and Dispensary +1 3 12 E 30th St, Bayonne	NPCorp	303	6 678	Req	32	12	No	125FM	8 Rotating General	37911
✓Cooper Hospital +1 3-X69-x71 6th and Stevens Sts, Camden 3	NPCorp	298	13 814	Req	[illegible]	12	No	200FM	12 Rotating General	38011
Our Lady of Lourdes Hospital +-x69 1600 Haddon Ave, Camden 3	Church	277	9 102	Req	58	12	No	200FM	10 Rotating General	69311
West Jersey Hospital +1 3 Mt Ephraim and Atlantic Aves, Camden 4	NPCorp	276	9 042	Req	49	12	No	175FM	9 Rotating General	38111
East Orange General Hospital 3 Central and S Munn Aves, East Orange	NPCorp	171	[illegible]	Req	25	12	No	100FM	4 Rotating General	38211
*Alexian Brothers Hospital 3 655 E Jersey St, Elizabeth 1	Church	158	4 629	Req	27	12	210	100FM	10 Rotating General	
Elizabeth General Hospital and Dispensary 1 3 925 E Jersey St, Elizabeth 4	NPCorp	243	10 119	Req	29	12	No	100FM	12 Rotating General	38411
St Elizabeth Hospital 1 3 204 S Broad St, Elizabeth 2	Church	221	5 894	Req	30	12	No	100FM	9 Rotating General	38511
Englewood Hospital +1-3 350 Engle St, Englewood	NPCorp	270	7 713	Req	31	12	No	100FM	6 Rotating General	38611
Hackensack Hospital +1 3 22 Hospital Pl, Hackensack	NPCorp	335	13 103	Req	45	12	No	100PM	10 Rotating General	38711
St Mary's Hospital 1-3 4th St and Willow Ave, Hoboken	Church	350	7,325	Req	41	12	No	100FM	13 Rotating General	38811
Christ Hospital +1 3 176 Palisade Ave, Jersey City 6	Church	270	5,550	Req	32	12	No	100FM	16 Rotating General	38911
Jersey City Hospital +1 3 4 50 Baldwin Ave, Jersey City 4	City	1 165	17 253	Req	27	12	211	67FM	24 Rotating General 2 Straight Medicine 2 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology	39011 39037 39033 39034 39032
St Francis Hospital 1 25 E Hamilton Pl, Jersey City 2	Church	215	5 977	Req	29	12	211	100FM	9 Rotating General	39111
Monmouth Memorial Hospital +1 3 3rd and Pavilion Aves, Long Branch	NPCorp	312	9 176	None	55	12	No	100FM	10 Rotating General	39211
Mountainside Hospital +1 3 4 Bay and Highland Aves, Montclair	NPCorp	313	9 952	Req	48	12	No	125FM	12 Rotating General	39311
All Souls Hospital 3 95 Mount Kemble Ave, Morristown	Church	128	3 838	Req	46	12	No	125FM	3 Rotating General	39411
Morristown Memorial Hospital +1 3 100 Madison Ave, Morristown	NPCorp	236	8 693	Req	57	12	No	110FM	7 Rotating General	39511
Fitkin Memorial Hospital +1 3 Corlies Ave, Neptune	NPCorp	260	8 960	Req	39	12	No	150FM	8 Rotating General	39611
Harrison S Martland Medical Center +1 3 4 116 Fairmount Ave, Newark 7	City	650	13 024	Req	28	12	No	113FM	30 Rotating General	39711
Hospital of St Barnabas and for Women and Children +1 3 685 High St, Newark 2	NPCorp	234	7,725	Req	41	12	No	75FM	8 Rotating General	39811
Newark Beth Israel Hospital +1 3 4 201 Lyons Ave, Newark 8	NPCorp	408	14,347	Req	42	12	No	75FM	13 Rotating General	39911

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations

Abbreviations and other references will be found on pages 312 and 313

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW JERSEY—Continued										
Presbyterian Hospital +1-3 27 S. 9th St., Newark 7	NPCorp	252	10,828	Req	36	12	212	100FM	6 Rotating General	87211
St. Michael's Hospital +1-3 306 High St., Newark 2	Church	403	13,715	Req	46	12	No	125FM	12 Rotating General	39911
St. Peter's General Hospital +1-3 260 Easton Ave., New Brunswick	Church	192	8,767	Req	61	12	No	135FM	6 Rotating General	40011
Orange Memorial Hospital +1-3 188 S. Essex Ave., Orange	NPCorp	338	9,713	Req	50	12	No	125FM	8 Rotating General	40111
Bergen Pines County Hospital +1-3 E. Ridgewood Ave., Paramus	County	603	3,499	Req	42	12	211	100FM	20 Rotating General	9611
Passaic General Hospital +3 350 Boulevard, Passaic	NPCorp	250	9,324	Req	35	12	No	100FM	5 Rotating General	40211
St. Mary's Hospital +1-3 211 Pennington Ave., Passaic	Church	192	6,705	Req	49	12	No	100FM	5 Rotating General	40311
Barnert Memorial Hospital +1-3 680 Broadway, Paterson 4	NPCorp	142	6,991	Req	38	12	No	100FM	6 Rotating General	40411
Paterson General Hospital +1-3 528 Market St., Paterson 3	NPCorp	317	11,081	Req	38	12	No	100FM	12 Rotating General	40511
St. Joseph Hospital +1-3 703 Main St., Paterson 3	Church	142	11,860	Req	32	12	No	100FM	12 Rotating General	40611
Perth Amboy General Hospital 3 530 New Brunswick Ave., Perth Amboy	NPCorp	352	13,521	None	35	12	No	100FM	14 Rotating General	87311
Muhlenberg Hospital 1-3-4 Park Ave. and Randolph Rd., Plainfield	NPCorp	331	13,910	Req	35	12	No	100FM	10 Rotating General	49711
Somerset Hospital 1-3 Rehill Ave., Somerville	NPCorp	171	7,942	Req	40	12	No	150FM	7 Rotating General	93411
Overlook Hospital +1-3 193 Morris Ave., Summit	NPCorp	251	8,469	Req	50	12	No	125FM	12 Rotating General	40811
Holy Name Hospital +1-3 718 Teaneck Rd., Teaneck	Church	200	8,129	Req	47	12	No	150FM	8 Rotating General	40911
Mercer Hospital +1-3 446 Bellevue Ave., Trenton 8	NPCorp	254	9,076	Req	48	12	No	150FM	9 Rotating General	41011
St. Francis Hospital +1-3 601 Hamilton Ave., Trenton 9	Church	359	11,331	Req	39	12	No	150FM	10 Rotating General	41111
William McKinley Memorial Hospital 1-3 750 Brunswick Ave., Trenton 8	NPCorp	184	6,123	Req	33	12	No	180FM	5 Rotating General	41211
NEW MEXICO—Hospitals, 1; Internships, 6										
Bernalillo County-Indian Hospital 1-3 2211 Lomas Blvd., N.E., Albuquerque	County	186	4,705	Req	55	12	No	250FM	6 Rotating General	93211
✓ **NEW YORK—Hospitals, 104; Internships, 1,730**										
Albany Hospital +1-3-4-X50 New Scotland Ave., Albany 8	NPCorp	620	18,760	Req	61	12	No	135PM	24 Rotating General 5 Straight Medicine 8 Straight Surgery	41411 41412 41413
Memorial Hospital 1-3 161 N. Pearl St., Albany 7	NPCorp	187	3,690	Req	35	12	No	130FM	5 Rotating General	41511
St. Peter's Hospital +3 632 New Scotland Ave., Albany 8	Church	275	7,750	Req	58	12	213	200FM	8 Rotating General	41611
Binghamton City Hospital +1-3 Mitchell and Park Aves., Binghamton	City	397	11,266	Req	41	12	No	125FM	8 Rotating General	[illegible]
Lawrence Hospital +1-3 55 Palmer Ave., Bronxville 8	NPCorp	201	5,910	Req	44	12	No	150FM	8 Rotating General	91611
Beth-El Hospital +1-3 Linden Blvd. and Rockaway Pkwy., Brooklyn 12	NPCorp	263	9,861	Req	32	12	No	100FM	16 Rotating General 2 Straight Surgery	41911 [illegible]
Brooklyn Hospital +1-3-X57 121 De Kalb Ave., Brooklyn 1	NPCorp	338	9,621	Req	43	12	No	150FM	14 Rotating General	[illegible]
Coney Island Hospital +1-3-4 Ocean Pkwy. and Ave. Z, Brooklyn 35	City	253	6,952	Req	27	12	No	71FM	15 Rotating General	[illegible]
Cumberland Hospital +1-3-4-x57 39 Auburn Pl., Brooklyn 5	City	307	7,884	Req	32	12	No	71FM	6 Rotating General 2 Straight Medicine 2 Straight Surgery 2 Straight Pediatrics	42311 [illegible] [illegible] [illegible]
Greenpoint Hospital +1-3-4-x57 Kingsland and Skillman Aves., Brooklyn 11	City	281	7,210	Req	22	12	No	71FM	12 Rotating General	42411
Jewish Hospital +1-3-4-X57 555 Prospect Pl., Brooklyn 38	NPCorp	491	15,157	Req	13	12	No	50FM	30 Rotating General 2 Straight Medicine 3 Straight Pediatrics	[illegible] [illegible] [illegible]
Kings County Hospital +1-3-4-X57 451 Clarkson Ave., Brooklyn 3	City	3,287	57,755	Req	29	12	No	71FM	108 Rotating General 26 Straight Medicine 10 Straight Surgery 5 Straight Pediatrics 1 Straight Pathology	[illegible] [illegible] [illegible] [illegible] [illegible]
Long Island College Hospital +1-3-X57 340 Henry St., Brooklyn 1	NPCorp	396	11,548	Req	46	12	No	125PM	16 Rotating General 2 Straight Medicine 1 Straight Surgery	42711 [illegible] [illegible]
Maimonides Hospital +1-3-X57 4802 10th Ave., Brooklyn 19	NPCorp	163	13 078	Req	32	12	No	35FM	24 Rotating General 7 Straight Medicine	42811 [illegible]
Methodist Hospital +1-3-x57 506 6th St., Brooklyn 15	Church	352	10,723	Req	34	12	No	150FM	12 Rotating General 2 Straight Medicine 1 Straight Surgery 1 Straight Pediatrics 1 Straight Pathology	42911 [illegible] [illegible] [illegible] [illegible]
Norwegian Lutheran Deaconesses' Home and Hospital +1-3 4520 4th Ave., Brooklyn 20	Church	205	6,531	Req	68	12	No	110PM	6 Rotating General	43011
Prospect Heights Hospital 1-3 775 Washington Ave., Brooklyn 38	NPCorp	170	5,501	Req	29	12	No	100PM	4 Rotating General	87411
St. Catherine's Hospital +1-3 133 Bushwick Ave., Brooklyn 6	Church	282	7,380	Req	32	12	No	125FM	10 Rotating General	[illegible]
St. John's Episcopal Hospital +1-3 480 Herkimer St., Brooklyn 13	Church	251	7,538	Req	49	12	No	160FM	9 Rotating General 1 Straight Medicine 3 Straight Surgery 1 Straight Pediatrics	[illegible] [illegible] [illegible] [illegible]
St. Mary's Hospital +1-3 1298 St. Marks Ave., Brooklyn 13	Church	237	5,846	Req	34	12	No	100FM	8 Rotating General	[illegible]
St. Peter's Hospital 3 380 Henry St., Brooklyn 1	Church	207	4,500	Req	33	12	No	100FM	10 Rotating General	[illegible]
Unity Hospital +1-3 1545 St. Johns Pl., Brooklyn 13	NPCorp	210	6,597	Req	23	12	No	100FM	8 Rotating General	[illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the America Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number*
NEW YORK—Continued										
Wyckoff Heights Hospital $^{+1-3}$ 374 Stockholm St., Brooklyn 37	NPCorp	258	8,050	Req	16	12	No	100FM	8 Rotating General	43511
✓Allied Hospitals of the Sisters of Charity $^{+1-3}$ (Sisters of Charity and Emergency Hospitals) 2157 Main St., Buffalo 14	Church	611	21,115	Req	32	12	No	225FM	18 Rotating General	44111
Buffalo General Hospital $^{+1-3-4}$-X51 100 High St., Buffalo 3	NPCorp	646	16,367	Req	52	12	214	150-200FM	18 Rotating General 3 Straight Medicine 3 Straight Surgery	43611 43632 43633
Children's Hospital $^{+1-3}$ 219 Bryant St., Buffalo 22	NPCorp	200	11,166	Req	81	12	No	100FM	6 Straight Pediatrics	49534
Deaconess Hospital $^{+1-3}$ 563 Riley St., Buffalo 8	NPCorp	277	10,380	Req	33	12	215	250FM	12 Rotating General	43711
Edward J. Meyer Memorial Hospital $^{+1-4}$-X51 462 Grider St., Buffalo 15	County	1,607	11,813	Req	46	12	No	208PM	24 Rotating General	43811
Mercy Hospital $^{+1-3}$ 565 Abbott Rd., Buffalo 20	Church	300	12,300	Req	73	12	No	200-225FM	20 Rotating General	43911
Millard Fillmore Hospital $^{+1-3-4}$-x51 875 Lafayette Ave., Buffalo 9	NPCorp	473	19,271	Req	47	12	214	250	15 Rotating General	44011
Sisters of Charity Hospital Buffalo 14	See Allied Hospitals of the Sisters of Charity									
Mary Imogene Bassett Hospital $^{+1-3}$-X50-53 Atwell Rd., Cooperstown	NPCorp	112	3,215	Req	66	12	No	110PM	8 Rotating General 1 Straight Medicine	44211 44232
Elmhurst General Hospital $^{+1-3-4}$ 79-01 Broadway, Elmhurst (Flushing) (Replacing New York City Hospital)	City	961	11,068	Req	30	12	No	71FM	22 Rotating General	49111
Arnot Ogden Memorial Hospital $^{+1-3}$ Roe Ave., Elmira	NPCorp	194	6,986	Req	50	12	No	200FM	4 Rotating General	44311
St. Joseph's Hospital $^{+1-3}$ 555 E. Market St., Elmira	Church	230	8,343	None	36	12	No	200-290PM	4 Rotating General	44411
Flushing Hospital and Dispensary $^{+1-3-4}$ 44-14 Parsons Blvd., Flushing 55	NPCorp	313	12,009	Req	43	12	No	150FM	12 Rotating General	44511
Community Hospital $^{1-3}$ St. Andrews Lane, Glen Cove	NPCorp	183	7,836	Req	36	12	No	200FM	8 Rotating General	44611
Glens Falls Hospital $^{+1-3}$ 100 Park St., Glens Falls	NPCorp	240	10 640	Req	34	12	No	200FM	6 Rotating General	44711
Meadowbrook Hospital $^{+1-3}$ Bethpage Tpke and Carman Ave., Hempstead	County	600	17,201	Req	48	12	No	150FM	32 Rotating General	44811
Jamaica Hospital $^{+1-3}$ 89th Ave. and Van Wyck Expwy., Jamaica 18	NPCorp	268	8,513	Req	21	12	No	125FM	8 Rotating General	44911
Mary Immaculate Hospital $^{+1-3-4}$ 152-11 89th Ave., Jamaica 32	Church	295	9,037	Req	29	12	No	150FM	8 Rotating General	45011
Queens General Hospital $^{+1-3-4}$ 82-68 164th St., Jamaica 32	City	1,247	13,534	Req	34	12	No	71FM	42 Rotating General	45111
Charles S. Wilson Memorial Hospital $^{+1-3}$ 33 Harrison St., Johnson City	NPCorp	450	12 942	Req	35	12	No	175PM	12 Rotating General 2 Straight Medicine 2 Straight Surgery	45211 45232 45233
Our Lady of Victory Hospital $^{+3}$ 800 Ridge Rd., Lackawanna 18	Church	260	9,019	Req	34	12	No	150FM	8 Rotating General	45311
St. John's Long Island City Hospital $^{+3}$ 2501 Jackson Ave., Long Island City 1	Church	224	5,513	Req	25	12	No	100FM	16 Rotating General	45411
Nassau Hospital $^{+1-3}$ 1st St., Mineola	NPCorp	302	12,712	Req	55	12	No	150FM	6 Rotating General	45511
Northern Westchester Hospital $^{1-3}$ E. Main St., Mount Kisco	NPCorp	145	5,157	Req	39	12	No	100FM	4 Rotating General	45611
Mount Vernon Hospital $^{+1-3}$ 12 N. 7th Ave., Mount Vernon	NPCorp	220	8,525	Req	39	12	No	100FM	12 Rotating General	45711
St. Luke's Hospital $^{1-3-4}$ 70 Dubois St., Newburgh	NPCorp	191	7,062	Req	34	12	No	150FM	8 Rotating General	45811
Long Island Jewish Hospital $^{+1-3}$ 270-05 76th Ave., New Hyde Park	NPCorp	214	7,432	Req	79	12	No	50FM	12 Rotating General	[illegible]
New Rochelle Hospital $^{+1-3-4}$ 16 Guion Pl., New Rochelle	NPCorp	306	9,915	Req	37	12	No	200FM	10 Rotating General	45911
Bellevue Hospital Center $^{+1-3-4}$-X53-54-56 1st Ave. and 27th St., New York 16	City	2,011	47,009	Req	37	12	...	71FM		
First Medical Division— Columbia University $^{+1-3}$ Dr. Dickinson W. Richards, Jr.	....	...	.....	Req	..	12	No	71FM	12 Mixed (Med.-Chest-Surg. or Path.)	46067
First Surgical Division— Columbia University $^{+1-3}$ Dr. Kenneth Lewis	....	...	.....	Req	..	12	No	71FM	4 Rot. (Surg. Major) 2 Straight Surgery	46113 46133
Second Medical Division— Cornell University $^{+1-3}$ Dr. Thomas P. Almy	....	...	.....	Req	..	12	281	71FM	24 Straight Medicine 2 Mixed (Med.-Path.)	46232 46227
Second Surgical Division— Cornell University $^{+1-3}$ Dr. Cranston W. Holman	....	...	.....	Req	..	12	No	71FM	7 Straight Surgery	46233
Third Medical Division— New York Univ. Col. of Med. $^{+1-3}$ Dr. William S. Tillett	....	...	.....	Req	..	12	No	71FM	12 Straight Medicine 4 Mixed (Med.-Surg.)	46432 46424
Third Surgical Division— New York Univ. Col. of Med. $^{+1-3}$ Dr. John H. Mulholland	....	...	.....	Req	..	12	No	71FM	6 Straight Surgery 4 Mixed (Surg.-Med.)	46533 46524
Third Division, Dept. of Pathology— New York Univ. Col. of Med. $^{+1}$ Dr Marvin Kuschner	....	...	.....	....	..	12	No	71FM	1 Straight Pathology	[illegible]
Third Division, Dept. of Pediatrics— New York Univ. Col. of Med. $^{+1-3}$ Dr. L. Emmett Holt, Jr.	....	...	.....	Req	..	12	No	71FM	8 Straight Pediatrics	[illegible]
Fourth Medical Division— New York Univ. Post-Graduate Medical School $^{+1-3}$ Dr. Charles F. Wilkinson, Jr.	....	...	.....	Req	..	12	217	71FM	11 Straight Medicine	46732
Fourth Surgical Division— New York Univ. Post-Graduate Medical School $^{+1-3-4}$ Dr. J. William Hinton	....	..	.....	Req	..	12	No	71FM	8 Straight Surgery	46733
Beth David Hospital $^{+1-3}$ 161 E 90th St., New York 28	NPCorp	169	5,699	Req	34	12	No	70FM	14 Rotating General	46911
Beth Israel Hospital $^{+1-3-4}$ 10 Nathan D. Perlman Pl., New York 3	NPCorp	357	9,243	Req	37	12	No	95PM	16 Rotating General	47011
Bronx Hospital $^{+1-3-4}$ 1276 Fulton Ave., New York 56	NPCorp	329	9,119	Req	36	12	No	50FM	9 Rotating General	47111

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
Bronx Municipal Hospital Center +1-3-4-X52 Pelham Pkwy. and Eastchester Rd., New York 61	City	511	5,621	Req	40	12	No	71FM	12 Rotating General 14 Straight Medicine 8 Straight Surgery 7 Straight Pediatrics	93111 93132 93133 93134
Columbus Hospital +3 227 E. 19th St., New York 3	Church	350	7,250	Req	23	12	No	75FM	14 Rotating General	47211
Fordham Hospital +1-3-4 Southern Blvd. and Crotona Ave., New York 58	City	411	9,233	Req	29	12	No	71FM	13 Rotating General	47411
French Hospital +1-3 330 W. 30th St., New York 1	NPCorp	239	6,753	Req	29	12	218	50FM	10 Rotating General	47711
Harlem Hospital +1-3-4 532 Lenox Ave., New York 37	City	798	17,551	Req	28	12	No	71FM	42 Rotating General	478
Hospital for Joint Diseases +1-3-4 1919 Madison Ave., New York 35	NPCorp	280	5,498	Req	28	12	219	50FM	6 Rotating General	479
Jewish Memorial Hospital +1-3-4 196th St. and Broadway, New York 40	NPCorp	185	6,176	Req	33	12	No	75FM	10 Rotating General	480
Knickerbocker Hospital +1-3 70 Convent Ave., New York 27	NPCorp	220	5,570	Req	35	12	220	100FM	6 Rotating General 3 Straight Medicine 3 Straight Surgery 1 Mixed (Med.-Surg.)	481 481 481 481
Lebanon Hospital +1-3 1650 Grand Concourse, New York 57	NPCorp	240	7,072	Req	40	12	No	50FM	13 Rotating General 1 Straight Medicine 1 Straight Surgery	482 482 482
Lenox Hill Hospital +1-3-4 111 E. 76th St., New York 21	NPCorp	489	12,183	Req	48	12	221	80PM	22 Rotating General	483
Lincoln Hospital +1-3-4-x54 320 Concord Ave., New York 54	City	401	11,935	Req	33	12	No	71FM	12 Rotating General	484
Misericordia Hospital +1-3 531 E. 86th St., New York 28	Church	183	5,434	Req	40	12	No	75FM	8 Rotating General	486
Montefiore Hospital +1-3-4-X53 210th St. and Bainbridge Ave., New York 67	NPCorp	890	7,385	None	49	12	No	40FM	25 Mixed (Med.-Surg.-Pul.-Neurology-Neoplastic)	487
Morrisania City Hospital +1-3-4 1230 Gerard Ave., New York 52	City	461	11,991	Req	31	12	No	71FM	16 Rotating General	488
Mother Cabrini Memorial Hospital +1-3 611 Edgecombe Ave., New York 32	Church	170	5,093	Req	18	12	No	100FM	6 Rotating General	489
Mount Sinai Hospital +1-4-X53 1 E. 100th St., New York 29	NPCorp	1,002	24,244	....	62	12	No	25FM	33 Rotating General 8 Straight Surgery	490 490
New York City Hospital Welfare Island, New York 17 (Replaced by Elmhurst General Hospital, Elmhurst (Flushing)										
New York Hospital +1-3-4-X54 525 E. 68th St., New York 21	NPCorp	1,097	24,335	Req	63	12	No	92PM	16 Straight Medicine 15 Straight Surgery 4 Straight Pediatrics 2 Straight Pathology	492 492 492 492
New York Infirmary +2-3 Stuyvesant Sq. E. and 15th St., New York 3	NPCorp	180	.....	Req	67	12	No	75FM	7 Rotating General	8751
New York Polyclinic Medical School and Hospital +1-3-4 345 W. 50th St., New York 19	NPCorp	394	9,041	Req	49	12	No	75FM	8 Rotating General	494
Presbyterian Hospital +1-4-X53 622 W. 168th St., New York 32	NPCorp	1,524	36,429	Req	62	12	No	208	12 Straight Medicine 12 Straight Surgery 3 Straight Pathology	495 495 495
Roosevelt Hospital +1-4-X53 428 W. 59th St., New York 19	NPCorp	430	9,598	Req	37	12	No	83PM	6 Mixed (Med.-Ped.-Surg.) 6 Mixed (Surg.-Gyn.-Med.)	496 496
St. Clare's Hospital +1-3 415 W. 51st St., New York 19	Church	452	9,806	None	38	12	No	175PM	13 Rotating General 1 Straight Medicine 2 Straight Surgery	497 497 497
St. Francis Hospital +1-3 525 E. 142nd St., New York 54	Church	381	8,512	Req	27	12	No	100FM	12 Rotating General	4981
St. Luke's Hospital +1-3-4-X53 421 W. 113th St., New York 25	NPCorp	567	10,099	Req	62	12	No	50FM	8 Mixed (9 mo. Med.-3 mo. Surg.) 8 Mixed (9 mo. Surg.-3 mo. Med.) 2 Straight Pediatrics	499 499 499
St. Vincent's Hospital +1-3-x56 153 W. 11th St., New York 11	Church	686	15,920	Req	46	12	221	80FM	21 Rotating General 2 Straight Medicine 6 Straight Surgery	5011 5012 5013
Sydenham Hospital +1-3-4 565 Manhattan Ave., New York 27	City	220	5,389	None	32	12	No	71FM	9 Rotating General	5011
Mount St. Mary's Hospital 1-3 515 6th St., Niagara Falls	Church	190	5,730	Req	62	12	222	200-250FM	14 Rotating General	5031
Niagara Falls Memorial Hospital 1-3 621 10th St., Niagara Falls	NPCorp	304	10,957	....	35	12	222	200FM	8 Rotating General	9351
United Hospital +1-3 406 Boston Post Rd., Port Chester	NPCorp	225	7,018	Req	37	12	No	200FM	8 Rotating General	5041
St. Francis Hospital 1-3 North Rd., Poughkeepsie	Church	186	6,614	Req	39	12	No	200FM	6 Rotating General	5071
Genesee Hospital +1-3-x58 224 Alexander St., Rochester 7	NPCorp	252	9,630	Req	68	12-24	No	125-135	8 Rot. General (12 mo) 4 Rot. General (24 mo.) 1 Straight Medicine 2 Straight Surgery 1 Straight Pathology	5071 5071 5072 5073 5073
Highland Hospital +1-3-x58 South Ave. at Bellevue Dr., Rochester 20	NPCorp	241	8,564	Req	64	12	No	75FM	9 Rotating General 3 Straight Surgery	5081 5083
Rochester General Hospital +1-3-4-x58 501 W. Main St., Rochester 8	NPCorp	332	13,316	Req	85	12	223	100-150FM	20 Rotating General 2 Straight Medicine 2 Straight Surgery	5091 509 5093
St. Mary's Hospital +1-3-x58 89 Genesee St., Rochester 11	Church	335	14,122	Req	57	12	No	175FM	18 Rotating General	5101
Strong Memorial—Rochester Municipal Hospitals +1-3-4-X58 260 Crittenden Blvd., Rochester 20	NPCorpCy	701	18,673	Req	75	12-24	224	15-30FM	12 Rot. General (24 mo) 12 Straight Medicine 8 Straight Surgery 4 Straight Pediatrics 4 Straight Pathology 4 Mixed (Surg.-Ob.-Gyn)	5111 5112 5113 5114 5115 511
Ellis Hospital +1-3-X50 1101 Nott St., Schenectady 8	NPCorp	359	13,221	Req	52	12	No	125FM	14 Rotating General	5121
St. Clare's Hospital 1-3 600 McClellan St., Schenectady 4	Church	203	7,973	Req	39	12	No	150FM	6 Rotating General	5131
St. Vincent's Hospital +1-3 355 Bard Ave., Staten Island 10	Church	256	9,287	Req	26	12	No	100FM	8 Rotating General	5141
Staten Island Hospital +1-3 101 Castleton Ave., Staten Island 1	NPCorp	215	7,755	Req	48	12	No	100FM	8 Rotating General	51 11

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
NEW YORK—Continued										
General Hospital +1-3-x59 116 E. Castle St., Syracuse 5	NPCorp	129	5,651	Req	34	12	No	167	3 Mixed (Med.-Surg.-Ob.-Gyn.)	51722
St. Joseph's Hospital +1-3-x59 301 Prospect Ave., Syracuse 3	Church	204	11,682	Req	34	12	No	167PM	13 Rotating General	51811
State University of New York Upstate Medical Center Hospitals (University Hospital of the Good Shepherd, Crouse-Irving and Memorial Hospitals) +1-3-X59 766 Irving Ave., Syracuse 10	NPCorp	697	25,596	Req	43	12	No	167	20 Rotating General 5 Straight Medicine 2 Straight Surgery 3 Straight Pediatrics 4 Mixed (Med.-Surg.)	51611 51632 51633 51634 51624
Leonard Hospital 3 41 114th St., Troy	NPAssn	163	5,816	Req	32	12	No	175FM	7 Rotating General	95911
St. Mary's Hospital 3 87 Oakwood Ave., Troy	Church	217	6,333	Req	27	12	No	175FM	6 Rotating General	51911
Samaritan Hospital +1-3 Peoples and Burdett Aves., Troy	NPCorp	166	6,606	Req	47	12	No	200FM	8 Rotating General	52011
Grasslands Hospital +1-3-4 Valhalla	County	611	4,915	Req	53	12	No	150FM	18 Rotating General	52111
White Plains Hospital +1-3 41 E. Post Rd., White Plains	NPCorp	201	6,921	Req	48	12	No	150FM	6 Rotating General	52311
St. John's Riverside Hospital +1-3 65 Ashburton Ave., Yonkers	NPCorp	214	6,380	Req	27	12	No	120FM	8 Rotating General	52411
St. Joseph's Hospital 1-3 127 S. Broadway, Yonkers	Church	167	4,133	Req	32	12	No	100FM	8 Rotating General	52511
Yonkers General Hospital 1-3 127 Ashburton Ave., Yonkers	NPCorp	143	5,145	Req	32	12	No	100FM	7 Rotating General	52611
NORTH CAROLINA—Hospitals, 14; Internships, 196										
Memorial Mission Hospital of Western North Carolina 1 509 Biltmore Ave., Asheville	NPCorp	350	10 208	Req	32	12	225	100FM	8 Rotating General	91911
North Carolina Memorial Hospital +1-3-X60 Chapel Hill	State	309	7,333	Req	64	12	226	135	12 Straight Medicine 8 Straight Surgery 3 Straight Pediatrics 2 Straight Pathology 7 Mixed (Med.-Ped.)	90032 90033 90034 90036 90048
Charlotte Memorial Hospital +1-4 1400 Scott Ave., Charlotte 3	NPCorp	351	13,225	Req	70	12	No	200FM	10 Rotating General	52711
Mercy Hospital +1-3 2000 E. 5th St., Charlotte 4	Church	280	10,163	Req	40	12	No	200FM	6 Rotating General	95011
Duke Hospital +1-3-4-X61 Durham	NPCorp	559	16,505	Req	59	12	227	25FM	24 Straight Medicine 16 Straight Surgery 10 Straight Pediatrics 4 Straight Pathology 4 Mixed (Ob.-Ped.)	52932 52933 52934 52936 52958
Lincoln Hospital +1-3 1301 Fayetteville St., Durham	NPCorp	108	2,611	Req	31	12	No	150FM	4 Rotating General	53011
Watts Hospital +1-3 Broad St. and Club Blvd., Durham	NPCorp	240	9,300	Req	39	12	No	150FM	8 Rotating General 2 Straight Medicine 3 Mixed (Med.-Surg. Ob.-Gyn.)	87711 87732 87722
Moses H. Cone Memorial Hospital +1-3 1200 N. Elm St., Greensboro	NPCorp	310	8,069	Req	66	12	No	150FM	4 Rotating General	94311
Rex Hospital +1 1311 St. Mary's St., Raleigh	NPCorp	310	13,227	Req	44	12	No	150FM	12 Rotating General	53211
St. Agnes Hospital +1 Oakwood Ave. and Tarboro St., Raleigh	Church	100	2,892	Req	9	12	No	200FM	4 Rotating General	53311
James Walker Memorial Hospital 1-3 10th and Rankin Sts., Wilmington	NPCorp	250	10,358	Req	24	12	No	100FM	8 Rotating General	53411
City Memorial Hospital +1 1 Hospital St., Winston-Salem [illegible]	City	294	11,803	Req	39	12	No	250PM	15 Rotating General	53511
Kate Bitti [illegible] +1 1101 E. [illegible]	City	177	5,414	Req	38	12	No	250FM	6 Rotating General	53611
North Car [illegible] 300 S. [illegible] 7	Church	371	12,816	Req	61	12-24	No	83PM	7 Straight Medicine 3 Straight Surgery 3 Straight Pediatrics 1 Straight Pathology 2 Mixed (Ob.-Gyn.-Ped.) 24 mo.	53732 53733 53734 53736 53708
NORTH DAKOTA—Hospitals, 4; Internships, 22										
St. John's Hospital 1-3 365 6th Ave. S., Fargo	Church	175	6,418	Req	52	12	No	150FM	6 Rotating General	87011
St. Luke's Hospital +3 727 Broadway, Fargo	NPCorp	179	7,166	....	53	12	No	175FM	8 Rotating General	53911
Grand Forks Deaconess Hospital 1-3 212 S. 4th St., Grand Forks	NPCorp	150	6,615	Req	60	12	No	175FM	4 Rotating General	54011
Trinity Hospital 1 13 4th Ave., S.W., Minot	NPCorp	175	6,208	Req	70	12	No	100FM	4 Rotating General	91711
OHIO—Hospitals, 51; Internships, 743										
Akron City Hospital +1-3 525 E. Market St., Akron 9	NPCorp	485	18,046	Req	38	12	228	200FM	24 Rotating General	54111
Akron General Hospital +1 400 Wabash Ave., Akron 7	NPCorp	331	11,416	Req	51	12	228	200FM	24 Rotating General	54211
St. Thomas Hospital +1-3 444 N. Main St., Akron 10	Church	253	9,587	Req	54	12	No	200FM	12 Rotating General	54311
Barberton Citizens Hospital 1-3 Tuscora Park, Barberton	NPCorp	223	7,488	Req	62	12	No	200-250FM	12 Rotating General	96111
Aultman Hospital +1-3 625 Clarendon Ave., S.W., Canton 10	NPCorp	394	14,812	Req	55	12	No	250PM	14 Rotating General	54411
Mercy Hospital +1-3 Market Ave. and 8th St. N.W., Canton 2	Church	302	13,357	Req	46	12	No	125FM	16 Rotating General	54511
Bethesda Hospital +1-3 Oak St. and Reading Rd., Cincinnati 6	Church	230	9,916	Req	39	12	229	150FM	8 Rotating General 2 Mixed (Med.-Ob.-Surg.)	54611 54629
Christ Hospital +1 2139 Auburn Ave., Cincinnati 19	Church	356	11,348	Req	50	12	230	175FM	13 Rotating General	54711
Cincinnati General Hospital +1-3-4-X63 3231 Burnet Ave., Cincinnati 29	City	810	15,615	Req	63	12	231	15FM	52 Rotating General	54811

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations. Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
OHIO—Continued										
Deaconess Hospital +1-3 Clifton Ave. and Straight St., Cincinnati 20	NPCorp	159	5,384	Req	30	12	232	125FM	6 Rotating General	54911
Good Samaritan Hospital +1-3 3217 Clifton Ave., Cincinnati 20	Church	591	18,661	None	46	12	No	200FM	16 Rotating General	55011
Jewish Hospital +1-3 Burnet Ave., Cincinnati 29	NPCorp	385	14,933	Req	56	12	No	125FM	16 Rotating General	55111
St. Mary's Hospital +3 816 Betts St., Cincinnati 9	Church	204	5,296	Req	41	12	No	200FM	11 Rotating General	55211
City Hospital +1-3-4-X64 3395 Scranton Rd., Cleveland 9	City	882	10,411	Req	53	12	No	80FM	30 Rotating General	55311
Cleveland Clinic Hospital +1-3 2020 E. 93rd St., Cleveland 6	NPCorp	357	11,550	Req	63	12	No	100FM	12 Rotating General	90311
Evangelical Deaconess Hospital +1-3 4229 Pearl Rd., Cleveland 9	Church	201	10,275	None	35	12	No	100FM	10 Rotating General	90011
Fairview Park Hospital +1-3 18101 Lorain Ave., Cleveland 11	Church	202	8,018	....	33	12	No	100FM	9 Rotating General	55411
Huron Road Hospital +1-3 13951 Terrace Rd., Cleveland 12	NPCorp	283	11,618	Req	42	12	No	200FM	10 Rotating General	57111
Lutheran Hospital +1-3 2609 Franklin Blvd., Cleveland 13	*Church*	*189*	*7,696*	*None*	*55*	*12*	*233*	180-235PM	12 Rotating General	55611
Mount Sinai Hospital +1-4 1800 E. 105th St., Cleveland 6	NPCorp	318	14,131	Req	54	12	No	150FM	18 Rotating General	55711
St. Alexis Hospital +1-3 5163 Broadway, Cleveland 27	Church	291	10,748	Req	31	12	No	175-250PM	8 Rotating General	55811
St. John's Hospital +1-3 7911 Detroit Ave., Cleveland 2	Church	266	8,789	Req	37	12	No	150FM	7 Rotating General	55911
St. Luke's Hospital +1-3-4 11311 Shaker Blvd., Cleveland 4	Church	418	17,617	Req	54	12	No	100FM	27 Rotating General	56011
St. Vincent Charity Hospital +1-3 2222 Central Ave., Cleveland 15	Church	306	9,660	Req	50	12	231	200PM	15 Rotating General	56111
University Hospitals +1-X64 2065 *Adelbert Rd., Cleveland 6*	NPCorp	734	22,034	Req	73	12	No	100PM	16 Rotating General 12 Straight Medicine 8 Straight Surgery 4 Straight Pediatrics 2 Straight Pathology	56211 56232 56233 56234 56236
Grant Hospital +3 125 S. Grant Ave., Columbus 15	NPCorp	260	10,570	None	42	12	235	200FM	12 Rotating General	56411
Mount Carmel Hospital +1 793 W. State St., Columbus 22	Church	400	15,749	None	50	12	235	200FM	18 Rotating General	56511
University Hospitals +1-4-X65 10th and Perry Sts., Columbus 10	State	592	19,787	Req	75	12	236	125PM	24 Rotating General 12 Rot. (Med. Major) 12 Rot. (Surg. Major)	56611 56612 56613
White Cross Hospital +1-3 700 N. Park St., Columbus 8	Church	330	13,908	Req	44	12	235	225	14 Rotating General	56711
Good Samaritan Hospital +1-3 1425 W. Fairview Ave., Dayton 6	Church	400	14,610	Req	40	12	No	200PM	12 Rotating General	56811
Miami Valley Hospital +1-3-4 1 Wyoming St., Dayton 9	NPCorp	629	19,847	Req	44	12	No	225PM	16 Rotating General	56911
St. Elizabeth Hospital +1 Miami Blvd. W., Dayton 8	Church	452	15,072	Req	35	12	No	125FM	16 Rotating General	57011
Elyria Memorial Hospital +1-3 630 E. River St., Elyria	NPCorp	240	8,190	Req	42	12	No	140FM	4 Rotating General	90111
Euclid-Glenville Hospital +1-3 E. 185th St., and Lake Erie, Euclid 19	NPCorp	186	7,540	Req	34	12	No	100FM	10 Rotating General	55511
Marymount Hospital +1-3 12300 McCracken Rd., Garfield Heights 25	Church	190	7,668	Req	40	12	No	150FM	10 Rotating General	57211
Mercy Hospital +1-3 116 Dayton St., Hamilton	Church	300	12,615	Req	41	12	No	150FM	8 Rotating General	57311
Lakewood Hospital +1-3 14519 Detroit Ave., Lakewood 7	City	272	10,417	Req	41	12	No	175FM	6 Rotating General	57411
Lima Memorial Hospital +1 Linden and Mobel Sts., Lima	NPCorp	275	10,053	Req	31	12	No	250FM	10 Rotating General	57511
St. Rita's Hospital +1-3 801 W. High St., Lima	Church	281	12,050	Req	44	12	237	225PM	12 Rotating General	57611
Mercy Hospital 1 1343 N. Fountain Blvd., Springfield	Church	305	9,192	Req	56	12	No	175FM	8 Rotating General	87511
Springelfid City Hospital +1 2615 E. High St., Springfield	City	249	8,674	Req	49	12	No	175FM	9 Rotating General	57711
Ohio Valley Hospital 3 380 Summit Ave., Steubenville	NPCorp	209	8,832	Req	31	12	238	225FM	8 Rotating General	92711
Flower Hospital 1-3 3349 Cherry St., Toledo 12	NPCorp	167	7,264	Req	36	12	235	250FM	5 Rotating General	57811
Maumee Valley Hospital +1-3 2025 Arlington Ave., Toledo 9	County	314	3,974	Req	61	12	No	200FM	8 Rotating General	57911
Mercy Hospital +1-3 2221 Madison Ave., Toledo 2	Church	275	12,078	Req	53	12	No	250FM	14 Rotating General	5801
Riverside Hospital 1-3 1609 Summit St., Toledo 11	NPCorp	166	5,628	Req	41	12	No	200FM	6 Rotating General	5811
St. Charles Hospital +1-3 Wheeling and Navarre Sts., Toledo 5	Church	201	7,106	Req	42	12	No	250FM	8 Rotating General	9511
St. Vincent's Hospital +1-3 2213 Cherry St., Toledo 8	Church	438	16,494	Req	37	12	239	200FM	15 Rotating General	5821
Toledo Hospital +1-3 2142 N. Cove Blvd., Toledo 6	NPCorp	278	12,016	Req	69	12	No	200FM	12 Rotating General	5831
St. Elizabeth Hospital +1-3 [illegible] Youngstown 4	Church	330	13,631	Req	30	12	No	200FM	10 Rotating General	5841
Y[illegible] +1-3-4 [illegible] iels St., Youngstown 1 Gypsy Lane at Goleta Ave., Youngstown 4	NPCorp	700	25,171	Req	68	12	No	150FM	18 Rotating General	[illegible]
OKLAHOMA—Hospitals, 6; Internships, 79										
Mercy Hospital—Oklahoma City General 501 N. W. 12th St., Oklahoma City 3	Church	142	6,972	Req	40	12	112	100PM	8 Rotating General	5861
St. Anthony Hospital +-x66 601 N. W. 9th St., Oklahoma City 3	Church	387	15,579	Req	32	12	No	100FM	15 Rotating General	5871
University of Oklahoma Hospitals +1-4-X66 800 N. E. 13th St., Oklahoma City 4	State	457	9,285	Req	56	12	240	75PM	18 Rotating General 2 Mixed (Med. Major) 2 Mixed (Surg. Major) 2 Mixed (Ob.-Gyn. Major) 2 Mixed (Ped. Major)	5881 [illegible] [illegible] [illegible] [illegible]
Wesley Hospital +1-x66 300 N. W. 12th St., Oklahoma City 3	Part	200	9,860	Req	48	12	112	100FM	8 Rotating General	[illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
OKLAHOMA—Continued										
Hillcrest Medical Center *1 1653 E 12th St, Tulsa 20	NPCorp	350	17,099	Req	35	12	No	100FM	12 Rotating General	59111
St John's Hospital *1-3 1923 S Utica St, Tulsa 4	Church	460	22,714	Req	50	12	No	150FM	10 Rotating General	59211
OREGON—Hospitals, 7; Internships, 100										
Sacred Heart General Hospital 1 751 E 12th Ave, Eugene	Church	270	12,753	Req	72	12	No	150FM	8 Rotating General	59311
Emanuel Hospital *1-3 2801 N Gantenbein Ave, Portland 12	Church	431	17,589	Req	59	12	No	250PM	14 Rotating General	59411
Good Samaritan Hospital *1-3 1015 N W 22nd Ave, Portland 10	Church	447	13,244	None	70	12	No	250	16 Rotating General 1 Straight Pathology	59511 59536
Portland Sanitarium and Hospital 1 932 S E 60th Ave, Portland 15	Church	176	8,968	None	46	12	No	169PM	8 Rotating General	59611
Providence Hospital *1-3 700 N. E 47th Ave, Portland 13	Church	285	10,605	Req	65	12	241	250PM	13 Rotating General	59711
St Vincent's Hospital *1-3 2447 N W Westover Rd, Portland 10	Church	355	13,715	Req	46	12	242	250PM	12 Rotating General	59811
University of Oregon Medical School Hospitals and Clinics *1-4-X67 3181 S W Sam Jackson Park Rd, Portland 1	State Co	463	8,505	Req	75	12	No	75FM	28 Rotating General	59911
PENNSYLVANIA—Hospitals, 76; Internships, 928										
Abington Memorial Hospital *1-3-4 1200 Old York Rd, Abington	NPCorp	303	9,900	Req	39	12	No	150FM	14 Rotating General	60011
Allentown Hospital *1 17th and Chew Sts, Allentown	NPCorp	503	14,348	Req	62	12	No	200FM	14 Rotating General	60111
Sacred Heart Hospital *1-3 4th and Chew Sts, Allentown	Church	391	9,482	Req	38	12	No	200FM	10 Rotating General	60211
Altoona Hospital 1-3 7th St and Howard Ave, Altoona	NPCorp	322	10,013	Req	41	12	No	300PM	12 Rotating General	60311
Mercy Hospital 1 2601 8th Ave, Altoona	NPCorp	174	5,937	Req	32	12	No	200FM	4 Rotating General	60411
St Luke's Hospital *1-3-4 801 Ostrum St, Bethlehem	NPCorp	363	11,155	Req	51	12	No	200FM	12 Rotating General	60511
Bryn Mawr Hospital *1-3 Bryn Mawr Ave, Bryn Mawr	NPCorp	358	10,904	Req	64	12	No	175FM	12 Rotating General	60611
Chester Hospital *1-3-4 9th and Barclay Sts, Chester	NPCorp	278	9,140	Req	68	12	No	250FM	8 Rotating General	60711
Geo F Geisinger Memorial Hospital and Foss Clinic *1-3-4 Danville	NPCorp	270	10,331	Req	62	12	No	150FM	12 Rotating General	60811
Thomas M Fitzgerald—Mercy Hospital *1-3-x71 Lansdowne Ave and Baily Rd, Darby	Church	334	11,682	Req	51	12	No	200FM	14 Rotating General	60911
Easton Hospital *1-3-4 21st and Lehigh Sts, Easton	NPCorp	257	9,066	Req	33	12	No	200FM	6 Rotating General	61011
Hamot Hospital *1-3 4 E 2nd St, Erie 6	NPCorp	382	12,320	Req	44	12	No	150-300FM	10 Rotating General	61111
St Vincent's Hospital *1-3 2420 Sassafras St, Erie 6	NPCorp	305	11,937	Req	39	12	No	200FM	10 Rotating General	61211
Westmoreland Hospital *1-3 532 W Pittsburgh St, Greensburg	NPCorp	261	9,432	None	34	12	243	300FM	4 Rotating General	61311
Harrisburg Hospital *1-3-4-X68 Front and Mulberry Sts, Harrisburg	NPCorp	492	15,339	Req	52	12	No	200FM	15 Rotating General	61411
Harrisburg Polyclinic Hospital *1 3rd and Radnor Sts, Harrisburg	NPCorp	454	11,915	Req	50	12	No	200FM	16 Rotating General	61511
Conemaugh Valley Memorial Hospital 1-3 1086 Franklin St, Johnstown	NPCorp	356	15,140	Req	36	12	No	225FM	10 Rotating General	61611
Nesbitt Memorial Hospital 1 562 Wyoming Ave, Kingston	NPCorp	200	6,814	Req	28	12	No	300FM	4 Rotating General	95211
Lancaster General Hospital *1 525 N Duke St, Lancaster	NPCorp	450	13,884	Req	40	12	No	200FM	12 Rotating General	61811
St Joseph's Hospital *1 College Ave and Walnut St, Lancaster	Church	265	8,053	Req	54	12	No	200FM	6 Rotating General	61911
McKeesport Hospital 1 1500 5th Ave, McKeesport	NPCorp	445	13,964	Req	31	12	No	250FM	10 Rotating General	62011
Montgomery Hospital 1-3 Powell and Fornance Sts, Norristown	NPCorp	187	7,745	Req	30	12	No	250FM	6 Rotating General	62111
Sacred Heart Hospital *1-3 1430 De Kalb St, Norristown	Church	175	5,581	Req	45	12	No	250FM	2 Rotating General	62211
Albert Einstein Medical Center Northern Division *1-3-X70 York and Tabor Rds, Philadelphia 41	NPCorp	594	13,843	Req	52	12	No	75FM	18 Rotating General	63111
Southern Division *1-3-4-X68 1429 S 5th St, Philadelphia 47	NPCorp	292	9,684	Req	38	12	No	75FM	15 Rotating General	63711
Chestnut Hill Hospital *1 [illegible]	NPCorp	134	5,335	Req	45	12	No	250FM	4 Rotating General	91011
[illegible] *1-X71 [illegible]	NPCorp	438	9,796	Req	47	12	No	150FM	12 Rotating General	62311
Frankford Hospital *1-3 4940 Frankford Ave, Philadelphia 24	NPCorp	188	[illegible] 712	Req	50	12	No	200FM	8 Rotating General	62411
Germantown Dispensary and Hospital *1-X69-x72 E Penn and Wister Sts, Philadelphia 44	NPCorp	215	9,961	Req	36	12	No	100FM	12 Rotating General	62511
Graduate Hospital of the University of Pennsylvania *1-3-4 19th and Lombard Sts, Philadelphia 46	NPCorp	534	[illegible]	Req	57	12	244	75FM	12 Rotating General	62611
Hahnemann Medical College and Hospital *1-X68 230 N Broad St, Philadelphia 2	NPCorp	568	14,128	Req	50	12	No	50FM	24 Rotating General	62711
Hospital of the University of Pennsylvania *1-4-X71 3400 Spruce St, Philadelphia 4	NPCorp	804	21,870	Req	68	12	No	42FM	32 Rotating General	62811
Hospital of the Woman's Medical College of Pennsylvania *1-X72 3300 Henry Ave, Philadelphia 29	NPCorp	206	6,043	Req	67	12	No	100FM	8 Rotating General	62911
Jefferson Medical College Hospital *3-4 X69 10th and Sansom Sts, Philadelphia 7	NPCorp	900	19,135	Req	51	12	No	25FM	44 Rotating General	63011
Lankenau Hospital *1-X69 Lancaster Ave and City Line, Philadelphia 31	NPCorp	338	10,775	Req	48	12	No	75FM	12 Rotating General	63211
Memorial Hospital 1-3-x72 5800 Ridge Ave, Philadelphia 28	NPCorp	153	4,828	Req	41	12	245	250FM	4 Rotating General	63311

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.
Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
PENNSYLVANIA—Continued										
Methodist Episcopal Hospital *^{1}-X69 Broad and Wolf Sts., Philadelphia 48	Church	210	5,835	Req	30	12	No	150FM	8 Rotating General	63511
Misericordia Hospital *^{1} 54th and Cedar Ave., Philadelphia 43	Church	281	9,355	Req	39	12	No	200FM	10 Rotating General	63611
Nazareth Hospital *^{1} 8050 Holme Ave., Philadelphia 15	Church	220	*9,026*	*Req*	53	12	246	200FM	8 Rotating General	63811
Pennsylvania Hospital *$^{1-3-4}$-X69-71 8th and Spruce Sts., Philadelphia 7	NPCorp	436	11,022	Req	57	12	247	FM	18 Rotating General	63911
Philadelphia General Hospital *$^{1-3-4}$-X68-69-70-71-72 34th St. and Curie Ave., Philadelphia 4	City	1,965	22,611	Req	50	12	No	55FM	107 Rotating General	64011
Presbyterian Hospital *$^{1-4}$-X71 51 N. 39th St., Philadelphia 4	Church	329	8,655	Req	66	12	No	100FM	12 Rotating General	64111
St. Agnes Hospital $^{1-3}$-X68 1900 S. Broad St., Philadelphia 45	Church	843	8,897	Req	37	12	No	250FM	10 Rotating General	64211
St. Joseph's Hospital *$^{1-3-4}$ 16th St. and Girard Ave., Philadelphia 30	Church	109	5,629	Req	52	12	No	250FM	6 Rotating General	64311
St. Luke's and Children's Medical Center *^{1}-X68 Franklin and Thompson Sts., Philadelphia 22	NPCorp	238	7,037	Req	26	12	No	250FM	8 Rotating General	64411
Temple University Hospital *^{1}-X70 3401 N. Broad St., Philadelphia 40	NPCorp	501	15,178	Req	54	12	248	25FM	30 Rotating General	64611
Woman's Hospital *$^{1-3}$-X72 Preston and Parrish Sts., Philadelphia 4	NPCorp	153	5,584	Req	45	12	No	150FM	2 Rotating General 1 Rot. (Med. Major) 1 Mixed (Surg.-Med.)	64711 64712 64724
Allegheny General Hospital *$^{1-4}$-X73 320 E. North Ave., Pittsburgh 12	NPCorp	582	15,308	Req	44	12	No	182FM	18 Rotating General	64811
Mercy Hospital *$^{1-3}$-X73 1400 Locust St., Pittsburgh 19	NPCorp	655	14,290	Req	36	12	No	150FM	24 Rotating General	64911
Montefiore Hospital *$^{1-3-4}$ 3459 5th Ave., Pittsburgh 13	NPCorp	320	10,328	Req	48	12	No	200FM	12 Rotating General	65011
Pittsburgh Hospital *$^{1-3}$ 6655 Frankstown Ave., Pittsburgh 6	NPCorp	225	7,132	Req	29	12	No	300FM	6 Rotating General	65111
Presbyterian Hospital *$^{1-3}$-X73 230 Lothrop St., Pittsburgh 13	NPCorp	255	5,487	Req	58	12	249	50FM	20 Rotating General	65211
St. Francis General Hospital and Rehabilitation Institute *$^{1-3-4}$-X73 408 45th St., Pittsburgh 1	NPCorp	683	14,837	Req	42	12	No	200FM	18 Rotating General	[illegible]
St. John's General Hospital *$^{1-3}$ 3339 McClure Ave., Pittsburgh 12	NPCorp	207	6,331	Req	36	12	No	200FM	5 Rotating General	65411
St. Joseph's Hospital and Dispensary ^{1} 2117 Carson St., Pittsburgh 3	Church	170	5,148	Req	43	12	No	350FM	6 Rotating General	65511
St. Margaret Memorial Hospital *$^{1-3}$ 265 46th St., Pittsburgh 1	Church	151	3,842	Req	56	12	No	200FM	4 Rotating General	65611
Shadyside Hospital *$^{1-3}$ 5230 Centre Ave., Pittsburgh 32	NPCorp	301	8,394	Req	52	12	No	230PM	12 Rotating General	65711
South Side Hospital *$^{1-3}$ S. 20th and Jane Sts., Pittsburgh 3	*NPCorp*	318	9,195	*Req*	27	12	No	250FM	*9 Rotating General*	65811
Western Pennsylvania Hospital *$^{1-3-4}$ 4800 Friendship Ave., Pittsburgh 24	NPCorp	553	15,106	Req	53	12	No	200FM	18 Rotating General	65911
Community General Hospital *$^{1-3}$ 145 N. 6th St., Reading	NPCorp	174	6,107	Req	37	12	No	200FM	5 Rotating General	66011
Reading Hospital *^{1} 6th and Spruce Sts., Reading	NPCorp	491	12,839	Req	54	12	No	200FM	14 Rotating General	66111
St. Joseph's Hospital *$^{1-3}$ 1215 Walnut St., Reading	Church	208	6,841	Req	58	12	No	250FM	6 Rotating General	66211
Robert Packer Hospital *$^{1-3}$-X68 S. Wilbur Ave., Sayre	NPCorp	340	12,071	Req	60	12	No	125FM	10 Rotating General	[illegible]
Scranton State Hospital *^{1} 201 Mulberry St., Scranton 3	State	290	*6,427*	*Req*	27	12	No	253FM	10 Rotating General	[illegible]
Sewickley Valley Hospital $^{1-3}$ Blackburn Rd., Sewickley	NPCorp	225	7,412	*Req*	25	12	No	275FM	8 Rotating General	[illegible]
Sharon General Hospital * 740 E. State St., Sharon	NPCorp	253	10,433	Req	24	12	No	100FM	5 Rotating General	[illegible]
Allegheny Valley Hospital $^{1-3}$ 1301 Carlisle St., Tarentum	NPCorp	220	8,233	Req	38	12	250	225FM	6 Rotating General	[illegible]
Uniontown Hospital $^{1-3}$ 500 W. Berkeley St., Uniontown	NPCorp	245	8,485	Req	30	12	No	300FM	5 Rotating General	[illegible]
Washington Hospital ^{1} 155 Wilson Ave., Washington	NPCorp	*204*	7,111	*Req*	38	12	No	250FM	*8 Rotating General*	[illegible]
Chester County Hospital *^{1} Boot Rd., West Chester	NPCorp	155	4,794	Req	34	12	No	250FM	*6 Rotating General*	[illegible]
Mercy Hospital *$^{1-3-4}$ 196 Hanover St., Wilkes-Barre	Church	191	*6,239*	Req	29	12	No	300FM	6 Rotating General	67011
Wilkes-Barre General Hospital *$^{1-3}$ N. River and Auburn Sts., Wilkes-Barre	NPCorp	*376*	*10,121*	Req	29	12	No	200FM	10 Rotating General	67111
Columbia Hospital *^{1} 312 Penn Ave., Wilkinsburg	NPCorp	191	6,642	Req	35	12	No	300FM	6 Rotating General	67211
Divine Providence Hospital ^{1} 1100 Grampian Blvd., Williamsport	Church	185	5,654	Req	41	12	No	200FM	4 Rotating General	91311
Williamsport Hospital *^{1} 777 Rural Ave., Williamsport 20	NPCorp	312	9,126	Req	41	12	No	200FM	8 Rotating General	67311
York Hospital *^{1} S. George St., and Rathton Rd., York	NPCorp	314	11,852	Req	31	12	No	200FM	10 Rotating General	67411
RHODE ISLAND—Hospitals, 6; Internships, 58										
Newport Hospital $^{1-3}$ Friendship St., Newport	NPCorp	196	5,903	Req	31	12	No	100-150FM	6 Rotating General	67511
Memorial Hospital *$^{1-3}$ Prospect St., Pawtucket	NPCorp	220	7,984	Req	37	12	No	200FM	8 Rotating General	[illegible]
Miriam Hospital *$^{1-3}$ 164 Summit Ave., Providence 6	NPCorp	150	5,399	Req	34	12	216	200FM	8 Rotating General	95311
Rhode Island Hospital *$^{1-3-4}$ 593 Eddy St., Providence 2	NPCorp	527	16,053	Req	48	24	251	75FM	18 Rotating *General*	67711
Roger Williams General Hospital *$^{1-3}$ 825 Chalkstone Ave., Providence 8	NPCorp	211	7,359	Req	29	12	No	200FM	6 Rotating General	67811
St. Joseph's Hospital ^{1} 21 Peace St., Providence 7	Church	310	7,933	Req	25	12	170	150FM	12 *Rotating* General	[illegible]
SOUTH CAROLINA—Hospitals, 6; Internships, 98										
Roper Hospital *$^{1-3}$-X74 300 Calhoun St., Charleston 16	NPCorp	450	14,263	Req	48	12	No	125FM	*30 Rotating* General	[illegible]
Columbia Hospital of Richland County *$^{1-3}$ 2020 Hampton Ave., Columbia 4	County	441	14,297	Req	35	12	No	150FM	18 *Rotating* General	[illegible]

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.

Abbreviations and other references will be found on pages 312 and 313.

Name of Hospital and Location	Control	Total Beds	Number of Patients Admitted	Outpatient Service	Autopsy Percentage	Length of Program (Months)	Affiliated Service	Beginning Stipend (Month)	Number and Type of Internships	Code Number
SOUTH CAROLINA—Continued										
McLeod Infirmary +^{1} 121 W. *Cheves St., Florence*	NPCorp	202	8,378	Req	33	12	No	200FM	5 Rotating General	68211
Greenville General Hospital +$^{1-3}$ 100 Mallard St., Greenville	CyCo	540	18,584	Req	40	12	No	175-225PM	24 Rotating General	68311
Orangeburg Regional Hospital +$^{1-3}$ 550 Carolina Ave., N. E., Orangeburg	County	200	7,550	Req	29	12	No	150FM	6 Rotating General	68411
Spartanburg General Hospital +^{3} 855 N. Church St., Spartanburg	County	370	15,118	Req	32	12	No	150FM	15 Rotating General	68511
SOUTH DAKOTA—Hospitals, 3; Internships, 23										
McKennan Hospital $^{1-3}$-X75 800 E. 21st St., Sioux Falls	Church	190	7,155	None	37	12	No	150FM	7 Rotating General	68611
Sioux Valley Hospital $^{1-3}$-X75 1123 S. Euclid Ave., Sioux Falls	NPCorp	210	9,095	None	35	12	No	150FM	10 Rotating General	68711
Sacred Heart Hospital +$^{1-3}$-X75 W. 4th St., Yankton	Church	220	5,433	Req	38	12	No	150FM	6 Rotating General	68811
TENNESSEE—Hospitals, 15; Internships, 256										
Baroness Erlanger Hospital +$^{1-3-4}$ 261 Wiehl St., Chattanooga 3	CyCo	464	16,755	Req	39	12	No	125FM	12 Rotating General 2 Mixed (Med.-Ob.-Ped.)	68911 68950
*Holston Valley Community Hospital ^{1} W. Ravine St., Kingsport	NPCorp	245	11,402	Req	25	12	No	250FM	8 Rotating General	.....
East Tennessee Baptist Hospital +$^{1-3}$ Blount Ave., Knoxville 10	Church	254	11,674	Req	32	12	252	250FM	12 Rotating General	69011
Fort Sanders Presbyterian Hospital $^{1-3}$ 1909 W. Clinch Ave., Knoxville 16	Church	189	8,283	....	28	12	253	250FM	8 Rotating General	69111
*Knoxville General Hospital +^{4} Cleveland Pl., Knoxville 17	City	285	8,432	Req	24	12	No	128FM	12 Rotating General	.....
St. Mary's Memorial Hospital +$^{1-3}$ Oak Hill Ave., Knoxville 17	Church	285	10,777	Req	41	12	252	200PM	12 Rotating General	69311
Baptist Memorial Hospital +$^{1-3}$ 899 Madison Ave., Memphis 3	Church	571	23,509	Req	41	12	254	125FM	26 Rotating General 3 Straight Medicine 6 Straight Surgery	69411 69432 69433
*John Gaston Hospital (City of Memphis Hospitals) +$^{1-3-4}$-X76 860 Madison Ave., Memphis 3	City	526	21,769	Req	55	12	No	75-100FM	39 Rotating General	.....
Methodist Hospital + 1265 Union Ave., Memphis 4	Church	252	13,972	Req	39	12	255	125FM	12 Rotating General	69611
*St. Joseph Hospital +$^{1-3}$ 264 Jackson Ave., Memphis 5	Church	280	12,208	Req	45	12	No	125-150FM	12 Rotating General	.....
Baptist Hospital +$^{1-3}$ 2000 Ch [illegible]	Church	242	12,021	Req	32	12	No	150FM	12 Rotating General	69911
George W. [illegible] 1005 18th Ave. N., Nashville 8	Church	197	5,375	Req	51	12	No	100FM	12 Rotating General	69811
Nashville General Hospital +$^{1-3}$ Hermitage Ave., Nashville 10	City	166	5,243	Req	28	12	No	150FM	12 Rotating General	70011
[illegible] (Baptist [illegible] rans Administration, [illegible] University Hospital) X78 Apply—Department of Medicine Vanderbilt University School of Medicine, 21st Ave. S. at Edgehill, Nashville 5	....	...	.....	Req	..	12	...	170FM	8 Straight Medicine	95832
St. Thomas Hospital +$^{1-3}$ 2000 Hayes St., Nashville 4	Church	220	9,615	Req	30	12	256	175FM	7 Rotating General 2 Straight Medicine 3 Straight Surgery 3 Mixed (Med.-Surg.)	70111 70132 70133 70124
Vanderbilt University Hospital +$^{1-3}$-X78 21st Ave. S. at Edgehill, Nashville 5	NPAssn	375	11,783	Req	57	12	No	25FM	12 Straight Medicine 12 Straight Surgery 7 Straight Pediatrics 2 Straight Pathology	70232 70233 70234 70236
TEXAS—Hospitals, 22; Internships, 349										
Brackenridge Hospital +^{1}-x80 15th St. and East Ave., Austin 1	City	200	6,870	Req	50	12	No	150PM	13 Rotating General	70411
Memorial Hospital ^{1} 2606 Hospital B[illegible]	CyCo	252	10,060	Req	24	12	No	100FM	5 Rotating General	70511
Baylor University [illegible]-x79 3500 Gaston Ave., Dallas 4	Church	600	28,566	Req	38	12	257	115FM	25 Rotating General 1 Straight Medicine 1 Straight Surgery	70611 70632 70633
Children's Medical Center +$^{1-3-4}$-X79 2306 Welborn St., Dallas 19	NPCorp	154	3,537	Req	56	12	258	50FM	6 Straight Pediatrics	95511
Methodist Hospital +$^{1-3}$-x79 301 W. Colorado Blvd., Dallas 22	Church	288	15,957	Req	33	12	No	100FM	16 Rotating General	70711
Parkland Memorial Hospital [illegible]X79 5201 H[illegible]	Dist	700	11,675	Req	43	12	No	25FM	24 Rotating General 8 Straight Medicine	70811 70832
St. Paul's [illegible] 3121 Br[illegible]	Church	388	17,348	Req	51	12	No	100FM	14 Rotating General 1 Straight Medicine 1 Rot. (Med. Major) 1 Rot. (Surg. Major)	70911 70932 70912 70913
El Paso General Hospital 4815 Alameda Ave., El Paso	CyCo	240	4,124	Req	68	12	No	100FM	8 Rotating General	71011
Hotel Dieu, Sisters' Hospital +^{3} 1014 N. Stanton St., El Paso	Church	218	9,114	Req	36	12	No	150FM	6 Rotating General	95411
Harris Hospital +$^{1-3}$ 1300 W. Cannon St., Fort Worth 4	Church	328	16,290	Req	37	12	No	200FM	16 Rotating General	71211
John Peter Smith Hospital +$^{1-3-4}$ 1500 S. Main St., Fort Worth 4	CyCo	200	4,927	Req	46	12	No	50FM	13 Rotating General	71111
St. Joseph's Hospital +$^{1-3}$ 1401 S. Main St., Fort Worth 4	Church	300	12,829	Req	36	12	No	200FM	18 Rotating General	71311
University of Texas Medical Branch Hospitals +$^{1-3}$-X80 8th and Mechanic Sts., Galveston	State	898	13,901	Req	62	12	No	110FM	36 Rotating General	71411
Baylor University College of Medicine Hospitals, Houston										
Jefferson Davis Hospital +$^{1-3-4}$-X81 1801 Buffalo Dr., Houston 3	CyCo	521	13,939	Req	47	12	259	50FM	30 Rotating General 4 Straight Medicine 4 Straight Surgery 4 Straight Pediatrics	71611 71632 71633 71634
Methodist Hospital +$^{1-3}$-X81 6516 Bertner Ave., Houston 25	Church	300	13,533	Req	66	12	260	195	8 Rotating General 2 Straight Medicine 2 Straight Surgery	71711 71732 71733

Hospitals designated with an asterisk (*) in this listing do not participate in the National Intern Matching Program, sponsored by the American Medical Association, the American Hospital Association, the Association of American Medical Colleges, and other cooperating organizations.
Abbreviations and other references will be found on pages 312 and 313.

HOSPITALS APPROVED FOR INTERNSHIPS IN THE *DOMINION OF CANADA*

The following list of hospitals that conform to the *standards of the Canadian Medical Association* is published for the *information* of graduates interested in an internship appointment in a *Canadian* hospital. Hospitals that are unqualifiedly approved as conforming to the standards of the Canadian Medical Association *may be considered* as offering internships equivalent in *educational* value to those in hospitals approved for intern training by the Council.

This list, revised to Sept. 1, 1955, was furnished by the Canadian Medical Association. *(Sept. 1, 1956, revision* not yet available.)

Name of Hospital	Location
St. John's General Hospital	St. John's, Nfld.
Camp Hill Hospital	Halifax, N. S.
Halifax Infirmary	Halifax, N. S.
Victoria General Hospital	Halifax, N. S.
Moncton Hospital	Moncton, N. B.
Saint John General Hospital	Saint John, N. B.
Hotel-Dieu St.-Vallier	Chicoutimi, Que.
Children's Memorial Hospital	Montreal, Que.
Herbert Reddy Memorial Hosp.	Montreal, Que.
Hospital Sainte-Jeanne-d'Arc	Montreal, Que
Hospital Sainte-Justine	Montreal, Que.
Hospital Saint-Luc	Montreal, Que.
Hotel Dieu de Montreal	Montreal, Que.
Jewish General Hospital	Montreal, Que.
Montreal General Hospital	Montreal, Que.
Notre-Dame Hospital	Montreal, Que.
Queen Elizabeth Hospital	Montreal, Que.
Queen Mary Veteran's Hospital	Montreal, Que.
Royal Victoria Hospital	Montreal, Que.
St. Mary's Hospital	Montreal, Que.
Hospital de l'Enfant Jesus	Quebec, Que.
Jeffery Hale's Hospital	Quebec, Que.
L'Hotel-Dieu, Quebec	Quebec, Que.
Saint-Sacrament Hospital	Quebec, Que.
Veteran's Hospital	Quebec, Que.
Ste. Anne's Hospital	Ste. Anne de Bellevue, Que.
Sherbrooke Hospital	Sherbrooke, Que.
Hospital General de Verdun	Verdun, Que.
Brantford Ge [illegible]	[illegible] Ont.
McKellar Gen [illegible]	[illegible] Ont.
Hamilton Ge [illegible]	[illegible] Ont
St. Joseph's [illegible]	[illegible] Ont.
Hotel Dieu [illegible]	[illegible] Ont.
Kingston Ge [illegible]	[illegible] Ont.
Kitchener-W [illegible]	[illegible] Ont.
St. Joseph's Hospital	London, Ont.
Victoria Hospital	London, Ont.
Westminster Hospital	London, Ont.
Oshawa General Hospital	Oshawa, Ont.
Ottawa Civic Hospital	Ottawa, Ont.
Ottawa Genera [illegible]	[illegible] Ont.
Peterborough [illegible]	[illegible] Ont
General Hosp. [illegible]	[illegible] Ont.
St. Catharines Gen. Hosp.	St. Catharines, Ont.
Hospital for Sick Children	Toronto, Ont.
Mount Sinai Hospital	Toronto, Ont.
St. Joseph's Hospital	Toronto, Ont.
St. Michael's Hospital	Toronto, Ont.
Sunnybrook Veterans' Hospital	Toronto, Ont.
Toronto East General Hospital	Toronto, Ont.
Toronto General Hospital	Toronto, Ont.
Toronto Western Hospital	Toronto, Ont
Women's College Hospital	Toronto, Ont.
Grace [illegible]	[illegible]
Hotel [illegible]	[illegible]
Metrop [illegible]	[illegible]
St. Boniface General Hosp.	St Boniface, Ma
Children's Hospital	Winnipeg, Man
Deer Lodge Hospital	Winnipeg, Ma
Misericordia [illegible]	[illegible]
Winnipeg Gen [illegible]	[illegible]
Regina General Hospital	Regina, Sas
Regina Grey Nuns' Hospital	Regina, Sask
St. Paul's Hos [illegible]	[illegible]
Saskatoon Cit [illegible]	[illegible]
Calgary Gener [illegible]	[illegible]
Colonel Belche [illegible]	[illegible]
Holy Cross [illegible]	[illegible]
Edmonton [illegible]	[illegible]
Misericordia [illegible]	[illegible]
Royal Alexa [illegible]	[illegible]
University of Alberta Hospital	Edmonton, Alta
Royal Columbian Hosp.	New Westminster, B C
St. Paul's Hospital	Vancouver, B C
Shaughnessy Hospital	Vancouver, B C
Vancouver General Hospital	Vancouver, B C
Royal Jubilee Hospital	Victoria, B C
St. Joseph's Hospital	Victoria, B C
Veterans' Hospital	Victoria, B C

ABBREVIATIONS AND NOTES

1. Appointments available to women applicants
2. Appointments restricted to women applicants
3. Appointments available to graduates of foreign medical schools. Details regarding requirements for appointment can be secured from the hospitals concerned.
4. Dental internships available
5. Available to citizens of the United States only
6. General Practice internships

+ The plus sign indicates additional approval for residencies in specialties, as shown in the Council's list of Approved Residencies and Fellowships

CyCo	City and County
Corp	Corporation unrestricted as to profit
Dist	*Hospital District*
NPCorp	*Nonprofit corporation*
Part	*Partnership*
Req	Required
FM	Full maintenance
PM	Partial maintenance

Medical School Affiliations

Footnotes 10 to 89 refer to medical schools affiliated with hospitals for undergraduate clinical clerkships.

Hospitals have been identified with symbol **X** when a medical school has indicated that the hospital is a major unit in the school's teaching program. Hospitals have been identified with symbol **x** when a medical school has indicated that the hospital is used to a limited extent in the school's teaching program.

10. Medical College of Alabama, Birmingham, Ala.
11. University of Arkansas *School of Medicine*, Little Rock, Ark.
12. College of Medical Evangelists School of Medicine, Loma Linda, Los Angeles
13. University of California School of Medicine, Los Angeles
14. University of Southern California School of Medicine, Los Angeles
15. Stanford University School of Medicine, San Francisco
16. University of California School of Medicine, San Francisco
17. University of Colorado School of Medicine, Denver
18. Yale University School of Medicine, New Haven, Conn.
19. Georgetown University School of Medicine, Washington, D. C.
20. George Washington University School of Medicine, Washington, D. C.
21. Howard University College of Medicine, Washington, D. C.
22. University of Miami School of Medicine, Miami, Fla.
23. Emory University School of Medicine, Atlanta (Emory University), Ga
24. Medical College of Georgia, Augusta, Ga.
25. Chicago Medical School, Chicago
26. Northwestern University Medical School, Chicago
27. Stritch School of Medicine of Loyola University, Chicago
28. University of Chicago, The School of Medicine, Chicago
29. University of Illinois College of Medicine, Chicago
30. Indiana University School of Medicine, [illegible] Ind.
31. State University of Iowa College of [illegible]
32. University of *Kansas* School of Medicine, *Lawrence-Kansas City*, Kan.
33. University of Louisville School of Medicine, Louisville, Ky.
34. Louisiana State University School of Medicine, New Orleans
35. Tulane University of Louisiana School of Medicine, New Orleans
36. Johns Hopkins University School of Medicine, Baltimore
37. University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore
38. Boston University School of Medicine, Boston
39. Harvard Medical School, Boston
40. Tufts University School of Medicine, Boston
41. [illegible] Medical School, Ann Arbor, Mich.
42. [illegible] of Medicine, Detroit
43. [illegible] Medical School, Minneapolis
44. University of Mississippi School of Medicine, University, Miss.
45. St. Louis *University* School of Medicine, St. Louis
46. Washington University School of Medicine, St. Louis
47. Creighton University School of Medicine, Omaha
48. University *of* Nebraska College of Medicine, Omaha
49. Dartmouth Medical School, Hanover, N. H.
50. Albany Medical College, Albany, N. Y.
51. University of Buffalo School of Medicine, Buffalo
52. Albert Einstein College of Medicine, New York City
53. Columbia University College of Physicians and Surgeons, New York City
54. Cornell University Medical College, New York City
55. New York Medical College, Flower and Fifth Avenue Hospitals, New York City
56. New York University College of Medicine, New York City
57. State University of New York College of Medicine, New York C
58. University of Rochester School of Medicine and Dentistry, Roch N. Y.
59. State University of New York Upstate Medical Center, Syracuse, N
60. University of North Carolina School of Medicine, *Chapel Hill*, N
61. Duke University School of Medicine, Durham, N. C.
62. Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C.
63. University of Cincinnati College of Medicine, Cincinnati
64. Western Reserve University School of Medicine, Cleveland
65. Ohio State University College of Medicine, Columbus, Ohio
66. University of Oklahoma School of Medicine, Oklahoma City
67. University of Oregon Medical School, Portland, Ore.
68. Hahnemann Medical College and Hospital, Philadelphia
69. Jefferson Medical College, Philadelphia
70. *Temple* University School of [illegible]
71. University of Pennsylvania S [illegible]
72. Woman's Medical College of [illegible]
73. University of Pittsburgh Scho [illegible]
74. Medical College of South Carolina, Charleston, S. C.
75. University of South Dakota School of Medicine, *Vermillion*, S D
76. University of Tennessee College of Medicine, Memphis, Tenn.
77. Meharry Medical College, Nashville, Tenn.
78. Vanderbilt University School of Medicine, Nashville, Tenn.
79. Southwestern Medical School of the University of Texas, Dallas, Texas
80. University of Texas School [illegible] *Galveston*, Texas
81. Baylor University College of [illegible]
82. University of Utah School of [illegible]
83. University of Vermont Colle [illegible]
84. University of Virginia Schoo [illegible] Va
85. Medical College of Virginia, [illegible]
86. University of Washington School of Medicine, Seattle
87. University of Wisconsin Medical School, Madison, Wis.
88. Marquette University School of Medicine, Milwaukee, Wis.
89. University of Puerto Rico School of Medicine, San Juan, P. R

Affiliations as Referred to in Column Headed: "Affiliated Service"

100. U. S. Army Hospital, Fort Belvoir, Va.; U. S. Air Force Hospital, Washington, D. C.
101. U. S. Army Hospital, Fort Dix, N. J.
102. St. Joseph's Hospital, Children's Hospital, San Francisco
103. Charity Hospital of Louisiana, New Orleans
104. University Hospital, Baltimore
105. Lenox Hill Hospital, St. Vincent's Hospital, New York City; Jewish Hospital, Brooklyn; St. Michael's Hospital, Newark, N. J.
106. U. S. Naval Hospital, Portsmouth, Va.
107. U. S. Army Hospital, Seattle, obstetrics-gynecology; Navajo Medical Center, Fort Defiance, Ariz., pediatrics
108. District *of* Columbia General Hospital, Washington, D. C.
109. Los Angeles County Hospital, *Los Angeles*, obstetrics; *Harbor General Hospital, Torrance*, Calif., pediatrics
110. Los Angeles County Hospital, University of California Hospital, Los Angeles; Harbor General Hospital, Torrance, Calif.
111. Emory University Hospital, *Emory* University, Ga.; Grady *Memorial* Hospital, Atlanta, Ga.
112. University of Oklahoma Hospitals, Oklahoma City
113. Children's Medical Center, Parkland Memorial Hospital, *Dallas*, Texas
114. Salt Lake County General Hospital, Salt Lake City
115. Children's Hospital, Birmingham, Ala.

116 Crippled Children's Clinic and Hospital, Children's Hospital, Birmingham, Ala, pediatrics
117 Maricopa County General Hospital, Phoenix, Ariz
18 Pima County General Hospital Tucson, Ariz
19 Arkansas Children's Hospital Little Rock, Ark
20 Arkansas State Hospital, Little Rock, Ark
21 Riverside Community Hospital, Riverside, Calif
22 Los Angeles County Hospital, Los Angeles
23 Santa Monica Hospital, Santa Monica, Calif
24 Children's Hospital, Los Angeles
25 St Joseph Hospital, Burbank, Calif
26 Fairmont Hospital of Alameda County, San Leandro, Calif
27 Woman's Hospital, Pasadena, Calif
28 U S Naval Hospital, San Diego, Calif, obstetrics, pediatrics
29 San Francisco Hospital, San Francisco
30 Laguna Honda Home, San Francisco, Hassler Health Home, Redwood City, Calif
31 Mary's Help Hospital Children's Hospital, San Francisco, Southern Pacific Hospital and Sanatorium, Tucson, Ariz
32 Children's Hospital, San Francisco
33 Santa Barbara General Hospital, Santa Barbara, Calif
34 California Hospital, Los Angeles
35 St Luke's Hospital, Presbyterian Hospital, St Joseph's Hospital, Denver
36 Boulder County General Hospital, Boulder, Colo
37 Childrens Hospital Denver
8 Hartford Hospital, Hartford, Conn
9 Southbury Training School, Southbury, Conn, pediatrics
0 District of Columbia General Hospital, Children's Hospital, Washington, D C
1 Children's Hospital, Central Dispensary and Emergency Hospital, Washington, D C
2 Children's Hospital, Washington D C
3 Arlington Hospital, Arlington, Va
Variety Children's Hospital, Miami, Fla
American Legion Hospital for Crippled Children, St Petersburg, Fla
6 Clara Frye Municipal Hospital Tampa, Fla
7 Pine Ridge Hospital, West Palm Beach, Fla
Athens General Hospital Athens, Ga
Grady Memorial Hospital, Atlanta, Ga
Children's Memorial Hospital Chicago
Frank Cuneo Memorial Hospital, Chicago
University of Illinois Research and Educational Hospitals, Chicago
Mercy Hospital, Chicago
Winfield Hospital, Winfield Ill
Presbyterian Hospital, Municipal Contagious Disease Hospital, Chicago
Macon County Tuberculosis Sanatorium, City Public Hospital, Decatur, Ill
Indianapolis General Hospital Indianapolis
Broadlawns Polk County Hospital, Des Moines, Iowa
Children's Mercy Hospital Kansas City, Mo
Sedgwick County Hospital, Wichita, Kan
Children's Hospital, Louisville General Hospital Louisville Ky
Children's Hospital, Jewish Hospital Louisville Ky
St Joseph Infirmary, Louisville General Hospital, Louisville Ky
St Joseph Infirmary, Louisville Ky
Greenwell Springs Tuberculosis Hospital, Greenwell Springs, La
Confederate Memorial Medical Center, Shreveport, La
Johns Hopkins Hospital, Baltimore
Union Memorial Hospital Baltimore, pediatrics
Baltimore City Hospitals Baltimore
Charles V Chapin Hospital, Providence, R I
St Margaret's Hospital, Boston
Beth Israel Hospital, Boston
Haynes Memorial Hospital, Boston Lying in Hospital, Boston
Boston City Hospital, Boston
Eastern Maine General Hospital Bangor, Maine Central Maine General Hospital, Lewiston Maine Boston Floating Hospital Boston
Boston Floating Hospital, Boston, pediatrics
Robert Breck Brigham Hospital Boston
Boston Lying in Hospital, Boston
Fall River General Hospital, Fall River, Mass
Wesson Maternity Hospital Springfield, Mass
Hurley Hospital McLaren General Hospital Flint, Mich Beyer Memorial Hospital, Ypsilanti, Mich, Midland Hospital Midland, Mich, Saginaw General Hospital, Saginaw Mich, St Joseph Mercy Hospital Ann Arbor, Mich
Herman Kiefer Hospital Detroit, Wayne County General Hospital and Infirmary, Eloise, Mich
Receiving Hospital, Children's Hospital, Detroit
Harper Hospital Detroit
Herman Kiefer Hospital Detroit, St Joseph's Retreat, Dearborn, Mich
Herman Kiefer Hospital Detroit
Children's Hospital Detroit
Children's Hospital, Receiving Hospital, Herman Kiefer Hospital, Detroit
Woman's Hospital, Herman Kiefer Hospital Detroit
Genesee County Tuberculosis Sanatorium, Flint, Mich
Pontiac State Hospital Oakland County Tuberculosis Sanatorium, Pontiac, Mich
Saginaw County Hospital Saginaw, Mich tuberculosis, communicable diseases
Miller Memorial Hospital Duluth Minn
St Andrew's Hospital, Minneapolis
Minneapolis General Hospital, Minneapolis
Children's Hospital St Paul, Elizabeth Kenny Institute, Minneapolis
Gillette State Hospital for Crippled Children St Paul
Children's Hospital, St Paul
Ancker Hospital Charles T Miller Hospital, St Paul
Mississippi State Charity Hospital, Vicksburg, Miss
St Louis City Hospital St Louis
Alexian Brothers Hospital, St Louis
St Louis Maternity Hospital, St Louis, St Louis County Hospital, Clayton, Mo Burge Hospital Springfield, Mo
Douglas County Hospital Immanuel Hospital, University of Nebraska Hospital Omaha

205 Douglas County Hospital, Omaha
206 Children's Memorial Hospital, Bishop Clarkson Memorial Hospital, Douglas County Hospital, Omaha
207 Children's Memorial Hospital, Omaha
208 Children's Memorial Hospital Douglas County Hospital, Omaha
209 Children's Seashore Home, Atlantic City, N J, Clyde Fish Memorial Hospital, Northfield, N J; Betty Bacharach Home, Longport, N J
210 St Elizabeth Hospital Elizabeth, N J; St Peter's General Hospital, New Brunswick, N J, obstetrics gynecology, pediatrics
211 Margaret Hague Maternity Hospital, Jersey City, N J
212 Babies' Hospital Coit Memorial Newark, N J
213 A N Brady Hospital Albany, N Y, obstetrics
214 Children's Hospital, Buffalo
215 Children's Hospital Edward J Meyer Memorial Hospital, Buffalo
216 Beth Israel Hospital, Boston, obstetrics
217 University Hospital, New York City
218 Roosevelt Hospital, New York City
219 Jewish Hospital, Brooklyn
220 Lincoln Hospital, New York City
221 Hunterdon Medical Center, Flemington, N J
222 Edward J Meyer Memorial Hospital, Buffalo
223 Geneva General Hospital, Geneva, N Y
224 Genesee Hospital, Highland Hospital Rochester, N Y
225 Asheville Orthopedic Hospital, Asheville, N C
226 Watts Hospital, Durham, N C, Robeson County Memorial Hospital, Lumberton, N C
227 Watts Hospital Veterans Administration Hospital, Durham, N C
228 Children's Hospital, Akron, Ohio
229 Children's Hospital, Cincinnati General Hospital, Cincinnati
230 Children's Hospital, Cincinnati
231 Daniel Drake Memorial Hospital, Dunham Hospital, Cincinnati
232 Jewish Hospital, Cincinnati, pediatrics
233 City Hospital, Cleveland
234 St Ann's Hospital, Cleveland
235 Children's Hospital, Columbus, Ohio
236 Columbus Receiving Hospital Ohio Tuberculosis Hospital Children's Hospital, Columbus, Ohio
237 Lima State Hospital, Lima, Ohio psychiatry
238 University Hospitals, Columbus, Ohio
239 Toledo State Hospital, William W Roche Memorial Hospital Toledo, Ohio
240 St John's Hospital, Tulsa, Okla Valley View Hospital Ada, Okla; Mercy Hospital, St Anthony's Hospital Oklahoma City
241 St Vincent's Hospital, Portland, Ore, obstetrics St Mary's Hospital Astoria, Ore, general practice
242 Providence Hospital, Portland Ore, pediatrics
243 Torrance State Hospital Torrance, Pa, psychiatry
244 Hospital of the University of Pennsylvania, Philadelphia obstetrics
245 Hospital of the Woman's Medical College, Philadelphia Psychiatric Hospital Philadelphia
246 Philadelphia State Hospital Philadelphia
247 Children's Hospital, Philadelphia
248 St Christopher's Hospital for Children Philadelphia
249 Elizabeth Steel Magee Hospital Children's Hospital Eye and Ear Hospital Woman's Hospital, Pittsburgh
250 St Francis General Hospital and Rehabilitation Institute, Pittsburgh psychiatry
251 Providence Lying In Hospital Providence R I
252 Knoxville General Hospital Knoxville, Tenn
253 Knoxville General Hospital, East Tennessee Crippled Children's Hospital, Knoxville Tenn
254 John Gaston Hospital, Le Bonheur Children's Hospital, Memphis, Tenn
255 West Tennessee Tuberculosis Hospital Memphis Eye, Ear Nose and Throat Hospital John Gaston Hospital, Memphis, Tenn
256 Nashville Vanderbilt Affiliated Hospitals, Baptist Hospital, Nashville, Tenn
257 Children's Medical Center, Dallas, Texas
258 Parkland Memorial Hospital, Texas Scottish Rite Hospital for Crippled Children Dallas Texas
259 Methodist Hospital, Texas Children's Hospital, Houston, Texas, straight internships in pediatrics
260 Jefferson Davis Hospital, Texas Children's Hospital, Houston, Texas
261 Gulf Colorado and Santa Fe Hospital, Temple Texas
262 Utah State Tuberculosis Sanatorium, Ogden, Utah
263 Veterans Administration Hospitals, Salt Lake City
264 Blue Ridge Sanatorium Charlottesville, Va Kings Daughters Hospital Staunton, Va, Lynchburg General Hospital Lynchburg, Va
265 Medical College of Virginia, Hospital Division Tucker Hospital, Richmond, Va
266 St [illegible] ...ke's Hospital Richmond Va North... [illegible] Hospital Nassawadox Va Mary [illegible] ...ricksburg, Va, Southside Community Hospital, Farmville Va Raiford Memorial Hospital Franklin Va
267 Medical College of Virginia, Hospital Division Richmond Va
268 Children's Orthopedic Hospital Seattle
269 Shriners Hospital for Crippled Children, Spokane orthopedics; Booth Memorial Hospital Spokane, obstetrics gynecology
270 Mountain View Sanatorium Tacoma Wash, tuberculosis
271 Mary Bridge Children's Hospital, Tacoma Wash
272 Milwaukee Children's Hospital South View Isolation Hospital, Milwaukee Hospital Milwaukee
273 Milwaukee Children's Hospital, Milwaukee
274 Milwaukee Hospital Milwaukee
275 Milwaukee Children's Hospital, Salvation Army Martha Washington Home, Milwaukee
276 St Michael Hospital, Milwaukee
277 Milwaukee Children's Hospital Milwaukee County Hospital, Milwaukee County Emergency Hospital, South View Isolation Hospital, Milwaukee
278 Milwaukee Children's Hospital, Milwaukee County Emergency Hospital, Milwaukee
279 South View Isolation Hospital, Milwaukee
280 St Francis Hospital, Honolulu, Hawaii
281 Memorial Center for Cancer and Allied Diseases New York City

APPROVED INTERNSHIPS BY TYPE OF SERVICE

ROTATING GENERAL

Number of Approved Programs, 806

FEDERAL

UNITED STATES ARMY

Letterman Army Hospital	San Francisco
Fitzsimons Army Hospital	Denver
Walter Reed Army Hospital (Army Medical Center)	Washington, D. C.
Valley Forge Army Hospital	Phoenixville, Pa.
William Beaumont Army Hospital	El Paso, Texas
Brooke Army Hospital, Fort Sam Houston	San Antonio, Texas
Madigan Army Hospital	Tacoma, Wash.
Tripler Army Hospital	Honolulu, T. H.

UNITED STATES AIR FORCE

U. S. Air Force Hospital (Lackland Air Force Base)	San Antonio, Texas

UNITED STATES NAVY

U. S. Naval Hospital	Corona, Calif.
U. S. Naval Hospital (Vallejo)	Mare Island, Calif.
U. S. Naval Hospital	Oakland, Calif.
U. S. Naval Hospital	Oceanside, Calif.
U. S. Naval Hospital	San Diego, Calif.
U. S. Naval Hospital	Jacksonville, Fla.
U. S. Naval Hospital	Pensacola, Fla.
U. S. Naval Hospital	Great Lakes, Ill.
U. S. Naval Hospital	Bethesda, Md.
U. S. Naval Hospital	Chelsea, Mass.
U. S. Naval Hospital	St. Albans, N. Y.
U. S. Naval Hospital	Camp Lejeune, N. C.
U. S. Naval Hospital	Philadelphia
U. S. Naval Hospital	Newport, R. I.
U. S. Naval Hospital	Charleston, S. C.
U. S. Naval Hospital	Portsmouth, Va.
U. S. Naval Hospital	Bremerton, Wash.

U. S. PUBLIC HEALTH SERVICE

U. S. Public Health Service Hospital	San Francisco
U. S. Public Health Service Hospital	New Orleans
U. S. Public Health Service Hospital	Baltimore
U. S. Public Health Service Hospital	Staten Island, N. Y.
U. S. Public Health Service Hospital	Norfolk, Va.
U. S. Public Health Service Hospital	Seattle

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Freedmen's Hospital	Washington, D. C.
Saint Elizabeths Hospital	Washington, D. C.

VETERANS ADMINISTRATION

Veterans Admin. Hospital	Long Beach, Calif.
Veterans Admin. Center	Los Angeles
Veterans Admin. Hospital	Salt Lake City

NONFEDERAL

Birmingham Baptist Hospital	Birmingham, Ala.
Carraway Methodist Hospital	Birmingham, Ala
St. Vincent's Hospital	Birmingham, Ala
South Highlands Infirmary	Birmingham, Ala.
University Hospital and Hillman Clinic	Birmingham, Ala.
Lloyd Noland Hospital	Fairfield, Ala
Holy Name of Jesus Hospital	Gadsden, Ala.
Mobile County Hospital	Mobile, Ala.
Druid City Hospital	Tuscaloosa, Ala.
Good Samaritan Hospital	Phoenix, Ariz.
Maricopa County General Hospital	Phoenix, Ariz.
Memorial Hospital	Phoenix, Ariz.
St. Joseph's Hospital	Phoenix, Ariz.
St. Mary's Hospital and Sanatorium	Tucson, Ariz.
Tucson Medical Center	Tucson, Ariz.
Arkansas Baptist Hospital	Little Rock, Ark.
St. Vincent's Infirmary	Little Rock, Ark.
University Hospital	Little Rock, Ark.
General Hospital of Riverside County	Arlington, Calif
Herrick Memorial Hospital	Berkeley, Calif.
San Joaquin General Hospital	French Camp, Calif.
General Hospital of Fresno County	Fresno, Calif.
Glendale Sanitarium and Hospital	Glendale, Calif.
Loma Linda Sanitarium and Hospital	Loma Linda, Calif.
St. Mary's Long Beach Hospital	Long Beach, Calif.
Seaside Memorial Hospital	Long Beach, Calif.
California Hospital	Los Angeles

NONFEDERAL—Continued

Cedars of Lebanon H	
Hospital of the Good S	Los Ang
Los Angeles County Hospital	Los Ang
Presbyterian Hospital-Olmsted Memorial	Los Ang
Queen of Angels Hospital	Los Ang
Santa Fe Coast Lines Hospital	Los Ang
White Memorial Hospital	Los Ang
Highland-Alameda County Hospital	Oakland, C
Kaiser Foundation Hospital	Oakland, C
Orange County General Hospital	Orange, C
Collis P. and Howard Huntington Memorial Hospital	Pasadena, C
Sacramento County Hospital	Sacramento, C
San Bernardino County Charity Hospital	San Bernardino, C
Mercy Hospital	San Diego, C
San Diego County General Hospital	San Diego, C
Children's Hospital	San Fra
Franklin Hospital	San Fra
French Hospital	San Fra
Kaiser Foundation Hospital	San Fra
Mary's Help Hospital	San Fra
Mount Zion Hospital	San Fra
St. Luke's Hospital	San Fra
St. Mary's Hospital	San Fra
San Francisco Hospital	San Fra
Southern Pacific General Hospital	San Fra
University of California Hospital	San Fra
Santa Clara County Hospital	San Jose, C
Santa Barbara Cottage Hospital	Santa Barbara C
St. John's Hospital	Santa Monica C
Santa Monica Hospital	Santa Monica, C
Harbor General Hospital	Torrance, C
Glockner-Penrose Hospital	Colorado Springs, C
General Rose Memorial Hospital	D
Mercy Hospital	D
Porter Sanitarium and Hospital	D
Presbyterian Hospital	D
St. Anthony Hospital	D
St. Joseph's Hospital	D
St. Luke's Hospital	D
University of Colorado Medical Center	
Colorado General Hospital	D
Denver General Hospital	D
Weld County General Hospital	Greeley
Bridgeport Hospital	Bridgeport
St. Vincent's Hospital	Bridgeport
Bristol Hospital	Br
Danbury Hospital	Dan
Greenwich Hospital	Greenwich
Hartford Hospital	Hartford
Hartford Municipal Hospital and Health Center	Hartford
Mount Sinai Hospital	Hartford
St. Francis Hospital	Hartford
Manchester Memorial Hospital	Manchester
Meriden Hospital	Meriden
Middlesex Memorial Hospital	Middletown
New Britain General Hospital	New Britain
Hospital of St. Raphael	New Haven
Lawrence and Memorial Associated Hospitals	New London
Norwalk Hospital	Norwalk,
William W. Backus Hospital	Norwich
Stamford Hospital	Stamford,
St. Mary's Hospital	Waterbury,
Waterbury Hospital	Waterbury,
Delaware Hospital	Wilmingto
Memorial Hospital	Wilmingto
Wilmington General Hospital	Wilmingto
Central Dispensary and Emergency Hospital	Washington
District of Columbia General Hospital	Washington
Doctors Hospital	Washington
Garfield Memorial Hospital	Washington
Providence Hospital	Washington
Sibley Memorial Hospital	Washington
Washington Sanitarium and Hospital	Washington
Duval Medical Center	Jacksonvi
St. Luke's Hospital	Jacksonvi
St. Vincent's Hospital	Jacksonvi
Jackson Memorial Hospital	Mia
St. Francis Hospital	Miami Beac
Sacred Heart Hospital	Pensac
Mound Park Hospital	St. Peters
Tampa Municipal Hospital	Tamp
St Mary's Hospital	West Palm Bea
Athens General Hospital	Athe
St. Mary's Hospital	Athe
Crawford W. Long Memorial Hospital	Atla
Georgia Baptist Hospital	Atla
Grady Memorial Hospital	Atla
Piedmont Hospital	Atla

NONFEDERAL—Continued

it. Joseph's Infirmary	Atlanta, Ga.
'niversity Hospital	Augusta, Ga.
'olumbus City Hospital	Columbus, Ga.
Iacon Hospital	Macon, Ga.
IacNeal Memorial Hospital	Berwyn, Ill.
it. Francis Hospital	Blue Island, Ill.
merican Hospital	Chicago
ugustana Hospital	Chicago
'hicago Wesley Memorial Hospital	Chicago
'olumbus Hospital	Chicago
'ook County Hospital	Chicago
dgewater Hospital	Chicago
nglewood Hospital	Chicago
vangelical Hospital	Chicago
rant Hospital	Chicago
Iospital of St. Anthony de Padua	Chicago
llinois Central Hospital	*Chicago*
llinois Masonic Hospital	Chicago
ackson Park Hospital	Chicago
oretto Hospital	Chicago
utheran Deaconess Home and Hospital	Chicago
lercy Hospital	Chicago
lichael Reese Hospital	Chicago
'ount Sinai Hospital	Chicago
orwegian-American Hospital	Chicago
assavant Memorial Hospital	Chicago
resbyterian Hospital	Chicago
rovident Hospital	Chicago
avenswood Hospital	Chicago
esurrection Hospital	Chicago
oseland Community Hospital	Chicago
. Anne's Hospital	Chicago
. Bernard's Hospital	Chicago
. Elizabeth Hospital	Chicago
. Joseph Hospital	Chicago
. Luke's Hospital	Chicago
. Mary of Nazareth Hospital	Chicago
uth Chicago Community Hospital	Chicago
uth Shore Hospital	Chicago
'edish Covenant Hospital	Chicago
iversity of Chicago Clinics	Chicago
iversity of Illinois Research and Educational Hospitals	Chicago
alther Memorial Hospital	Chicago
oodlawn Hospital	Chicago
ecatur and Macon County Hospital	Decatur, Ill.
Mary's Hospital	East St. Louis, Ill.
'morial Hospital of DuPage County	Elmhurst, Ill.
anston Hospital	Evanston, Ill.
Francis Hospital	Evanston, Ill.
'tle Company of Mary Hospital	Evergreen Park, Ill.
k Park Hospital	Oak Park, Ill.
st Subu[illegible]	Oak Park, Ill.
thodist H[illegible]	Peoria, Ill.
Francis Hospital	Peoria, Ill.
ckford Memorial Hospital	Rockford, Ill.
Anthony's Hospital	Rockford, Ill.
'dish-American Hospital	Rockford, Ill.
Catherine Hospital	East Chicago, Ind.
testant *Deaconess* Hospital	*Evansville, Ind.*
Mary's Hospital	*Evansville, Ind.*
heran Hospital	Fort Wayne, Ind.
kview Memorial Hospital	Fort Wayne, Ind.
Joseph Hospital	Fort Wayne, Ind.
hodist Hospital	Gary, Ind.
Mary's Mercy Hospital	Gary, Ind.
Margaret Hospital	Hammond, Ind.
ianapolis General Hospital	Indianapolis
ana University Medical Center	Indianapolis
hodist Hospital	Indianapolis
Vincent's *Hospital*	*Indianapolis*
Elizabeth Hospital	Lafayette, Ind.
Memorial Hospital	Muncie, Ind.
norial Hospital	South Bend, Ind.
Joseph's Hospital	South Bend, Ind.
cy Hospital	Cedar Rapids, Iowa
Luke's Methodist Hospital	Cedar Rapids, Iowa
cy Hospital	Council Bluffs, Iowa
adlawns Polk County Hospital	Des Moines, Iowa
a Methodist Hospital	Des Moines, Iowa
cy Hospital	Des Moines, Iowa
cy Hospital	Iowa City
te University of Iowa Hospitals	Iowa City
nany Hospital	Kansas City, Kan.
vidence Hospital	Kansas City, Kan.
Margaret's Hospital	*Kansas City, Kan.*
ersity of Kansas Medical Center	Kansas City, Kan.
Francis Hospital	Wichita, Kan.
ley Hospital	Wichita, Kan.
hita-St. Joseph Hospital	Wichita, Kan.
Elizabeth Hospital	Covington, Ky.
d Samaritan Hospital	Lexington, Ky.
Joseph Hospital	Lexington, Ky.
tucky [illegible]	Louisville, Ky.
isville [illegible]	Louisville, Ky.
ton Memorial Infirmary	Louisville, Ky.
Anthony Hospital	Louisville, Ky.
Joseph [illegible]	Louisville, Ky.
Mary an[illegible]	Louisville, Ky.
on Roug[illegible]	Rouge, La.
rity Hospital of Louisiana	New Orleans
el Dieu	New Orleans
y Hospital	New Orleans
hern Baptist Hospital	New Orleans
ro Infirmary	New Orleans
federate Memorial Medical Center	Shreveport, La.

NONFEDERAL—Continued

North Louisiana Sanitarium	Shreveport, La.
Eastern Maine General Hospital	Bangor, Maine
Central Maine General Hospital	*Lewiston, Maine*
St. Mary's General Hospital	*Lewiston, Maine*
Maine General Hospital	Portland, Maine
Baltimore City Hospitals	Baltimore
Bon Secours Hospital	*Baltimore*
Church Home and Hospital	Baltimore
Franklin Square Hospital	Baltimore
Lutheran Hospital	Baltimore
Maryland General Hospital	Baltimore
Mercy Hospital	Baltimore
Provident Hospital and Free Dispensary	Baltimore
St. Agnes Hospital	Baltimore
St. Joseph's Hospital	Baltimore
Sinai Hospital	Baltimore
South Baltimore General Hospital	Baltimore
Union Memorial Hospital	*Baltimore*
University Hospital	Baltimore
Suburban Hospital	Bethesda, Md.
Prince George's General Hospital	Cheverly, Md.
Beverly Hospital	Beverly, Mass.
Carney Hospital	*Boston*
New England Hospital	Boston
St. Elizabeth Hospital	Boston
Brockton Hospital	Brockton, Mass.
Cambridge City Hospital	Cambridge, Mass.
Mount Auburn Hospital	Cambridge, Mass.
Truesdale Hospital	*Fall River, Mass.*
Union Hospital	Fall River, Mass.
Holyoke Hospital	Holyoke, Mass.
Lawrence General Hospital	Lawrence, Mass.
Lowell General Hospital	Lowell, Mass.
St. John's Hospital	Lowell, Mass.
St. Joseph's Hospital	Lowell, Mass.
Lynn Hospital	Lynn, Mass.
St. Luke's Hospital	New Bedford, Mass.
Newton-Wellesley Hospital	Newton Lower Falls, Mass.
St. Luke's Hospital	Pittsfield, Mass.
Quincy City Hospital	Quincy, Mass.
Salem Hospital	Salem, Mass.
Mercy Hospital	Springfield, Mass.
Springfield Hospital	Springfield, Mass.
Wesson Memorial Hospital	Springfield, Mass.
Waltham Hospital	Waltham, Mass.
Memorial Hospital	Worcester, Mass.
St. Vincent Hospital	Worcester, Mass.
Worcester City Hospital	Worcester, Mass.
St. Joseph's Mercy Hospital	*Ann Arbor, Mich.*
Leila Y. Post Montgomery Hospital	Battle Creek, Mich.
Mercy Hospital	Benton Harbor, Mich.
Oakwood Hospital	Dearborn, Mich.
Detroit Memorial Hospital	Detroit
Evangelical Deaconess Hospital	*Detroit*
Grace Hospital	Detroit
Harper Hospital	Detroit
Henry Ford Hospital	*Detroit*
Mount Carmel Mercy Hospital	Detroit
Providence Hospital	Detroit
Receiving Hospital	Detroit
St. John Hospital	*Detroit*
St. Joseph Mercy Hospital	Detroit
Sinai Hospital	Detroit
Woman's Hospital	*Detroit*
Wayne County General Hospital and Infirmary	Eloise, Mich.
Hurley Hospital	Flint, Mich.
McLaren General Hospital	Flint, Mich.
St. Joseph Hospital	*Flint*, Mich.
Blodgett Memorial Hospital	Grand Rapids, Mich.
Butterworth Hospital	Grand Rapids, Mich.
St. Mary's Hospital	Grand Rapids, *Mich.*
Bon Secours Hospital	Grosse Pointe, Mich.
Highland Park General Hospital	Highland Park, Mich.
Borgess Hospital	Kalamazoo, Mich.
Bronson Methodist Hospital	Kalamazoo, Mich.
Edward W. Sparrow Hospital	Lansing, Mich.
St. Lawrence Hospital	Lansing, Mich.
Midland Hospital	Midland, Mich.
Pontiac General Hospital	Pontiac, Mich.
St. Joseph Mercy *Hospital*	*Pontiac, Mich.*
Saginaw General Hospital	Saginaw, Mich.
St. Luke's Hospital	Saginaw, Mich.
St. Mary's Hospital	Saginaw, Mich.
James Decker Munson Hospital	Traverse City, Mich.
St. Luke's Hospital	Duluth, Minn.
St. Mary's Hospital	Duluth, Minn.
Minneapolis General Hospital	Minneapolis
Mount Sinai Hospital	Minneapolis
Northwestern *Hospital*	Minneapolis
St. Barnabas Hospital	Minneapolis
St. Mary's Hospital	Minneapolis
Swedish Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
Ancker Hospital	St. Paul
Bethesda Hospital	St. Paul
Charles T. Miller Hospital	St. Paul
St. Joseph's Hospital	St. Paul
St. Luke's Hospital	St. Paul
Mississippi Baptist Hospital	Jackson, Miss.
University Hospital	Jackson, Miss.
Mercy Hospital-Street Memorial	Vicksburg, Miss.
St. Louis County Hospital	*Clayton, Mo.*
Kansas City General Hospital No. 1	Kansas City, Mo.
Menorah Medical Center	Kansas City, Mo.
Research Hospital	Kansas City, Mo.

NONFEDERAL—Continued

St. Joseph Hospital	Kansas City, Mo.
St. Luke's Hospital	Kansas City, Mo.
St. Mary's Hospital	Kansas City, Mo.
Trinity Lutheran Hospital	Kansas City, Mo.
Missouri Methodist Hospital	St. Joseph, Mo.
St. Joseph's Hospital	St. Joseph, Mo.
Christian Hospital	St. Louis
De Paul Hospital	St. Louis
Evangelical Deaconess Hospital	St. Louis
Homer G. Phillips Hospital	St. Louis
Jewish Hospital	St. Louis
Missouri Baptist Hospital	St. Louis
St. Anthony's Hospital	St. Louis
St. John's Hospital	St. Louis
St. Louis City Hospital	St. Louis
St. Luke's Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Butte Community Memorial Hospital	Butte, Mont.
St. James Hospital	Butte, Mont.
Montana Deaconess Hospital	Great Falls, Mont.
Bryan Memorial Hospital	Lincoln, Neb.
Lincoln General Hospital	Lincoln, Neb.
St. Elizabeth Hospital	Lincoln, Neb.
Bishop Clarkson Memorial Hospital	Omaha
Creighton Memorial-St. Joseph's Hospital	Omaha
Immanuel Hospital	Omaha
Nebraska Methodist Hospital	Omaha
St. Catherine's Hospital	Omaha
University of Nebraska Hospital	Omaha
Mary Hitchcock Memorial Hospital	Hanover, N. H.
Atlantic City Hospital	Atlantic City, N. J.
Bayonne Hospital and Dispensary	Bayonne, N. J.
Cooper Hospital	Camden, N. J.
Our Lady of Lourdes Hospital	Camden, N. J.
West Jersey Hospital	Camden, N. J.
East Orange General Hospital	East Orange, N. J.
Alexian Brothers Hospital	Elizabeth, N. J.
Elizabeth General Hospital and Dispensary	Elizabeth, N. J.
St. Elizabeth Hospital	Elizabeth, N. J.
Englewood Hospital	Englewood, N. J.
Hackensack Hospital	Hackensack, N. J.
St. Mary's Hospital	Hoboken, N. J.
Christ Hospital	Jersey City, N. J.
Jersey City Hospital	Jersey City, N. J
St. Francis Hospital	Jersey City, N. J
Monmouth Memorial Hospital	Long Branch, N. J.
Mountainside Hospital	Montclair, N. J.
All Souls Hospital	Morristown, N. J.
Morristown Memorial Hospital	Morristown, N. J.
Fitkin Memorial Hospital	Neptune, N. J.
Harrison S. Martland Medical Center	Newark, N. J.
Hospital of Saint Barnabas and for Women and Children	Newark, N. J.
Newark Beth Israel Hospital	Newark, N. J.
Presbyterian Hospital	Newark, N. J.
St. Michael's Hospital	Newark, N. J
St. Peter's General Hospital	New Brunswick, N. J
Orange Memorial Hospital	Orange, N. J.
Bergen Pines County Hospital	Paramus, N. J.
Passaic General Hospital	Passaic, N. J.
St. Mary's Hospital	Passaic, N. J.
Barnert Memorial Hospital	Paterson,N. J.
Paterson General Hospital	Paterson, N. J.
St. Joseph Hospital	Paterson, N. J.
Perth Amboy General Hospital	Perth Amboy, N. J.
Muhlenberg Hospital	Plainfield, N. J.
Somerset Hospital	Somerville, N. J.
Overlook Hospital	Summit, N. J.
Holy Name Hospital	Teaneck, N. J
Mercer Hospital	Trenton, N. J.
St. Francis Hospital	Trenton, N. J.
William McKinley Memorial Hospital	Trenton, N. J.
Bernalillo County-Indian Hospital	Albuquerque, N. M.
Albany Hospital	Albany, N. Y.
Memorial Hospital	Albany, N. Y.
St. Peter's Hospital	Albany, N. Y.
Binghamton City Hospital	Binghamton, N. Y.
Lawrence Hospital	Bronxville, N. Y.
Beth-El Hospital	Brooklyn
Brooklyn Hospital	Brooklyn
Coney Island Hospital	Brooklyn
Cumberland Hospital	Brooklyn
Greenpoint Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital	Brooklyn
Long Island College Hospital	Brooklyn
Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
Norwegian Lutheran Deaconesses' Home and Hospital	Brooklyn
Prospect Heights Hospital	Brooklyn
St. Catherine's Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
St Mary's Hospital	Brooklyn
St Peter's Hospital	Brooklyn
Unity Hospital	Brooklyn
Wyckoff Heights Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Deaconess Hospital	Buffalo
Edward J. Meyer Memorial Hospital	Buffalo
Mercy Hospital	Buffalo
Millard Fillmore Hospital	Buffalo
Sisters of Charity Hospitals	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N. Y.
Elmhurst General Hospital	Elmhurst (Flushing), N. Y.
Arnot-Ogden Memorial Hospital	Elmira, N. Y.

NONFEDERAL—Continued

St. Joseph's Hospital	Elmira, N. Y
Flushing Hospital and Dispensary	Flushing, N. Y
Community Hospital	Glen Cove, N. Y
Glens Falls Hospital	Glens Falls, N. Y
Meadowbrook Hospital	Hempstead, N. Y
Jamaica Hospital	Jamaica, N. Y
Mary Immaculate Hospital	Jamaica, N. Y
Queens General Hospital	Jamaica, N. Y
Charles S. Wilson Memorial Hospital	Johnson City, N. Y
Our Lady of Victory Hospital	Lackawanna, N. Y
St. John's Long Island City Hospital	Long Island City, N. Y
Nassau Hospital	Mineola, N. Y
Northern Westchester Hospital	Mount Kisco, N. Y
Mount Vernon Hospital	Mount Vernon, N. Y
St. Luke's Hospital	Newburgh, N. Y
Long Island Jewish Hospital	New Hyde Park, N. Y
New Rochelle Hospital	New Rochelle, N. Y
Beth David Hospital	New York (
Beth Israel Hospital	New York (
Bronx Hospital	New York (
Bronx Municipal Hospital Center	New York (
Columbus Hospital	New York (
Fordham Hospital	New York (
French Hospital	New York (
Harlem Hospital	New York (
Hospital for Joint Diseases	New York (
Jewish Memorial Hospital	New York (
Knickerbocker Hospital	New York (
Lebanon Hospital	New York (
Lenox Hill Hospital	New York (
Lincoln Hospital	New York (
Misericordia Hospital	New York (
Morrisania City Hospital	New York (
Mother Cabrini Memorial Hospital	New York (
Mount Sinai Hospital	New York (
New York Infirmary	New York (
New York Polyclinic Medical School and Hospital	New York (
St. Clare's Hospital	New York (
St. Francis Hospital	New York (
St. Vincent's Hospital	New York (
Sydenham Hospital	New York (
Mount St. Mary's Hospital	Niagara Falls, N. Y
Niagara Falls Memorial Hospital	Niagara Falls, N. Y
United Hospital	Port Chester, N. Y
St. Francis Hospital	Poughkeepsie, N. Y
Genesee Hospital	Rochester, N. Y
Highland Hospital	Rochester, N. Y
Rochester General Hospital	Rochester, N. Y
St. Mary's Hospital	Rochester, N. Y
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y
Ellis Hospital	Schenectady, N. Y
St. Clare's Hospital	Schenectady, N. Y
St. Vincent's Hospital	Staten Island N. Y
Staten Island Hospital	Staten Island N. Y
St. Joseph's Hospital	Syracuse, N. Y
State University of New York Upstate Medical Center	Syracuse, N. Y
Leonard Hospital	Troy, N. Y
St. Mary's Hospital	Troy, N. Y
Samaritan Hospital	Troy, N. Y
Grasslands Hospital	Valhalla N. Y
White Plains Hospital	White Plains N. Y
St. John's Riverside Hospital	Yonkers N. Y
St. Joseph's Hospital	Yonkers N. Y
Yonkers General Hospital	Yonkers N. Y
Memorial Mission Hospital of Western North Carolina	Asheville, N. C
Charlotte Memorial Hospital	Charlotte N. C
Mercy Hospital	Charlotte N. C
Lincoln Hospital	Durham, N. C
Watts Hospital	Durham, N. C
Moses H. Cone Memorial Hospital	Greensboro, N. C
Rex Hospital	Raleigh, N. C
St. Agnes Hospital	Raleigh, N. C
James Walker Memorial Hospital	Wilmington, N. C
City Memorial Hospital	Winston-Salem, N. C
Kate Bitting Reynolds Memorial Hospital	Winston-Salem, N. C
St. John's Hospital	Fargo, N. D
St. Luke's Hospital	Fargo, N. D
Grand Forks Deaconess Hospital	Grand Forks, N. D
Trinity Hospital	Minot, N. D
Akron City Hospital	Akron, O
Akron General Hospital	Akron, O
St. Thomas Hospital	Akron, O
Barberton Citizens Hospital	Barberton, O
Aultman Hospital	Canton, O
Mercy Hospital	Canton, O
Bethesda Hospital	Cinc
Christ Hospital	Cinc
Cincinnati General Hospital	Cinc
Deaconess Hospital	Cinc
Good Samaritan Hospital	Cinc
Jewish Hospital	Cinc
St. Mary's Hospital	Cinc
City Hospital	Clev
Cleveland Clinic Hospital	Clev
Evangelical Deaconess Hospital	Clev
Fairview Park Hospital	Clev
Huron Road Hospital	Clev
Lutheran Hospital	Clev
Mount Sinai Hospital	Clev
St. Alexis Hospital	Clev
St. John's Hospital	Clev
St. Luke's Hospital	Clev
St. Vincent Charity Hospital	Clev
University Hospitals	Clev
Grant Hospital	Columbus
Mount Carmel Hospital	Columbus

NONFEDERAL—Continued

University Hospitals	Columbus, Ohio
White Cross Hospital	Columbus, Ohio
Good Samaritan Hospital	Dayton, Ohio
Miami Valley Hospital	Dayton, Ohio
St. Elizabeth Hospital	Dayton, Ohio
Elyria Memorial Hospital	Elyria, Ohio
Euclid-Glenville Hospital	Euclid, Ohio
Marymount Hospital	Garfield Heights, Ohio
Mercy Hospital	Hamilton, Ohio
Lakewood Hospital	Lakewood, Ohio
Lima Memorial Hospital	Lima, Ohio
St. Rita's Hospital	Lima, Ohio
Mercy Hospital	Springfield, Ohio
Springfield City Hospital	Springfield, Ohio
Ohio Valley Hospital	Steubenville, Ohio
Flower Hospital	Toledo, Ohio
Maumee Valley Hospital	Toledo, Ohio
Mercy Hospital	Toledo, Ohio
Riverside Hospital	Toledo, Ohio
St. Charles Hospital	Toledo, Ohio
St. Vincent's Hospital	Toledo, Ohio
Toledo Hospital	Toledo, Ohio
St. Elizabeth Hospital	Youngstown, Ohio
Youngstown Hospital	Youngstown, Ohio
Mercy Hospital, Oklahoma City General	Oklahoma City
St. Anthony Hospital	Oklahoma City
University of Oklahoma Hospitals	Oklahoma City
Wesley Hospital	Oklahoma City
Hillcrest Medical Center	Tulsa, Okla.
St. John's Hospital	Tulsa, Okla.
Sacred Heart General Hospital	Eugene, Ore.
Emanuel Hospital	Portland, Ore
Good Samaritan Hospital	Portland, Ore.
Portland Sanitarium and Hospital	Portland, Ore.
Providence Hospital	Portland, Ore.
St. Vincent's Hospital	Portland, Ore.
Univ. of Oregon Medical School Hospitals and Clinics	Portland, Ore.
Abington Memorial Hospital	Abington, Pa.
Allentown Hospital	Allentown, Pa.
Sacred Heart Hospital	Allentown, Pa.
Altoona Hospital	Altoona, Pa.
Mercy Hospital	Altoona, Pa
St. Luke's Hospital	Bethlehem, Pa.
Bryn Mawr Hospital	Bryn Mawr, Pa.
Chester Hospital	Chester, Pa.
George F. Geisinger Memorial Hospital and Foss Clinic	Danville, Pa.
Thomas M. Fitzgerald-Mercy Hospital	Darby, Pa.
Easton Hospital	Easton, Pa.
Hamot Hospital	Erie, Pa.
St. Vincent's Hospital	Erie, Pa.
Westmoreland Hospital	Greensburg, Pa.
Harrisburg Hospital	Harrisburg, Pa.
Harrisburg Polyclinic Hospital.	Harrisburg, Pa.
Conemaugh Valley Memorial Hospital	Johnstown, Pa.
Nesbitt Memorial Hospital	Kingston, Pa.
Lancaster General Hospital	Lancaster, Pa.
St. Joseph's Hospital	Lancaster, Pa.
McKeesport Hospital	McKeesport, Pa.
Montgomery Hospital	Norristown, Pa.
Sacred Heart Hospital	Norristown, Pa.
Albert Einstein Medical Center, Northern Division	Philadelphia
Albert Einstein Medical Center, Southern Division	Philadelphia
Chestnut Hill Hospital	Philadelphia
Episcopal Hospital	Philadelphia
Frankford Hospital	Philadelphia
Germantown Dispensary and Hospital	Philadelphia
Graduate Hospital of the University of Pennsylvania	Philadelphia
Hahnemann Medical College and Hospital.	Philadelphia
Hospital of the University of Pennsylvania	Philadelphia
Hospital of the Woman's Medical College of Pennsylvania	Philadelphia
Jefferson Medical College Hospital	Philadelphia
Lankenau Hospital	Philadelphia
Memorial Hospital	Philadelphia
Methodist Episcopal Hospital	Philadelphia
Misericordia Hospital	Philadelphia
Nazareth Hospital	Philadelphia
Pennsylvania Hospital	Philadelphia
Philadelphia General Hospital	Philadelphia
Presbyterian Hospital	Philadelphia
St. Agnes Hospital	Philadelphia
St. Joseph's Hospital	Philadelphia
St. Luke's and Children's Medical Center	Philadelphia
Temple University Hospital	Philadelphia
Woman's Hospital	Philadelphia
Allegheny General Hospital	Pittsburgh
Mercy Hospital	Pittsburgh
Montefiore Hospital	Pittsburgh
Pittsburgh Hospital	Pittsburgh
Presbyterian Hospital	Pittsburgh
St. Francis General Hospital and Rehabilitation Institute	Pittsburgh
St. John's General Hospital	Pittsburgh
St. Joseph's Hospital and Dispensary	Pittsburgh
St. Margaret Memorial Hospital	Pittsburgh
Shadyside Hospital	Pittsburgh
South Side Hospital	Pittsburgh
Western Pennsylvania Hospital	Pittsburgh
Community General Hospital	Reading, Pa.
Reading Hospital	Reading, Pa.
St. Joseph's Hospital	Reading, Pa.
Robert Packer Hospital	Sayre, Pa.
Scranton State Hospital	Scranton, Pa.
Sewickley Valley Hospital	Sewickley, Pa.
Sharon General Hospital	Sharon, Pa.
Allegheny Valley Hospital	Tarentum, Pa.

NONFEDERAL—Continued

Uniontown Hospital	Uniontown, Pa.
Washington Hospital	Washington, Pa.
Chester County Hospital	West Chester, Pa.
Mercy Hospital	Wilkes-Barre, Pa.
Wilkes-Barre General Hospital	Wilkes-Barre, Pa.
Columbia Hospital	Wilkinsburg, Pa.
Divine Providence Hospital	Williamsport, Pa.
Williamsport Hospital	Williamsport, Pa.
York Hospital	York, Pa.
Newport Hospital	Newport, R. I.
Memorial Hospital	Pawtucket, R. I.
Miriam Hospital	Providence, R. I.
Rhode Island Hospital	Providence, R. I.
Roger Williams General Hospital	Providence, R. I.
St. Joseph's Hospital	Providence, R. I.
Roper Hospital	Charleston, S. C.
Columbia Hospital of Richland County	Columbia, S. C.
McLeod Infirmary	Florence, S. C.
Greenville General Hospital	Greenville, S. C.
Orangeburg Regional Hospital	Orangeburg, S. C.
Spartanburg General Hospital	Spartanburg, S. C.
McKennan Hospital	Sioux Falls, S. Dak.
Sioux Valley Hospital	Sioux Falls, S. Dak.
Sacred Heart Hospital	Yankton, S. Dak.
Baroness Erlanger Hospital	Chattanooga, Tenn.
Holston Valley Community Hospital	Kingsport, Tenn.
East Tennessee Baptist Hospital	Knoxville, Tenn.
Fort Sanders Presbyterian Hospital	Knoxville, Tenn.
Knoxville General Hospital.	Knoxville, Tenn.
St. Mary's Memorial Hospital	Knoxville, Tenn.
Baptist Memorial Hospital	Memphis, Tenn.
John Gaston Hospital	Memphis, Tenn.
Methodist Hospital	Memphis, Tenn.
St. Joseph's Hospital	Memphis, Tenn.
Baptist Hospital	Nashville, Tenn.
George W. Hubbard Hospital	Nashville, Tenn.
Nashville General Hospital	Nashville, Tenn.
St. Thomas Hospital	Nashville, Tenn.
Brackenridge Hospital	Austin, Texas
Memorial Hospital	Corpus Christi, Texas
Baylor University Hospital	Dallas, Texas
Methodist Hospital	Dallas, Texas
Parkland Memorial Hospital	Dallas, Texas
St. Paul's Hospital	Dallas, Texas
El Paso General Hospital	El Paso, Texas
Hotel Dieu Sisters' Hospital	El Paso, Texas
Harris Hospital	Fort Worth, Texas
John Peter Smith Hospital	Fort Worth, Texas
St. Joseph's Hospital	Fort Worth, Texas
University of Texas Medical Branch Hospitals	Galveston, Texas
Hermann Hospital	Houston, Texas
Jefferson Davis Hospital	Houston, Texas
Methodist Hospital	Houston, Texas
St. Joseph's Hospital	Houston, Texas
Robert B. Green Memorial Hospital	San Antonio, Texas
Santa Rosa Hospital	San Antonio, Texas
Kings Daughters Hospital	Temple, Texas
Scott and White Memorial Hospitals	Temple, Texas
Providence Hospital	Waco, Texas
St. Benedict's Hospital	Ogden, Utah
Thomas D. Dee Memorial Hospital	Ogden, Utah
Dr. W. H. Groves Latter-Day Saints Hospital	Salt Lake City
Holy Cross Hospital	Salt Lake City
St. Mark's Hospital	Salt Lake City
Salt Lake County General Hospital	Salt Lake City
De Goesbriand Memorial Hospital	Burlington, Vt.
Mary Fletcher Hospital	Burlington, Vt.
Alexandria Hospital	Alexandria, Va.
University of Virginia Hospital	Charlottesville, Va.
Memorial Hospital	Danville, Va.
Mary Immaculate Hospital	Newport News, Va.
Riverside Hospital	Newport News, Va.
De Paul Hospital	Norfolk, Va.
Norfolk General Hospital	Norfolk, Va.
Johnston-Willis Hospital	Richmond, Va.
Medical College of Virginia—Hospital Division	Richmond, Va.
Stuart Circle Hospital	Richmond, Va.
Lewis-Gale Hospital	Roanoke, Va.
Roanoke Memorial Hospital	Roanoke, Va.
Winchester Memorial Hospital.	Winchester, Va.
Doctors Hospital	Seattle
King County Hospital Unit No. 1 (Harborview)	Seattle
Providence Hospital	Seattle
Seattle General Hospital	Seattle
Swedish Hospital	Seattle
Virginia Mason Hospital	Seattle
Deaconess Hospital	Spokane, Wash.
Sacred Heart Hospital	Spokane, Wash.
St. Luke's Hospital.	Spokane, Wash.
Pierce County Hospital	Tacoma, Wash.
St. Joseph [illegible]	[illegible], Wash.
Tacoma G [illegible]	[illegible], Wash.
Charleston [illegible]	[illegible] W. Va.
Memorial Hospital	Charleston, W. Va.
St. Mary's Hospital	Huntington, W. Va.
Camden-Clark Memorial Hospital	Parkersburg, W. Va.
St. Joseph's Hospital	Parkersburg, W. Va.
Ohio Valley General Hospital	Wheeling, W. Va.
Wheeling Hospital	Wheeling, W. Va.
Luther Hospital	Eau Claire, Wis.
Mercy Hospital	Janesville, Wis.
La Crosse Lutheran Hospital	La Crosse, Wis.
St. Francis Hospital	La Crosse, Wis.

NONFEDERAL—Continued

Madison General Hospital	Madison, Wis.
Methodist Hospital	Madison, Wis.
St. Mary's Hospital	Madison, Wis.
University Hospitals	Madison, Wis.
St. Joseph's Hospital	Marshfield, Wis.
Columbia Hospital	Milwaukee
Evangelical Deaconess Hospital	Milwaukee
Milwaukee County Hospital	Milwaukee
Milwaukee Hospital	Milwaukee
Misericordia Hospital	Milwaukee
Mount Sinai Hospital	Milwaukee
St. Joseph Hospital	Milwaukee
St. Luke's Hospital	Milwaukee
St. Mary's Hospital	Milwaukee
St. Michael Hospital	Milwaukee
Mercy Hospital	Oshkosh, Wis.
St. Mary's Hospital	Wausau, Wis.
Gorgas Hospital	Ancon, C. Z.
Kuakini Hospital	Honolulu, T. H.
Queen's Hospital	Honolulu, T. H.
St. Francis Hospital	Honolulu, T. H.
Aguadilla District Hospital	Aguadilla, P. R.
Arecibo District Hospital	Arecibo, P. R.
Bayamon District Hospital	Bayamon, P. R.
Fajardo District Hospital	Fajardo, P. R.
Hospital de Damas	Ponce, P. R.
Municipal Hospital	Rio Piedras, P. R.
Presbyterian Hospital	San Juan, P. R.
San Juan City Hospital	San Juan, P. R.

ROTATING (Med. Major)

Number of Approved Programs, 9

George Washington University Hospital	Washington, D. C.
Ravenswood Hospital	Chicago
University Hospital	Ann Arbor, Mich.
Missouri Baptist Hospital	St. Louis
University Hospitals	Columbus, Ohio
Woman's Hospital	Philadelphia
St. Paul's Hospital	Dallas, Texas
Lynchburg General Hospital	Lynchburg, Va.
Norfolk General Hospital	Norfolk, Va.

ROTATING (Surg. Major)

Number of Approved Programs, 10

George Washington University Hospital	Washington, D. C.
Ravenswood Hospital	Chicago
T. E. Schumpert Memorial Hospital	Shreveport, La.
University Hospital	Ann Arbor, Mich.
Missouri Baptist Hospital	St. Louis
Bellevue Hospital Center Div. I—Surgical—Columbia University	New York City
University Hospitals	Columbus, Ohio
St. Paul's Hospital	Dallas, Texas
Lynchburg General Hospital	Lynchburg, Va.
Norfolk General Hospital	Norfolk, Va.

ROTATING (Ped. Major)

Number of Approved Programs, 2

University Hospital	Ann Arbor, Mich.
Norfolk General Hospital	Norfolk, Va.

ROTATING (Ob-Gyn. Major)

Number of Approved Programs, 3

Ravenswood Hospital	Chicago
University Hospital	Ann Arbor, Mich.
Norfolk General Hospital	Norfolk, Va.

OTHER ROTATING

Number of Approved Programs, 11

University of Colorado Medical Center
  Colorado General Hospital .... Denver
    Community Rotating
  Denver General Hospital .... Denver
    Community Rotating
George Washington University Hospital .... Washington, D. C.
    Rotating (Path.-Major)
University Hospital .... Ann Arbor, Mich.
    Rotating (Neurol.-Major)
    Rotating (Derm.-Major)
    Rotating (Anes.-Major)
    Rotating (Otol.-Major)
    Rotating (Ophth.-Major)
    Rotating (Phys.-Med. Rehab.-Major)
    Rotating (Gen. Prac.-Major)
    Rotating (Path.-Major)

MIXED

Number of Approved Programs, 29

U. S. Public Health Service Hospital, Boston; Med.-Surg.
University Hospital, Little Rock, Ark.; Med.-Ped.
St. Vincent's Hospital, Los Angeles; Med.-Surg.-Ob.-Gyn.
University of Kansas Medical Center, Kansas City, Kan.; Med.-Surg.-Ped.; Path.-Med.; Path.-Surg.
Baltimore City Hospitals, Baltimore; Med.-Ped.; Ped.-Med.
Hospital for Women, Baltimore; Med.-Ob.-Gyn.
Holyoke Hospital, Holyoke, Mass.; Med.-Surg.
Lutheran Hospital, St. Louis; Med.-Surg.-Ob.-Gyn.
Bellevue Hospital Center, New York City
  Division I—Medical—Columbia University; Med.-Chest-Surg. or Path.
Bellevue Hospital Center, New York City
  Division II—Medical—Cornell University; Med.-Path
Bellevue Hospital Center, New York City
  Division III—Medical—New York University College of Medicine; Med.-Surg.
Bellevue Hospital Center, New York City
  Division III—Surgical—New York University College of Medicine; Surg.-Med.
Knickerbocker Hospital, New York City; Med.-Surg.
Montefiore Hospital, New York City; Med.-Surg.-Pul.-Neuro.-Neoplastic
Roosevelt Hospital, New York City; Med.-Ped.-Surg.; Surg.-Gyn.-Med.
St. Luke's Hospital, New York City; Med.-Surg.; Surg.-Med.
Strong Memorial—Rochester Municipal Hospitals, Rochester, N. Y.; Surg.-Ob.-Gyn.
General Hospital, Syracuse, N. Y.; Med.-Surg.-Ob.-Gyn.
State University of New York Upstate Medical Center Hospitals, Syracuse, N. Y.; Med.-Surg.
North Carolina Memorial Hospital, Chapel Hill, N. C.; Med.-Ped.
Duke Hospital, Durham, N. C.; Ob.-Ped.
Watts Hospital, Durham, N. C.; Med.-Surg.-Ob.-Gyn.
North Carolina Baptist Hospital, Winston-Salem, N. C.; Ped.-Ob. Gyn.
Bethesda Hospital, Cincinnati; Med.-Ob.-Surg.
University of Oklahoma Hospitals, Oklahoma City; Med. Major; Surg. Major; Ob.-Gyn. Major; Ped. Major.
Woman's Hospital, Philadelphia; Surg.-Med.
Baroness Erlanger Hospital, Chattanooga, Tenn.; Med.-Ob.-Ped.
St. Thomas Hospital, Nashville, Tenn.; Med.-Surg.
Jefferson Hospital, Roanoke, Va.; Surg.-Med.-Ob.

STRAIGHT

Total Number of Approved Programs, 215

INTERNAL MEDICINE

Number of Approved Programs, 80

Veterans Admin. Hospital	Long Beach
Veterans Admin. Hospital	Los An
Veterans Admin. Hospital	Atlanta, Ga
Veterans Admin. Hospital	Oklahoma Cit
Veterans Admin. Hospital	Dallas, Tex
Veterans Admin. Hospital	McKinney, Tex
Veterans Admin. Hospital	Salt Lake Cit
University Hospital and Hillman Clinic	Birmingham, Al
University Hospital	Little Rock, Ar
University of California Hospital	Los Ange
Stanford University Hospitals	San Franc
University of California Hospital	San Franc
Bridgeport Hospital	Bridgeport, Con
Grace-New Haven Community Hospital	New Haven, Con
Georgetown University Hospital	Washington, D
Grady Memorial Hospital	Atlanta, G
Emory University Hospital	Emory University, G
Michael Reese Hospital	Chicag
University of Kansas Medical Center	Kansas City, Ka
Louisville General Hospital	Louisville, K
Ochsner Foundation Hospital	New Orlea
Baltimore City Hospitals	Baltimo
Church Home and Hospital	Baltimo
Johns Hopkins Hospital	Baltimo
Sinai Hospital	Baltimo
University Hospital	Baltimo
Beth Israel Hospital	Bost
Boston City Hospital	Bost
Massachusetts General Hospital	Bost
Massachusetts Memorial Hospitals	Bost
New England Center Hospital	Bost
Peter Bent Brigham Hospital	Bost
Northwestern Hospital	Minneapol
University of Minnesota Hospitals	Minneapol
Barnes Hospital	St Lou
St. Mary's Group of Hospitals	St Lou
Jersey City Hospital	Jersey City, N
Albany Hospital	Albany, N
Cumberland Hospital	Brookl
Jewish Hospital	Brookl
Kings County Hospital	Brookl
Long Island College Hospital	Brookl

INTERNAL MEDICINE—Continued

Maimonides Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Mary Imogene Bassett Hospital	Cooperstown, N. Y.
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Bellevue Hospital Center Division II—Medical Cornell University	New York City
Bellevue Hospital Center Division III—Medical New York University College of Medicine	New York City
Bellevue Hospital Center Division IV—Medical New York University Postgraduate Medical School	New York City
Bronx Municipal Hospital Center	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St. Clare's Hospital	New York City
St. Vincent's Hospital	New York City
Genesee Hospital	Rochester, N. Y.
Rochester General Hospital	Rochester, N. Y.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
Watts Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
Baptist Memorial Hospital	Memphis, Tenn.
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Texas
Parkland Memorial Hospital	Dallas, Texas
St. Paul's Hospital	Dallas, Texas
Jefferson Davis Hospital	Houston, Texas
Methodist Hospital	Houston, Texas
Salt Lake County General Hospital	Salt Lake City
University of Virginia Hospital	Charlottesville, Va.
Chesapeake and Ohio Hospital	Clifton Forge, Va.
Medical College of Virginia—Hospital Division	Richmond, Va.
King County Hospital, Unit No. 1 (Harborview)	Seattle

PATHOLOGY

Number of Approved Programs, 26

University of California Hospital	Los Angeles
University of California Hospitals	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Emory University Hospital	Emory University, Ga.
University of Kansas Medical Center	Kansas City, Kan.
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Boston City Hospital	Boston
Children's Medical Center	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
Barnes Hospital	St. Louis
Jersey City Hospital	Jersey City, N. J.
Kings County Hospital	Brooklyn
Methodist Hospital	Brooklyn
Bellevue Hospital Center, Division III—Pathology New York University College of Medicine	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
Genesee Hospital	Rochester, N. Y.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
Good Samaritan Hospital	Portland, Ore.
Vanderbilt University Hospital	Nashville, Tenn.

PEDIATRICS

Number of Approved Programs, 44

University Hospital and Hillman Clinic	Birmingham, Ala.
University Hospital	Little Rock, Ark.
Childrens Hospital	Los Angeles
University of California Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospitals	San Francisco
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta, Ga.
Michael Reese Hospital	Chicago
University of Kansas Medical Center	Kansas City, Kan.
Louisville General Hospital	Louisville, Ky.
Baltimore City Hospitals	Baltimore
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
University Hospital	Baltimore
Boston City Hospital	Boston
Children's Medical Center	Boston
Massachusetts General Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
St. Louis Children's Hospital	St. Louis

PEDIATRICS—Continued

St. Mary's Group of Hospitals	St. Louis
Jersey City Hospital	Jersey City, N. J.
Cumberland Hospital	Brooklyn
Jewish Hospital	Brooklyn
Kings County Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Children's Hospital	Buffalo
Bellevue Hospital Center—Division III—Pediatrics New York University College of Medicine	New York City
Bronx Municipal Hospital Center	New York City
New York Hospital	New York City
St. Luke's Hospital	New York City
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke Hospital	Durham, N. C.
North Carolina Baptist Hospital	Winston-Salem, N. C.
University Hospitals	Cleveland
Vanderbilt University Hospital	Nashville, Tenn.
Children's Medical Center	Dallas, Texas
Jefferson Davis Hospital	Houston, Texas
Salt Lake City General Hospital	Salt Lake City
Milwaukee Children's Hospital	Milwaukee

SURGERY

Number of Approved Programs, 65

University Hospital	Little Rock, Ark.
University of California Hospital	Los Angeles
Stanford University Hospitals	San Francisco
University of California Hospitals	San Francisco
Bridgeport Hospital	Bridgeport, Conn.
Grace-New Haven Community Hospital	New Haven, Conn.
Grady Memorial Hospital	Atlanta, Ga.
Emory University Hospital	Emory University, Ga.
Michael Reese Hospital	Chicago
Mount Sinai Hospital	Chicago
Provident Hospital	Chicago
Indiana University Medical Center	Indianapolis
University of Kansas Medical Center	Kansas City, Kan.
Johns Hopkins Hospital	Baltimore
Sinai Hospital	Baltimore
Beth Israel Hospital	Boston
Boston City Hospital	Boston
Massachusetts General Hospital	Boston
Massachusetts Memorial Hospitals	Boston
New England Center Hospital	Boston
Peter Bent Brigham Hospital	Boston
Northwestern Hospital	Minneapolis
University of Minnesota Hospitals	Minneapolis
St. Joseph Hospital	Kansas City, Mo.
Barnes Hospital	St. Louis
St. Mary's Group of Hospitals	St. Louis
Jersey City Hospital	Jersey City, N. J.
Albany Hospital	Albany, N. Y.
Beth-El Hospital	Brooklyn
Cumberland Hospital	Brooklyn
Kings County Hospital	Brooklyn
Long Island College Hospital	Brooklyn
Methodist Hospital	Brooklyn
St. John's Episcopal Hospital	Brooklyn
Buffalo General Hospital	Buffalo
Charles S. Wilson Memorial Hospital	Johnson City, N. Y.
Bellevue Hospital Center—Division I—Surgical Columbia University	New York City
Bellevue Hospital Center—Division II—Surgical Cornell University	New York City
Bellevue Hospital Center—Division III—Surgical New York University College of Medicine	New York City
Bellevue Hospital Center—Division IV—Surgical New York University Postgraduate Medical School	New York City
Bronx Municipal Hospital Center	New York City
Knickerbocker Hospital	New York City
Lebanon Hospital	New York City
Mount Sinai Hospital	New York City
New York Hospital	New York City
Presbyterian Hospital	New York City
St. Clare's Hospital	New York City
St. Vincent's Hospital	New York City
Genesee Hospital	Rochester, N. Y.
Highland Hospital	Rochester, N. Y.
Rochester General Hospital	Rochester, N. Y.
Strong Memorial-Rochester Municipal Hospitals	Rochester, N. Y.
State University of New York Upstate Medical Center	Syracuse, N. Y.
North Carolina Memorial Hospital	Chapel Hill, N. C.
Duke [illegible]	[illegible] N. C.
North [illegible]	[illegible] N. C.
University Hospitals	Cleveland
Baptist Memorial Hospital	Memphis, Tenn.
St. Thomas Hospital	Nashville, Tenn.
Vanderbilt University Hospital	Nashville, Tenn.
Baylor University Hospital	Dallas, Texas
Jefferson Davis Hospital	Houston, Texas
Methodist Hospital	Houston, Texas
University of Virginia Hospital	Charlottesville, Va.
Medical College of Virginia—Hospital Division	Richmond, Va.

APPROVED RESIDENCIES AND FELLOWSHIPS

Council on Medical Education and Hospitals of the American Medical Association
535 North Dearborn Street, Chicago 10

Revised to September 1, 1956

Hospitals, 1,211: Assistant Residencies and Fellowships, 27,835

The following services are approved by the Council on Medical Education and Hospitals as meeting the requirements of the Essentials of Approved Residencies and Fellowships. In those specialties in which certifying boards have been established approval is extended in concurrence with the Board concerned as indicated. The number of years of training for which approval has been granted is indicated in the column, "Length of Approved Program (years)." Residencies in which this designation does not appear have been approved without specifying the number of years for which they are accredited. The beginning stipends for Federal hospitals have not been listed; they are established in accordance with government pay tables.

INDEX TO LIST

1 Allergy 320
2 Anesthesiology 320
3 Aviation Medicine 323
4 Cardiovascular Disease .... 3[illegible]3
5 Contagious Diseases 324
6 Dermatology and Syphilology 324
7. Gastroenterology 325
8 General Practice 326
9 Internal Medicine 327
10 Malignant Diseases 334
11. Neurological Surgery 334
12 Neurology 336
13 Obstetrics-Gynecology 338
14 Ophthalmology 342
15 Orthopedic Surgery 346
16 Otolaryngology 350
17 Pathology 352
18 Pediatrics 359
19 Physical Med. and Rehabilitation 362
20 Plastic Surgery 363
21 Preventive Med. and Public Health 364
22 Proctology 366
23 Psychiatry 366
24 Pulmonary Diseases .... [illegible]
25 Radiology 371
26 Surgery 376
27 Thoracic Surgery 383
28 Urology 384

---

1. ALLERGY

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Allergy of the American Board of Internal Medicine.

Hospitals, 22: Assistant Residencies and Residencies, 37

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES ARMY							
Army Medical Center [1-8]	Washington, D. C.	....	[illegible]18	7,4[illegible]5	1	1	.
UNITED STATES NAVY							
U. S. Naval Hospital [1]	San Diego, Calif.	A. L. Lawler	15	11,055	1	1	
VETERANS ADMINISTRATION							
ns Admin. Hospital [1-8]	Long Beach, Calif.	N. B. Kurnick	70	1,945	..	1	
ans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)					
ans Admin. Hospital [1]	Pittsburgh	L. H. Criep	10[illegible]	...	2	2	

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Kaiser Foundation Hospital [1-8]	San Francisco	B. F. Feingold	14	61,[illegible]83		2	[illegible]
Northwestern University Medical Center [1-8]	Chicago	S. Feinberg	100	5,9[illegible]7	2	2	[illegible]
Veterans Admin. Research Hospital [1]	Chicago	S. Feinberg	100		1	1	
University of Illinois Research and Educational Hospitals [1-8]	Chicago	M. Samter		[illegible],149	1	1	[illegible]
usetts General Hospital [1-8]	Boston	W. S. Burrage		84	1	1	
ity Hospital [1-8]	Ann Arbor, Mich.	J. M. Sheldon		10,377	.	6	18[illegible]
oundation [1]	Rochester, Minn.		Included in Internal Medicine			2	1[illegible]0
ospital [1-8]	Brooklyn, N. Y.	M. Grolnick	[illegible]1	7,[illegible]0	1	1	100
rk Hospital [1-8]	New York City	H. S. Baldwin		8,937	1	2	110[illegible]
ork University—Bellevue Medical Center niversity Hospital	New York City	W. C. Spain		6,191		1	[illegible]0
oosevelt Hospital [1-8]	New York City	R. A. Cooke	85	41,498	4	4	250
Duke University Hospital [1-8-328]	Durham, N. C.	O. C. E. Hansen-Pruss	100	8[illegible]2		2	[illegible]
Ohio State University Hospitals University Hospital [1-8]	Columbus, Ohio	J. H. Mitchell	.	2,341	.	1	1[illegible]
Temple University Hospital [1-8]	Philadelphia	L. Tuft		5,44[illegible]	.		[illegible]
Montefiore Hospital [1-8]	Pittsburgh	L. H. Criep	10	16,8[illegible]	2	2	[illegible]
University of Virginia Hospital [1-8]	Charlottesville, Va.	O. Swineford Jr.		6,487	.	3	100
Medical College of Virginia—Hospital Division [1-8]	Richmond, Va.	M. F. B. Owens		6,178		1	1[illegible]
University Hospitals [1-8]	Madison, Wis.	S. B. Crepea	Incl. in Med.	712			

2. ANESTHESIOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Anesthesiology for TWO years of training.

Hospitals, 212: Assistant Residencies and Residencies, 1,184

FEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1]	San Francisco	S. C. Mescater	6,450	2,437	1	4	...
Fitzsimons Army Hospital [1]	Denver	J. E. Keet	6,329	2,846	1	3	...
Army Medical Center [1-8]	Washington, D. C.	H. C. Slocum	10,795	7,686	4	10	..
Brooke Army Hospital [1-8]	San Antonio, Texas	H. K. Pedigo	5,955	2,150	4	10	..
UNITED STATES AIR FORCE							
U. S. Air Force Hospital [1-8]	San Antonio, Texas	A. B. Tarrow	7,054	2,228	8	[illegible]	..

Numerical and other references will be found on pages 387 through 390.

2. ANESTHESIOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES NAVY							
U. S. Naval Hospital[1-3]	Oakland, Calif.	B. H. Baxley	11,686	1,176	2	4	...
U. S. Naval Hospital[1]	San Diego, Calif.	R. S. Echols	12,005	1,358	..	..	...
U. S. Naval Hospital	Bethesda, Md.	W. R. Stillwell	10,120	3,089	2	4	...
U. S. Naval Hospital[1-3]	Chelsea, Mass.	E. A. Sneddon	5,197	1,299	2	3	...
U. S. Naval Hospital	St. Albans, N. Y.	D. M. Pino	6,886	1,282	2	4	...
U. S. Naval Hospital[1-3]	Philadelphia	J. G. Kurfees	5,867	1,338	1	2	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital[1-3]	Staten Island, N. Y.	K. F. Urbach	3,212	1,407	2	4	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3-27]	Los Angeles	N. H. Rupp	5,912	647	5	10	...
Veterans Admin. Hospital[1-3-55]	Denver	F. Brown	1,860	965	3	3	...
Veterans Admin. Hospital[1]	Hines, Ill.	M. Sadove	12,055	2,026	4	6	...
Veterans Admin. Hospital[1]	Des Moines, Iowa	(See State University of Iowa Hospitals)					
Veterans Admin. Hospital[1-3]	Iowa City, Iowa	(See State University of Iowa Hospitals)					
Veterans Admin. Hospital[1]	Kansas City, Mo.	(See Univ. of Kansas Medical Center)					
Veterans Admin. Hospital[1-3]	St. Louis	H. W. Crouch	3,434	1,033	2	4	...
Veterans Admin. Hospital[1-3-290]	Brooklyn, N. Y.	H. I. Lipson	4,974	1,087	2	4	...
Veterans Admin. Hospital[1-3-266]	Buffalo	S. I. Guest	3,590	373	2	4	...
Veterans Admin. Hospital[1-3-301]	New York City (Bronx)	B. Ciliberti	6,157	1,490	5	10	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital[1-3]	White River Jct., Vt.	R. E. Lapointe	1,425	465	1	2	...
Veterans Admin. Hospital[1-3-420]	Richmond, Va.	C. G. Lynch	3,635	791	1	3	...
Veterans Admin. Hospital[1-3]	Seattle	(See Univ. of Washington Affiliated Hospitals)					
Veterans Admin. Hospital[1-3-436]	Milwaukee (Wood), Wis.	R. A. Tella	2,648	1,507	3	6	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
University of Alabama Medical Center							
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	A. McNeal	9,402	7,975	2	4	108
Lloyd Noland Hospital[1-3]	Fairfield, Ala.	R. W. Grady	3,392	1,572	1	2	225
St. Vincent Infirmary[1-3]	Little Rock, Ark.	J. P. Hickey	6,253	2,207	4	10	300
University Hospital[1]	Little Rock, Ark.	C. W. Shafer	2,404	1,547	3	5	145
Los Angeles County Hospital[1-27-29-32]	Los Angeles	J. S. Denson	14,304	9,416	13	26	246
University of California Medical Center	Los Angeles	J. B. Dillon	.....	.....	3	5	259
White Memorial Hospital[1-3-27]	Los Angeles	F. E. Leffingwell	3,516	2,165	3	6	151
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	E. Byer	3,726	1,823	2	4	195
Samuel Merritt Hospital[1]	Oakland, Calif.	B. M. Anderson	6,517	4,004	2	4	195
Kaiser Foundation Hospital	San Francisco	E. P. Shannon	5,098	3,370	3	6	175
Mount Zion Hospital[1-3]	San Francisco	A. J. Harris	5,327	.....	1	2	150
St. Francis Memorial Hospital[1-3]	San Francisco	J. E. Cann	7,686	5,611	2	3	300
St. Joseph's Hospital[1-3]	San Francisco	R. A. Simpson	4,218	1,961	1	2	200
San Francisco Hospital	San Francisco	R. Ponath	6,065	1,902	2	4	195
Stanford University Hospitals[1-3]	San Francisco	P. J. Bailey	6,738	4,548	2	3	80
Santa Clara County Hospital[1]	San Jose, Calif.	J. Atkinson	2,243	1,500	2	2	260
Harbor General Hospital[1-3]	Torrance, Calif.	J. D. Boone	1,599	1,426	2	4	246
University of Colorado Medical Center[463]							
Colorado General Hospital[1-3]	Denver	R. W. Virtue	3,281	1,569	4	7	160
Denver General Hospital[1-3]	Denver	R. W. Virtue	2,491	1,423	..	..	157
Bridgeport Hospital[1-3]	Bridgeport, Conn.	D. L. Massey	7,636	2,078	1	2	275
Hartford Hospital[1-3-61]	Hartford, Conn.	R. M. Tovell	43,501	17,300	10	20	100
St. Francis Hospital[1-3]	Hartford, Conn.	S. J. Martin	17,344	7,156	3	6	125
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	N. M. Greene	12,492	9,500	3	7	50
Hospital of St. Raphael[3]	New Haven, Conn.	M. Garofalo	8,558	5,824	2	4	150
District of Columbia General Hospital[1-3]	Washington, D. C.	S. N. Albert	5,034	3,908	3	5	153
Doctors Hospital[1-3]	Washington, D. C.	D. Stubbs	7,981	6,824	2	4	250
Garfield Memorial Hospital[1-3-462]	Washington, D. C.	W. E. Bageant	4,447	126	2	4	210
Georgetown University Hospital	Washington, D. C.	T. F. McDermott	8,901	5,305	3	10	100
George Washington University Hospital[1-3]	Washington, D. C.	C. S. Coakley	11,135	8,897	5	11	150
University Hospital[1]	Augusta, Ga.	P. P. Volpitto	5,818	4,501	7	12	200
Emory University Hospital	Emory University, Ga.	W. H. Galvin	8,301	6,316	..	3	215
American Hospital[1-3]	Chicago	D. Katz	2,396	7,567	5	5	65
Michael Reese Hospital[1-3]	Chicago	J. Bolgla	9,445	4,205	2	4	125
Mount Sinai Hospital[1-3]	Chicago	R. Weyl	5,760	5,292	3	8	100
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital[1-3-421]	Chicago	M. Karp	10,999	9,474	2	4	50
St. Luke's Hospital[1-3]	Chicago	P. W. Searles	6,359	4,360	3	9	75
University of Chicago Clinics[1-3]	Chicago	E. T. Morch	10,586	6,936	2	3	200
University of Illinois Research and Educational Hospitals[1-3-114]	Chicago	M. S. Sadove	4,376	3,840	5	11	125
Evanston Hospital[1-3]	Evanston, Ill.	C. Baldwin	6,650	1,665	1	2	225
St. Francis Hospital[1]	Evanston, Ill.	H. L. Harris	9,628	7,131	1	2	175
St. Joseph's Hospital[3-121]	Joliet, Ill.	L. D. Ruttle	6,224	4,754	2	4	350
Indianapolis General Hospital[1-3]	Indianapolis	R. E. Vore	13,135	3,422	3	5	205
Indiana University Medical Center[1-125]	Indianapolis	V. K. Stoelting	10,053	7,037	7	14	165
State University of Iowa Hospitals[1-3]	Iowa City, Iowa	S. C. Cullen	11,435	6,991	7	14	140
University of Kansas Medical Center[1-3]	Kansas City, Kan.	P. Lorhan	7,999	3,428	4	8	125
Veterans Admin. Hospital[1]	Kansas City, Mo.	R. Bumgarner	2,478	258	..	2	..
St. Francis Hospital[1-3]	Wichita, Kan.	R. T. Parmley	11,799	1,408	2	5	275
Louisville General Hospital[1-3-134]	Louisville, Ky.	R. P. Bergner	12,255	9,710	3	7	83
Charity Hospital of Louisiana[1]	New Orleans	J. Adriani	24,000	16,150	6	12	125
Ochsner Foundation Hospital[1]	New Orleans	G. B. Grant	5,397	2,220	3	6	225
Eastern Maine General Hospital[1-3]	Bangor, Maine	C. S. Dwyer	6,266	3,133	1	2	100
Central Maine General Hospital[1]	Lewiston, Maine	G. Clapperton	4,169	3,558	1	1	225
Maine General Hospital[1]	Portland, Maine	J. R. Lincoln	6,498	4,200	4	4	100
University Hospital[1-3]	Baltimore	P. Hackett	6,329	4,079	4	8	150
Boston City Hospital[1-3]	Boston	P. S. Marcus	18,073	10,017	..	12	162
Lahey Clinic[1-3-174-175]	Boston	U. H. Eversole	6,170	4,688	5	10	200
Massachusetts General Hospital[1-3]	Boston	H. K. Beecher	12,875	8,000	8	16	67
Massachusetts Memorial Hospitals[1-3-175]	Boston	J. Arrowood	3,803	2,519	2	4	75
New England Center Hospital[1-3-181]	Boston	B. E. Etsten	2,596	1,947	3	6	100
New England Deaconess Hospital	Boston	L. V. Hand—F. J. Audin	8,235	2,738	3	6	200
New England Hospital[1-3]	Boston	E. Bartlett	3,975	1,667	1	2	75
Peter Bent Brigham Hospital[1-3]	Boston	L. D. Vandam	3,424	2,407	..	2	42
St. Elizabeth's Hospital[1-3]	Boston	L. P. Zentgraf	7,591	3,575	1	2	125
Cambridge City Hospital[1]	Cambridge, Mass.	D. R. Branch	3,587	1,247	1	2	125
Mount Auburn Hospital[1-3-188]	Cambridge, Mass.	J. H. Buskirk	4,980	3,150	1	4	150
Springfield Hospital[1-3]	Springfield, Mass.	H. N. Memery	6,240	2,179	1	2	125
St. Vincent Hospital[1-3]	Worcester, Mass.	W. J. Martin, Jr.	6,923	4,485	2	4	175

Numerical and other references will be found on pages 387 through 390.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Worcester City Hospital [3]	Worcester, Mass.	W. Allegree	4,906	1,627	2	2	215
University Hospital [1-3]	Ann Arbor, Mich.	R. B. Sweet	11,168	3,501	3	6	154
Harper Hospital [1-3]	Detroit	A. B. Stearns	15,519	5,820	2	4	225
Henry Ford Hospital [1-3]	Detroit	P. Dumke	15,915	6,898	4	8	225
Providence Hospital [1]	Detroit	N. M. Bittrich	6,770	1,820	1	3	275
Receiving Hospital [1-3-205]	Detroit	F. E. Greifenstein	8,526	2,215	5	12	260
Sinai Hospital	Detroit	E. Brown	6,684	3,414	1	2	275
Butterworth Hospital [1-3]	Grand Rapids, Mich.	L. M. Byrd	11,107	2,829	1	2	225
University of Minnesota Hospitals [1-3-450]	Minneapolis	F. Van Bergen	18,545	7,559	15	31	185
Mayo Foundation [1]	Rochester, Minn.	A. J. Faulconer	30,000	20,000	7	16	150
University Hospital	Jackson, Miss.	G. Bittenbender	1,370	1,019	2	4	250
Research Hospital [1-3]	Kansas City, Mo.	M. C. Peterson	7,197	3,572	1	2	150
Barnes Hospital	St. Louis	R. B. Dodd	16,911	15,247	4	8	50
St. John's Hospital [1-3]	St. Louis	S. Brown	7,360	1,228	1	2	200
University of Nebraska Hospital [1-3]	Omaha	M. M. Musselman	2,023	1,587	2	2	175
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. H. Barrett	5,005	2,405	2	4	188
Hackensack Hospital [1-3]	Hackensack, N. J.	L. W. Netz	8,824	7,511	1	2	150
Jersey City Medical Center [1-3]	Jersey City, N. J.	W. J. Gleeson	5,487	2,710	4	5	92
Orange Memorial Hospital [1-3]	Orange, N. J.	J. A. Bernhard	4,567	2,499	1	2	150
St. Joseph Hospital [1-3-210]	Paterson, N. J.	E. T. Lawless	6,428	5,246	2	4	150
Albany Hospital [1-3]	Albany, N. Y.	G. Converse	7,712	5,142	4	9	160
Beth El Hospital [1-3]	Brooklyn, N. Y.	A. C. Goldfeder	7,232	2,535	2	3	125
Jewish Hospital [1-3]	Brooklyn, N. Y.	I. M. Pallin	7,823	3,656	4	8	100
Kings County Hospital	Brooklyn, N. Y.	M. Harmel	8,300	7,300	6	12	104
Maimonides Hospital [1-3]	Brooklyn, N. Y.	L. Holzmann	8,822	5,311	..	3	75
St. Catherine's Hospital [1-3]	Brooklyn, N. Y.	F P. Ansbro	3,245	2,105	1	3	170
Buffalo General Hospital [1-3-256]	Buffalo	R. N. Terry	13,472	102	2	4	175
Edward J Meyer Memorial Hospital [1]	Buffalo	E. D. Babbage	4,685	2,961	2	5	218
Millard Fillmore Hospital	Buffalo	E. D. Babbage	11,294	1,453	1	2	255
Flushing Hospital and Dispensary [1-3]	Flushing, N. Y.	E. Apogi	7,269	6,501	1	2	175
Long Island Jewish Hospital [1-3]	New Hyde Park, N Y.	S. N. Surks	4,985	3,268	2	4	75
Bellevue Hospital Center							
Div. IV—New York University							
Post Graduate Medical School [1-3-284]	New York City	E. A. Rovenstine	19,025	9,150	10	22	165
Beth Israel Hospital [1-3]	New York City	S. G. Hershey	6,026	4,520	2	4	110
Harlem Hospital [1-3]	New York City	H. D Mayer	7,657	3,139	2	4	105
Hospital for Joint Diseases [1-3-296]	New York City	A. M. Betcher	3,047	2,311	2	3	90
Lenox Hill Hospital [1-3]	New York City	M. Frick	8,121	6,118	2	3	150
Memorial Center for Cancer and Allied Diseases							
James Ewing Hospital [1-3]	New York City	W. S. Howland	1,576	855	..	..	200
Memorial Hospital [1-3-291]	New York City	W. S. Howland	6,945	1,838	2	9	200
Montefiore Hospital [1-3]	New York City	E Kepes	2,442	1,600	2	3	75
Mount Sinai Hospital [1-3]	New York City	M. Adelman	12,859	8,244	4	7	50
New York Hospital [1-3]	New York City	J F. Artusio Jr.	9,667	6,655	5	10	116.67
New York Medical College—Metropolitan Medical Center							
Flower and Fifth Avenue Hospitals [1-3]	New York City	F. Fierro	8,550	4,743	1	2	...
Metropolitan Hospital [1-3]	New York City	F. Fierro	5,069	2,395	4	8	165
New York Polyclinic Medical School and Hospital [1-3]	New York City	J. Milowsky	6,054	3,335	3	6	100
Presbyterian Hospital [1]	New York City	E. M. Papper	22,725	17,389	11	26	270
St. Clare's Hospital [1-3]	New York City	G. A. Keating	3,005	1,652	1	2	200
St. Luke's Hospital [1-3]	New York City	G. E. Burford	5,370	4,012	3	6	100
St. Vincent's Hospital [1-3]	New York City	V J. Collins	5,506	3,960	3	6	125
Genesee Hospital [1-3]	Rochester, N Y.	E. Kistler	5,827	4,403	1	2	170
St. Mary's Hospital [1-3]	Rochester, N. Y.	M. Weingarten	9,105	4,126	2	4	200
Strong Memorial—Rochester Municipal Hospital [1-4]	Rochester, N Y	D. V. Thomas	8,138	6,088	4	5	92
Ellis Hospital [1-3]	Schenectady, N. Y	H. A. Snell	7,737	5,384	1	1	150
St. Joseph's Hospital [1-3]	Syracuse, N Y	C J. Geiger, Jr.	7,111	5,422	1	2	94
State University of New York							
Upstate Medical Center Hospitals [1-3]	Syracuse, N Y.	E. J. Delmonico	10,470	4,938	2	6	192
Grasslands Hospital [1-3]	Valhalla, N. Y.	H. F. Bishop	1,847	791	1	3	175
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	D. A. Davis	3,108	2,295	2	4	176
Duke University Hospital [1-3-323]	Durham, N. C	C R. *Stephen*	11,535	6,669	6	12	100
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C	R L. Wall	6,229	2,145	1	1	125
Mercy Hospital [1-3]	Canton, Ohio	L. L. Frick	6,222	2,849	3	6	200
Christ Hospital [1]	Cincinnati	L. E. Larrick	11,466	3,255	1	2	200
City Hospital [1-3]	Cleveland	H. Kretchmer	8,743	3,540	2	4	170
Cleveland Clinic Hospital [1-3]	Cleveland	D E. Hale	4,062	3,194	4	8	175
Huron Road Hospital [1-3]	Cleveland	J. K Potter	9,630	7,210	5	10	170
Mount Sinai Hospital [1-3]	Cleveland	S Katz	10,178	5,968	2	4	215
St. Alexis Hospital	Cleveland	M. Oppenheim	5,719	3,337	2	2	270
St. Luke's Hospital [1-3]	Cleveland	B. B. Saukey	12,286	5,171	3	5	180
University Hospitals [1-3]	Cleveland	R. A. Hingson	16,419	8,368	5	11	125
Ohio State University Hospitals							
University Hospital [1-3-345-349]	Columbus, Ohio	J. J. Jacoby	16,918	13,940	10	19	152
Marymount Hospital [1-4]	Garfield Heights, Ohio	N G. De Piero	5,275	3,417	2	4	200
Youngstown Hospital [1-3]	Youngstown, Ohio	D. W. Metcalf	15,582	11,972	4	8	175
University of Oklahoma Hospitals [1-3-352]	Oklahoma City	J. M. White	5,656	1,759	4	8	...
University of Oregon Medical School Hospitals and Clinics [360]	Portland, Ore.	F. P. Haugen	5,203	2,809	3	6	100
Geo. F. Geisinger Memorial Hospital and Foss Clinic [1-3]	Danville, Pa.	J M. Schwab	4,865	1,660	2	4	175
Albert Einstein Medical Center							
Northern Division [1-3]	Philadelphia	M. L. Bernstine	8,288	7,128	4	10	200
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. H. Stone	6,323	4,426	4	6	100
Hahnemann Medical College and Hospital [3]	Philadelphia	A. J. Catenacci	9,153	6,795	4	8	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	R. Dripps	14,200	6,800	7	21	125
Hospital of the Woman's Medical College							
of Pennsylvania [1-3]	Philadelphia	H. H. Stone	3,500	2,994	1	2	140
Jefferson Medical College Hospital	Philadelphia	L. J. Hampton	12,254	5,661	5	10	125
Pennsylvania Hospital [1-3]	Philadelphia	M. V. Troncelliti	8,978	5,386	2	2	100
Philadelphia General Hospital [1-3]	Philadelphia	E. H. Connor	5,000	3,540	4	4	111
Presbyterian Hospital [1-3]	Philadelphia	S. Schotz	4,976	1,234	2	4	170
Temple University Hospital [1-3]	Philadelphia	L. W. Krumperman	11,935	5,474	..	..	...
Allegheny General Hospital [1]	Pittsburgh	R. L. Patterson	11,516	7,325	3	6	200
Mercy Hospital [1-3]	Pittsburgh	F. F. Foldes	10,939	4,786	4	10	175
Montefiore Hospital [1-3]	Pittsburgh	L. David	6,076	3,753	2	2	225
St. Francis General Hospital							
and Rehabilitation Institute [1]	Pittsburgh	G. J. Thomas	10,401	3,537	2	4	300
Reading Hospital [1-3]	Reading, Pa.	M. Kerry	6,011	4,801	2	4	225
Robert Packer Hospital [1-3]	Sayre, Pa.	W. Brehm	6,917	3,368	2	4	200
Miriam Hospital [1-3]	Providence, R. I.	N. S. Rakatansky	3,151	1,650	1	1	180
Rhode Island Hospital [1-3-380]	Providence, R. I.	M. Saklad	7,811	3,924	1	4	170
Roper Hospital [1-3]	Charleston, S. C.	J. C. Doerr	6,840	3,361	3	6	175
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	G. E. Cox	6,238	3,937	4	6	

Numerical and other references will be found on pages 387 through 390.

2. ANESTHESIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Total Anesthetics	Inhalation Anesthetics	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Vanderbilt University Hospital	Nashville, Tenn	B. H. Robbins	6,025	4,582	2	4	50
Baylor University Hospital[1-3]	Dallas, Texas	R. F. Courtin	13,439	19,296	1	2	100
Parkland Memorial Hospital[1-3]	Dallas, Texas	M. T. Jenkins	3,205	1,720	4	5	150
Harris Hospital[1-3]	Fort Worth, Texas	A. N. Heinrichs	10,279	9,437	2	4	200
University of Texas Medical Branch Hospitals[1-3]	Galveston, Texas	C. R. Allen	7,154	6,081	5	12	100
Baylor University Coll. of Med. Affiliated Hospitals							
Jefferson Davis Hospital[1-3]	Houston, Texas	A. S. Keats	4,815	2,457	2	4	75
Methodist Hospital[1-3]	Houston, Texas	P. H. Chalmers	8,908	.....	2	4	100
Univ. of Texas M. D. Anderson Hospital and Tumor Clinic[1-3]	Houston, Texas	W. S. Derrick	3,493	2,696	3	6	150
Veterans Admin. Hospital[1-3]	Houston, Texas	W. H. Mannheimer	5,177	1,795	2	4	...
Hermann Hospital[1-3]	Houston, Texas	L. F. Schumacher, Jr.	15,950	4,748	2	4	100
St. Joseph's Hospital	Houston, Texas	E. A. Hoeflich	12,501	5,712	1	1	150
Baptist Memorial Hospital[1-3]	San Antonio, Texas	G. B. Ladd	8,420	4,605	1	2	150
Scott and White Memorial Hospitals[1-3]	Temple, Texas	C. H. Gillespie	5,225	3,516	2	4	250
University of Utah Affiliated Hospitals		....	14,663	.....	4	8	...
Holy Cross Hospital[1-3]	Salt Lake City, Utah	P. A. Clayton	5,906	4,613	1	2	200
St. Mark's Hospital[1-3]	Salt Lake City, Utah	H. O. Brown	5,716	4,714	..	1	225
Salt Lake County General Hospital	Salt Lake City, Utah	C. M. Ballinger	1,998	1,570	2	3	175
Veterans Admin. Hospital (12th Avenue Unit)	Salt Lake City, Utah	C. J. Metcalf	873	457	1	2	...
Veterans Admin. Hospital (Ft. Douglas Unit)[1]	Salt Lake City, Utah	H. R. Mershon	171	93	..	..	...
University of Vermont Affiliated Hospitals							
De Goesbriand Memorial Hospital[1-3]	Burlington, Vt.	J. Abajian	5,686	3,027	1	2	100
Mary Fletcher Hospital[1-3-412]	Burlington, Vt.	J. Abajian, Jr.	3,449	1,546	3	5	100
Medical College of Virginia—Hospital Division[1-3]	Richmond, Va.	W. E. Pembleton	14,809	4,457	..	5	75
Doctors Hospital[1-3]	Seattle	L. F. Turnbull	5,604	3,419	1	2	250
University of Washington Affiliated Hospitals							
Children's Orthopedic Hospital[1]	Seattle	D. W. Compton	3,315	.....	..	..	...
King County Hospital Unit No. 1 (Harborview)[1-422]	Seattle	L. E. Morris	2,825	1,755	4	6	125
Veterans Admin. Hospital[1-3]	Seattle	L. E. Morris	1,437	307	1	3	...
Virginia Mason Hospital[1-3]	Seattle	D. C. Moore	6,974	3,965	3	6	175
Tacoma General Hospital[1-3]	Tacoma, Wash.	J. J. Bonica	5,565	2,937	3	6	200
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	D. E. Greeneltch	6,791	6,160	2	4	300
University Hospitals[1-3]	Madison, Wis.	O. S. Orth	5,987	5,066	6	12	175
San Juan City Hospital[1-3]	San Juan, Puerto Rico	F. J. Gonzalez	3,169	1,431	2	4	150

3. AVIATION MEDICINE

The following programs have been approved for training by the Council and the American Board of Preventive Medicine, through the Residency Review Committee for Preventive Medicine.

FEDERAL

School	Location	Director	Stipend (Month)
UNITED STATES AIR FORCE			
Wright-Patterson Air Force Base	Dayton, Ohio	Brig. Gen. Edw. J. Tracy	....
School of Aviation Medicine	Randolph Field, Texas	Brig. Gen. O. O. Benson, Jr.	....
UNITED STATES NAVY			
School of Aviation Medicine	Pensacola, Fla.	Capt. J. C. Early	....
NONFEDERAL			
Ohio State University Medical Center	Columbus, Ohio	W. F. Ashe, M. D.	....

4. CARDIOVASCULAR DISEASES

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Cardiovascular Diseases of the American Board of Internal Medicine.
Hospitals, 45; Assistant Residencies and Residencies, 91

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital[1]	San Francisco	R. P. Johnson	498	19	1	1	...
Fitzsimons Army Hospital[1]	Denver	R. E. Pollock	325	18	1	1	...
Army Medical Center[1-3]	Washington, D. C.	T. W. Mattingly	617	58	2	2	...
Brooke Army Hospital[1-3]	San Antonio, Texas	W. J. Walker	6[illegible]6	29	1	1	...
UNITED STATES NAVY							
U. S. Naval Hospital	Bethesda, Md	R. C. Parker, Jr.	543	37	1	1	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	E. Temkin	769	69	..	1	...
Veterans Admin. Hospital—West Haven Division	West Haven, Conn	M. Calabresi	410	39	..	1	...
Veterans Admin. Hospital[1]	Hines, Ill.	L. A. Baker	1,416	90	..	1	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	W. T. Thompson, Jr.	1,035	43	..	2	...
NONFEDERAL							
University of California Hospitals[1-3]	San Francisco	M. Sokolow	1,285	..	..	2	200
George Washington [illegible]	[illegible]ington, D. C.	J. M. Evans	28[illegible]	35	..	3	150
Jackson Memorial [illegible]	Miami, Fla.	R. Jones, Jr.	1,612	122	..	..	75
St. Joseph's Infirm[illegible]	Atlanta, Ga.	S. Claiborne	526	20	..	1	165
Children's Memoria[illegible]	Chicago	....	...	..	..	..	...
Michael Reese Hospital[1-4]	Chicago	L. N. Katz	992	67	10	10	...
Indianapolis General Hospital[1-3]	Indianapolis	K. E[illegible]	372	17	..	1	300
St. Vincent's Hospital	Indianapolis	A. B[illegible]	451	26	..	1	...
University of Kansas Medical Center[1-3]	Kansas City, Kan.	E. G[illegible]	370	20	3	3	125
Beth Israel Hospital[1-3]	Boston	H. L. Blumgart	Incl. in Int. Med.		2	2	50
Peter Bent Brigham Hospital[1-3]	Boston	G. W. Thorn	Incl. in Int. Med.		..	8	...
Henry Ford Hospital[1-3]	Detroit	J. W. Keyes	1,712	78	..	4	225
Mayo Foundation[2]	Rochester, Minn.	....	2,000	..	..	2	150
University of Nebraska Hospitals[1-3]	Omaha, Nebr.	R. L. Grissom	...	..	1	1	200
Buffalo General Hospital[1-3]	Buffalo	E. J. Lippschultz	Incl. in Int. Med.		1	1	175
Irvington House	Irvington, N. Y.	H. F. Wood	...	..	..	..	...
Lenox Hill Hospital[1-3]	New York City	C. E. Kossmann	...	..	1	1	150

Numerical and other references will be found on pages 387 through 390.

4. CARDIOVASCULAR DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Memorial Center for Cancer and Allied Diseases							
James Ewing Hospital [1-3]	New York City	J. La Due	...	..	..	..	333
Memorial Hospital [1-3]	New York City	J. La Due	...	..	..	1	333
St. Luke's Hospital [1-3]	New York City	G. J. Coffin	Incl. in Int. Med.		2	2	125
St. Francis Hospital and Sanatorium [1]	Roslyn, L. I., N. Y.	W. J. Noble	259	1	4	4	250
Duke University Hospital [1-3-333]	Durham, N. C.	E. S. Orgain	356	11	..	3	300
Cincinnati General Hospital	Cincinnati		...	..	..	..	...
Cleveland Clinic Hospital [1-3]	Cleveland	I. H. Page	164	8	6	6	175
University Hospitals [1-3]	Cleveland	J. T. Wearn	Incl. in Int. Med.		..	2	183
Ohio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	R. W. Kissane	Incl. in Int. Med.		..	2	152
White Cross Hospital [1-3]	Columbus	R. W. Kissane	423	26	1	1	275
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	S. Bellet	210	4	2	2	...
Pennsylvania Hospital [1-3]	Philadelphia	J. B. Vander Veer	Incl. in Int. Med.		2	2	20
Philadelphia General Hospital [1-3]	Philadelphia	S. Bellet	...	..	7	8	111
Temple University Hospital [1-3]	Philadelphia		...	..	..	..	...
Presbyterian Hospital	Pittsburgh	F. J. Gregg	542	34	..	..	125
St. Francis General Hospital and							
Rehabilitation Institute [1]	Pittsburgh	A. P. D'Zmura	4,849	69	..	1	250
Rhode Island Hospital [1-3]	Providence, R. I.	F. B. Cutts	5,331	..	1	1	150
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. R. Herrmann	Incl. in Int. Med.		1	3	100
University Hospitals [1-3]	Madison, Wis.	C. W. Crumpton	Incl. in Int. Med.		1	2	300

5. CONTAGIOUS DISEASES

Residency programs in the following hospitals have been approved for ONE year of training by the Council on Medical Education and Hospitals.
Hospitals, 4; Assistant Residencies and Residencies, 7.

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Cook County Hospital [1-3]	Chicago	A. Hoyne	1,013	23	1	1	75
Massachusetts Memorial Hospitals [1-3]	Boston	L. Weinstein	1,084	31	..	4	100
Worcester City Hospital	Worcester, Mass.		...	..	..	..	...
Philadelphia General Hospital- Northern Division [1-3]	Philadelphia	A. C. La Boccetta	498	5	2	2	112

6. DERMATOLOGY AND SYPHILOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Dermatology, Inc., through the Residency Review Committee for Dermatology and Syphilology.
Hospitals, 78; Assistant Residencies and Residencies, 280.

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital	San Francisco	J. B. Richardson	124	.....	1	3	2	.
Army Medical Center [1-3]	Washington, D. C.	R. S. Higdon	356	14,959	4	12	3	..
Brooke Army Hospital [1-3]	San Antonio, Texas	G. Prazak	159	15,132	3	9	3	.
UNITED STATES NAVY								
U. S. Naval Hospital [1]	San Diego, Calif.	J. H. Lockwood	134	14,446	2	4	3	..
U. S. Naval Hospital [1-3]	Philadelphia	C. D. Bell	126	6,254	2	3	2	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3-318]	Staten Island, N. Y.	B. J. Chester	547	7,242	1	3	3	..
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	C. W. Freeman	1	4,122	1	1	2	218
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Long Beach Calif.	S. W. Becker	436	3,687	1	3	3	.
Veterans Admin. Hospital [1-3]	Los Angeles	E. T. Wright	887	6,650	3	7	3	..
Veterans Admin. Hospital [1]	Hines, Ill.	A. Rostenberg	694	.....	2	2	1	...
Veterans Admin. Hospital [1-3]	New Orleans	C. B. Kennedy	...	78	.	.	1	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	M. Sullivan	104	6	1	2	3	...
Veterans Admin. Hospital [1-3]	Minneapolis	H. E. Michelson	224	95	1	2	3	...
Veterans Admin. Hospital [1-3-291]	New York City (Bronx)	H. Shatin	524	3,017	1	3	3	..
Veterans Admin. Hospital [1-3-269]	New York City (Manhattan)	P. Michaelides	150	1,300	1	3	3	...
Veterans Admin. Hospital [1-3-154]	Milwaukee (Wood), Wis.	H. R. Foerster	720	7,588	1	2	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University of Alabama Medical Center								
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	R. O. Noojin	89	2,632	1	3	3	118
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	P. G. Reque	90	1,435	1	1	1	25
Los Angeles County Hospital [1]	Los Angeles	M. Obermyer	729	15,255	.	3	3	216
White Memorial Hospital [1-3]	Los Angeles	M. Couperus	18	1,525	1	2	2	151
Stanford University Hospitals [1-3]	San Francisco	E. M. Farber	81	7,616	2	6	3	80
University of California Hospital [1-3]	San Francisco	R. B. Rees, Jr.	16	1	2	4	3	200
University of Colorado Medical Center [465]								
Colorado General Hospital [1-3]	Denver	O. S. Philpott	39	3,526	.	1	1	150
Georgetown University Hospital	Washington, D. C.	F. J. Eichenlaub	14	1,314	1	2	2	100
Cook County Hospital [1-3]	Chicago	S. M. Bluefarb	374	8,815	1	3	3	75
Michael Reese Hospital [1-3]	Chicago	A. Buchholz	104	3,696	1	1	1	100
Northwestern University Medical Center [1-3-102]	Chicago	H. Rattner	255	3,371	2	6	3	.
University of Chicago Clinics [1-3]	Chicago	S. Rothman	209	10,478	3	9	3	200
University of Illinois Research and Educational Hospitals [1-3]	Chicago	M. R. Caro	40	10,998	.	1	3	125
Indianapolis General Hospital [1-3]	Indianapolis	J. Dalton	60	9,230	1	3	3	205
State University of Iowa Hospitals [1-3]	Iowa City	R. Nomland	305	3,981	1	3	3	110
Charity Hospital of Louisiana								
Independent Unit [1]	New Orleans	V. M. Henington	54	5,105	1	3	3	100
Louisiana State University Unit [1]	New Orleans	C. B. Kennedy	210	10,411	1	3	3	100
Tulane University Unit [1]	New Orleans	G. E. Burch	184	9,850	1	3	3	100
University Hospital [1-3]	Baltimore	H. M. Robinson, Jr.	13	7,700	1	3	3	...

Numerical and other references will be found on pages 387 through 390.

6. DERMATOLOGY AND SYPHILOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Stipend Beginning (Month)
Boston City Hospital [1-3]	Boston	B. Appel	85	17,097	1	3	3	112
Massachusetts General Hospital [1-3]	Boston	C. N. Frazier	291	800	1	4	3	67
Massachusetts Memorial Hospitals [1-3]	Boston	H. Mescon	...	4,708	1	4	1	50
University Hospital [1-3]	Ann Arbor, Mich.	A. C. Curtis	608	6,790	4	14	3	154
Henry Ford Hospital [1-3]	Detroit	C. S. Livingood	386	30,144	2	8	3	225
Receiving Hospital [1-3-202]	Detroit	L. W. Shaffer	2	.....	1	3	3	200
Minneapolis General Hospital [1-3]	Minneapolis	C. W. Laymon	237	4,459	1	2	3	185
University of Minnesota Hospitals [1-3-212]	Minneapolis	H. E. Michelson	135	3,893	2	7	3	185
Mayo Foundation [1]	Rochester, Minn.	L. A. Brunstine	737	23,413	5	16	3	150
Ancker Hospital [1-3]	St. Paul	F. P. Lynch	174	2,845	1	1	3	187
Barnes Hospital [1-3]	St. Louis	H. N. Eisen	...	1,619	1	2	3	50
St. Mary's Group of Hospitals [1-3-221]	St. Louis	G. V. Stryker	97	4,103	1	3	3	100
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	W. C. Lobitz, Jr.	196	6,437	1	3	3	188
Kings County Hospital County Service [1]	Brooklyn, N. Y.	C. T. Chiaramonte	444	11,562	1	2	1	108
Edward J. Meyer Memorial Hospital [1]	Buffalo	E. D. Osborne	117	937	1	3	3	248
Elmhurst General Hospital [1-3-158]	Elmhurst, N. Y.	J. J. Eller	214	7,527	1	2	1	105
Bellevue Hospital Center Division IV-New York University Post-Graduate Medical School [1-3-275]	New York City	M. Sulzberger	289	22,636	3	7	3	105
Mount Sinai Hospital [1-3]	New York City	S. Peck	15	7,991	.	1	2	50
New York Hospital [1-3]	New York City	G. Lewis	...	10,995	1	1	3	116.67
New York Polyclinic "	New York City	A. C. Cipollaro	21	.....	.	2	3	100
New York University-University Hospital (Skin and Cancer)-[269]	New York City	M. Sulzberger	186	80,478	3	6	3	50
Presbyterian Hospital [1]	New York City	C. T. Nelson	342	33,685	1	3	3	250
St. Luke's Hospital [1-3]	New York City	L. P. Barker	...	8,077	1	1	3	100
Duke University Hospital [1-3-323]	Durham, N. C.	J. L. Calloway	207	1,695	1	3	3	102
Cincinnati General Hospital [1-3-329]	Cincinnati	L. Goldman	195	4,533	3	6	3	100
City Hospital [1-3]	Cleveland	B. P. Persky	181	6,081	1	3	3	150
Cleveland Clinic Hospital [1-3]	Cleveland	E. D. Netherton	288	15,509	1	3	3	175
University Hospitals [1-3]	Cleveland	J. R. Driver	79	4,791	1	2	3	125
University of Oklahoma Hospitals [1-3]	Oklahoma City	J. H. Lamb	32	2,037	1	2	2	...
University of Oregon Medical School Hospitals and Clinics	Portland, Ore.	T. B. Fitzpatrick	97	5,525	1	3	3	100
Geo. F. Geisinger '	Danville, Pa.	R. F. Dickey	61	8,983	.	.	3	125
Graduate Hospita	Philadelphia	H. Beerman	49	3,780	2	3	3	...
Hahnemann Medi	Philadelphia	C. Burgoon, Jr.	27	.....	1	3	1	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	D. Pillsbury	138	6,463	4	12	3	...
Jefferson Medical College Hospital [1-3]	Philadelphia	H. B. Decker	12	5,315	1	1	1	...
Pennsylvania Hospital [1-3]	Philadelphia	H. Beerman	...	2,577	1	1	1	20
Philadelphia General Hospital [1-3]	Philadelphia	C. F. Burgoon	169	.....	1	1	1	114
Skin and Cancer Hospital [1-3]	Philadelphia	C. S. Wright	158	20,331	4	4	2	50
University of Texas Medical '	veston, Texas	J. F. Mullins	129	7,041	2	6	3	160
Baylor University College of " Jefferson Davis Hospital [1-3]	Houston, Texas	E. R. Seale	1	2,071	2	2	3	75
University of Virginia Hospital [1-3]	Charlottesville, Va.	E. P. Cawley	200	9,990	2	6	3	50
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	A. Pepple	17	5,243	.	1	1	100
University Hospitals [1-3]	Madison, Wis.	S. A. M. Johnson	212	5,109	1	1	1	175

7. GASTROENTEROLOGY

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Gastroenterology of the American Board of Internal Medicine.

Hospitals, 30; Assistant Residencies and Residencies, 66

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1]	San Francisco	E. L. Kehoe	261	14	1	1	...
Army Medical Center [1-3]	Washington, D. C.	B. H. *Sullivan, Jr.*	616	9	1	1	...
Brooke Army Hospital [1-3]	San Antonio, Texas	N. M. Scott, Jr.	665	22	1	1	...
VETERANS ADMINISTRATION							
Veterans Admin. *Hospital* [1-3]	Long Beach, Calif.	S. J. Stempien	1,090	49	..	1	...
Veterans Admin. Hospital [1-3]	Los Angeles	M. I. Grossman	506	22	2	2	...
Veterans Admin. Hospital-West Haven Division	West Haven, Conn.	S. Selesnick	492	12	..	1	...
Veterans Admin.	Chicago	(See Northwestern University Medical Center)					
Veterans Admin.	Portland, Ore.	N. Medved-J. Fitzgibbon	283	3	..	1	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	M. L. Gompertz	1,315	11	1	1	...
Veterans *Admin. Hospital* [1-3]	Richmond, Va.	W. T. Thompson, Jr.	775	15	..	2	..
Veterans Admin. Hospital [1-3]	Milwaukee (Wood), Wis.	J. J. Levin	930	39	..	2	...
NONFEDERAL							
University of California Hospital [1-3]	San Francisco	T. L. Althausen	....	..	..	3	200
Cook County Hospital [1-3]	Chicago	F. Steigmann	Incl. in Int. Med.		1	2	75
Northwestern University *Medical Center* Veterans Admin. Research Hospital [1]	Chicago	E. C. Texter, Jr.	....	..	..	2	...
University of Kansas Medical Center [1-3]	Kansas City, Kan.	A. P. Klotz	....	1	1	1	125
Ochsner Foundation Hospital [1]	New Orleans	M. Kleckner	162	5	1	1	225
Touro Infirmary [1]	New Orleans	L. Ochs, Jr.	680	1	1	2	125
Beth Israel Hospital [1-3]	Boston	B. M. Banks	Incl. in Int. Med.		1	1	166
Lahey Clinic [1-3-171]	Boston	S. M. Jordan	1,511	..	8	8	[illegible]
Massachusetts *Memorial Hospitals* [1-3]	Boston	F. Ingelfinger	Incl. in Int. Med.		..	4	...
Henry Ford Hospital [1-3]	Detroit	J. G. Mateer	1,329	21	..	6	225
Mayo Foundation [1]	Rochester, Minn.	....	Incl. in Int. Med.		..	4	150
Mount Sinai Hospital [1-3]	New York City	A. Gutman	Incl. in Int. Med.		..	4	50
New York Polyclinic Medical School and Hospital [1-3]	New York City	S. Weiss	111	2	1	1	100
Duke University Hospital [1-3-323]	Durham, N. C.	J. M. Ruffin	357	2	..	3	250
Cleveland Clinic Hospital [1-3]	Cleveland	E. N. Collins	476	12	1	1	175
Ohio State University Hospitals University Hospital	Columbus, Ohio	C. J. De Lor	Incl. in Int. Med.		..	1	152
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. L. Bockus	695	19	2	2	150
Hospital of the University of Pennsylvania [1-3]	Philadelphia	T. Machella	Incl. in Int. Med.		2	6	...
Jefferson Medical College Hospital [1-3]	Philadelphia	J. E. Deitrick	Incl. in Int. Med.		..	1	...
Temple University Hospital [1-3]	Philadelphia	H. Shay	Incl. in Int. Med.		..	..	...

Numerical and other references will be found on pages 387 through 390.

8. GENERAL PRACTICE

Residency programs in the following hospitals have been approved by the Council and the American Academy of General General Practice through the Residency Review Committee for General Practice.

Hospitals, 166; Assistant Residencies and Residencies, 669

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES NAVY								
U. S. Naval Hospital[1]	San Diego, Calif.	E. F. Evans	.....	...	2	4	2	...
U. S. Naval Hospital[1-3]	Chelsea, Mass.	....	.....	...	2	4	2	...
U. S. Naval Hospital[1-3]	Portsmouth, Va.	G. G. Burkley	.....	...	1	2	1	...
NONFEDERAL								
Good Samaritan Hospital[1]	Phoenix, Ariz.	L. M. Dagres	7,283	111	2	2	2	250
Maricopa County General Hospital[1-3]	Phoenix, Ariz.	D. H. Victor	.....	...	6	6	2	250
St. Mary's Hospital and Sanitorium[1-3]	Tucson, Ariz.	A. B. Thompson	7,440	46	2	2	2	200
St. Michael's Hospital[1-3]	Texarkana, Ark.	W. B. Harrell	6,946	39	1	2	2	250
General Hospital of Riverside County[2]	Arlington, Calif.	....	2,586	46	5	5	1	391
Kern General Hospital[1]	Bakersfield, Calif.	R. Dickman	.....	...	8	8	1	325
St. Mary's Long Beach Hospital	Long Beach, Calif.	F. L. Bowton	16,562	113	1	2	2	300
Los Angeles County Hospital[1]	Los Angeles	W. D. Evans-L. Rosoff	.....	...	5	6	2	246
Contra Costa County Hospital[1]	Martinez, Calif.	H. Flanders	6,600	126	10	10	2	470
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	H. S. Holmboe	.....	...	4	4	2	245
Sequoia Hospital[1]	Redwood City, Calif.	E. Nelson	8,969	68	5	5	2	300
Sacramento County Hospital[1-3]	Sacramento, Calif.	L. W. Farrell	13,258	532	8	12	2	300
Monterey County Hospital[1]	Salinas, Calif.	W. A. Cassidy	3,563	157	7	7	1	350
Community Hospital of San Mateo County	San Mateo, Calif.	J. P. Sweeney	Incl. in	Int. Med.	9	9	2	375
Sonoma County Hospital[1-3]	Santa Rosa, Calif.	....	.....	...	9	9	1	475
Tulare County General Hospital[1]	*Tulare, Calif.*	V. Dungan	3,208	99	7	7	2	385
Glockner-Penrose Hospital[1-3]	Colorado Springs, Colo.	C. S. Gydesen	.....	...	2	3	2	200
St. Francis Hospital[1-3]	Colorado Springs, Colo.	R. W. Urich	4,499	68	2	2	1	210
University of Colorado Medical Center[-463]								
Colorado General Hospital[1-3]	Denver	C. W. Eisele	.....	...	8	22	2	160
Denver General Hospital[1-3]	Denver	....	.....	...	..	..	2	...
Greenwich Hospital[1-3]	Greenwich, Conn.	G. Carter	7,755	136	1	1	1	150
Charlotte Hungerford Hospital[1-3]	Torrington, Conn.	M. E. Giobbe	6,065	87	2	4	2	100
Wilmington General Hospital[1-3]	Wilmington, Del.	F. S. Skura	7,007	55	8	8	1	250
Eastern Dispensary and Casualty Hospital[3]	Washington, D. C.	J. R. Young	4,810	34	10	10	2	300
Halifax District Hospital[1-3]	Daytona Beach, Fla.	F. A. Sica	.....	102	..	4	2	320
St. Luke's Hospital[1-3]	Jacksonville, Fla.	E. E. Leitner	1,070	18	1	2	2	225
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	L. M. Wachtel	.....	...	2	4	2	225
Baptist Hospital	Pensacola, Fla.	W. C. Payne, Jr.	7,971	63	2	3	2	200
Sacred Heart Hospital[1-3]	Pensacola, Fla.	G. Hilbert	.....	...	4	4	1	200
Mound Park Hospital	St. Petersburg, Fla.	H. Cushman	2,749	130	1	1	2	284
Grady Memorial Hospital[1]	Atlanta, Ga.	E. B. Ferris, Jr.	.....	...	8	8	2	20
Columbus City Hospital[1-3]	Columbus, Ga.	H. Brill	10,257	96	4	4	1	250
Macon Hospital[1]	Macon, Ga.	E. C. McMillan	14,457	136	16	24	2	200
St. Joseph Hospital	Alton, Ill.	H. Halley	8,268	115	4	4	1	250
MacNeal Memorial Hospital[1-3]	Berwyn, Ill.	C. F. Hubner	2,065	25	5	5	1	225
Grant Hospital[1]	Chicago	K. S. Gustin	3,260	...	1	2	2	225
Illinois Masonic Hospital[1-2]	Chicago	J. S. Poticha	4,877	67	1	1	2	115
St. Mary of Nazareth Hospital[1-3]	Chicago	S. A. Motto	10,438	134	1	2	2	150
South Shore Hospital[1-3]	Chicago	S. H. Gambiner	6,435	49	2	2	1	250
Decatur and Macon County Hospital[1]	Decatur, Ill.	H. S. Friedman	4,097	53	2	2	1	275
Methodist Hospital of Central Illinois[3]	Peoria, Ill.	H. G. Johnson	2,371	81	3	3	1	200
Swedish-American Hospital	Rockford, Ill.	C. W. Fredberg	8,370	98	1	2	1	...
St. Francis Hospital[1]	Beech Grove, Ind.	J. R. Moriarity	9,103	76	4	4	2	500
Methodist Hospital[1-3]	Gary, Ind.	M. Shellhouse	12,522	190	2	4	2	200
St. Margaret Hospital	Hammond, Ind.	L. W. Neal	14,328	115	2	4	2	300
Methodist Hospital[1-3]	Indianapolis	J. F. Rigg	10,056	36	1	2	2	275
St. Elizabeth Hospital[1]	Lafayette, Ind.	H. B. McAdams	.....	...	2	4	2	225
Memorial Hospital[2]	South Bend, Ind.	B. A. Biasini	12,229	143	2	2	2	250
St. Luke's Methodist Hospital[1-3]	Cedar Rapids, Iowa	C. H. Stark	13,867	171	6	6	2	250
Broadlawns-Polk County Hospital[1]	Des Moines, Iowa	V. L. Schlaser	.....	...	2	2	1	200
St. Francis Hospital[1-3]	Wichita, Kan.	L. I. Wright	5,615	47	2	4	1	275
Wesley Hospital[1-3]	Wichita, Kan.	J. Tiller	4,096	19	1	1	1	175
St. Anthony Hospital[1-3]	Louisville, Ky.	J. R. Buskirk	7,106	47	1	2	2	250
Baton Rouge General Hospital[1]	Baton Rouge, La.	C. L. Harris	14,746	47	2	2	1	300
Lafayette Charity Hospital[1]	Lafayette, La.	E. Hull	12,810	202	16	16	1	325
St. Patrick's Hospital	Lake Charles, La.	W. M. Farmer	.....	...	2	4	2	250
Huey P. Long Charity Hospital	Pineville, La.	T. C. Davis	8,893	125	12	12	1	325
Bon Secours Hospital[3]	Baltimore	F. J. Geraghty	789	10	1	2	2	260
University Hospital[1-3]	Baltimore	T. E. Woodward	.....	...	2	4	2	75
Suburban Hospital[3]	Bethesda, Md.	W. T. Gibb	7,371	...	8	12	2	...
New England Hospital	Boston	R. A. Draper	3,724	56	2	4	2	75
St. Anne's Hospital[3]	Fall River, Mass.	J. C. Corrigan	4,570	28	3	3	1	200
Cooley Dickinson Hospital[1-3]	Northampton, Mass.	L. N. Durgin	6,975	56	4	4	1	150
Oakwood Hospital[1-3]	Dearborn, Mich.	R. J. Hall	7,024	50	8	8	2	275
Brent General Hospital	Detroit	S. Rosenthal	6,923	20	..	3	1	500
Lynn Hospital[1-3]	Detroit	E. W. Erickson	4,732	38	6	12	2	420
Saratoga General Hospital[3]	Detroit	R. N. Tassie	1,315	17	4	4	1	500
Hurley Hospital[1-3]	Flint, Mich.	L. G. Bateman	.....	...	2	2	1	325
McLaren General Hospital[1]	Flint, Mich.	W. W. Bruce	11,429	101	3	3	2	327
St. Joseph Hospital	Flint, Mich.	J. J. Gutow	9,153	69	8	12	2	400
Borgess Hospital[1-3]	Kalamazoo, Mich.	I. W. Brown	9,981	454	4	4	2	225
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	E. J. Dobski	.....	...	4	4	1	325
St. Luke's Hospital[1]	Saginaw, Mich.	L. J. Morgrette	7,233	87	2	2	2	300
St. Mary's Hospital	Saginaw, Mich.	T. E. Fleschner	5,439	54	1	2	2	375
Wyandotte General Hospital[1]	Wyandotte, Mich.	E. J. Knaggs	9,912	87	8	8	2	400
Fairview Hospital	Minneapolis	C. A. Nelson	406	3	3	3	1	300
Lutheran Deaconess Home and Hospital[1-3]	Minneapolis	L. A. Benesh	8,327	96	1	3	2	200
Midway Hospital[3]	St. Paul	A. E. Ritt	5,850	77	2	2	1	300
Mercy Hospital-Street Memorial[1-3]	Vicksburg, Miss.	T. H. Mitchell	5,361	32	1	2	1	225
Menorah Medical Center	Kansas City, Mo.	L. M. Shapiro	.....	...	3	3	2	300
Missouri Methodist Hospital[1]	St. Joseph, Mo.	O. W. D. Craig	3,864	63	1	1	1	225
Alexian Brothers Hospital[3]	St. Louis	C. Nester	3,300	52	4	8	1	200
De Paul Hospital[1-3]	*St. Louis*	....	.....	...	..	..	2	...
Evangelical Deaconess Hospital[1-3]	St. Louis	D. W. Eades	7,456	122	6	6	2	215
St. Anthony's Hospital[1-3]	St. Louis	G. O'Sullivan	5,927	20	3	6	2	150
Butte Community Memorial Hospital[1-3]	Butte, Mont.	G. I. Podobnikar	4,677	34	5	5	2	300
Hunterdon Medical Center[1-3]	Flemington, N. J.	E. D. Pellegrino	.....	83	2	2	2	150
Mountainside Hospital[1-3]	Montclair, N. J.	B. S. Perham	.....	177	1	1	2	175
Morristown Memorial Hospital[1-3]	Morristown, N. J.	J. S. Forbes	1,404	...	1	2	2	185
Princeton Hospital[1-3]	Princeton, N. J.	B. B. Scasserra	5,743	79	2	4	2	300
Overlook Hospital[3]	Summit, N. J.	E. T. Milliser	9,927	...	1	1	1	200
Mercy Hospital[1-3]	Buffalo	C. F. Banas	15,118	173	3	3	1	225

Numerical and other references will be found on pages 387 through 390.

8. GENERAL PRACTICE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Millard Fillmore Hospital	Buffalo	M. Cheplove	1,018	27	1	2	2	285
St. Joseph's Hospital [1-3]	Far Rockaway, N. Y.	F. Herrman	7,988	37	10	10	1	250
Kingston Hospital [3]	Kingston, N. Y.	H. L. Rakov	4,963	77	2	2	2	300
Our Lady of Victory Hospital [3]	Lackawanna, N. Y.	L. Makarewicz	6,847	55	2	2	1	175
Mercy Hospital [1-3]	Charlotte, N. C.	C. L. Nance	3,062	29	4	4	2	250
City Memorial Hospital [1]	Winston-Salem, N. C.		1,665	45	1	2	2	300
Akron City Hospital [1-3]	Akron, Ohio		22,919	299	3	4	2	250
Akron General Hospital [1-327]	Akron, Ohio		.....	...	4	4	1	250
St. Thomas Hospital [1-3]	Akron, Ohio	K. Weidenthal	2,244	18	2	4	2	250
Mercy Hospital [1-3]	Canton, Ohio	J. G. Hendershot	11,093	26	2	4	2	200
Christ Hospital [3]	Cincinnati	G. B. Hannah	.....	...	4	8	2	200
Good Samaritan Hospital [1-3]	Cincinnati	W. K. Marvin	Incl. in	Int. Med.	4	4	2	250
Mount Carmel Hospital [1]	Columbus, Ohio	J. L. Henry	2,878	123	3	3	1	275
White Cross Hospital [1-3-345]	Columbus, Ohio	L. W. Cellio	.....	...	1	1	1	275
Miami Valley Hospital [1-3]	Dayton, Ohio	D. R. Bieser	.....	...	4	4	1	250
Euclid-Glenville Hospital [1-3]	Euclid, Ohio	J. B. Price	7,540	62	6	16	2	200
Lima Memorial Hospital [1-3]	Lima, Ohio	C. H. Zinsmeister	12,475	109	4	5	1	275
St. Rita's Hospital [1-3]	Lima, Ohio	S. J. Novello	2,194	56	1	1	2	275
Mercy Hospital [1-3]	Toledo, Ohio	C. R. Forrester	1,987	56	1	2	2	275
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. A. Schnitker	.....	...	2	4	2	275
Toledo Hospital [1-3]	Toledo, Ohio	C. S. Mundy	2,207	64	1	2	2	200
Youngstown Hospital [1-3]	Youngstown, Ohio	J. L. Fisher	8,430	146	1	2	2	175
University of Oklahoma Hospitals [1-3-331]	Oklahoma City	I. H. Brown	.....	...	6	6	2	...
St. Vincent's Hospital [1-3]	Portland, Ore.	F. L. Woolcott	15,954	193	1	1	1	275
St. Luke's Hospital [1]	Bethlehem, Pa.	R. K. Shields	.....	...	1	1	1	275
Bradford Hospital [1-3]	Bradford, Pa.	C. L. Luckett	1,768	23	..	2	2	250
Chester Hospital [1-3]	Chester, Pa.		9,140	187	2	4	2	350
Geo. F. Geisinger Memorial Hospital and Foss Clinic [1-3]	Danville, Pa.	W. J. Stainsby	.....	...	1	2	2	175
Thomas M. Fitzgerald Mercy Hospital [1-3]	Darby, Pa.	D. T. Sullivan	14,677	165	1	1	1	200
St. Joseph's Hospital [1]	Lancaster, Pa.	C. H. Witmer	4,461	59	5	5	2	300
Sacred Heart Hospital [1-3-364]	Norristown, Pa.	J. J. McShea	5,581	66	4	4	1	350
St. Mary's Hospital	Philadelphia		.....	...	..	..	2	...
St. John's	Pittsburgh	D. B. Wolfe	6,529	37	1	1	1	300
Communit	Reading, Pa.	C. S. Kring	2,805	48	..	1	2	300
Sharon Ger	Sharon, Pa.	J. G. Wassil	12,226	73	4	4	2	200
Memorial Hospital [1-3]	Pawtucket, R. I.	E. J. Mara	.....	...	2	4	2	250
Greenville Ger	Greenville, S. C.	J. I. Converse	4,073	94	2	3	2	200
Spartanburg	Spartanburg, S. C.	R. Moore	3,632	73	2	2	1	200
Sacred Heart	Yankton, S. Dak.	T. H. Sattler	6,012	62	4	4	2	300
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	J. Raulston	12,435	92	1	2	2	250
Madison Sanitarium and Hospital [1-3]	Madison College, Tenn.	J. C. Gant	6,272	20	3	3	1	325
Baptist Hospital [1-3]	Nashville, Tenn.	R. K. Galloway	1,596	18	3	3	1	175
All Saints Hospital [1-3]	Fort Worth, Texas	E. Davenport	6,573	63	4	4	1	250
John Peter Smith Hospital [1-3]	Fort Worth, Texas	J. A. Hallmark	5,015	165	5	5	1	150
St. Mary's Infirmary [1]	Galveston, Texas	E. S. McLarty, Sr.	3,723	31	6	7	2	200
Nan Travis Memorial Hospital [1-3]	Jacksonville, Texas	J. M. Travis	5,378	60	1	2	2	250
Baptist Memorial Hospital [1-3]	San Antonio, Texas	A. E. Rath	8,931	132	1	2	2	150
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	W. W. Bondurant	8,849	121	1	2	1	150
Santa Rosa Hospital	San Antonio, Texas	C. L. McGehee	.....	...	1	2	2	250
Kings Daughters Hospital [1-3]	Temple, Texas	S. W. Shibler	2,776	27	1	2	2	300
Wichita General Hospital [1-3]	Wichita Falls, Texas	W. L. Rector	9,071	70	3	3	1	300
St. Benedict's Hospital	Ogden, Utah		.....	...	..	..	1	...
Thomas D. Dee "	Ogden, Utah	R. Johnston	.....	...	2	4	2	275
University of Ve De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	A. B. Lawrence	.....	...	1	2	2	...
Riverside Hospital [1-3]	Newport News, Va.	S. H. Mirmelstein	.....	...	4	4	1	250
De Paul Hospital [1-3]	Norfolk, Va.	I. Hancock	.....	...	1	2	2	200
Norfolk General Hospital [1-3]	Norfolk, Va.	J. G. Price	.....	...	4	4	1	185
Retreat for the Sick [1-3]	Richmond, Va.	F. E. Oglesby	331	4	2	3	2	200
Louise Obici Memorial Hospital [1-3]	Suffolk, Va.	C. Steel	4,647	63	1	3	1	300
Providence Hospital [1-3]	Seattle	J. J. Minkove	14,027	214	4	4	2	200
Sacred Heart Hospital	Spokane, Wash.	R. M. O'Brien	24,768	221	4	4	1	250
Bluefield Sanitarium	Bluefield, W. Va.	J. R. Shanklin	2,200	27	4	4	1	300
Charleston General Hospital [1-3]	Charleston, W. Va.	M. Barber	Incl. in	Int. Med.	2	2	1	225
Memorial Hospital [1-3]	Charleston, W. Va.	J. W. Hash	.....	...	1	1	1	225
Camden Clark Memorial Hospital [3]	Parkersburg, W. Va.		5,844	52	1	2	2	200
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	S. S. Bobes	2,595	21	2	4	2	300
Luther Hospital [1-3]	Eau Claire, Wis.	R. R. Richards	8,304	111	1	1	1	300
Evangelical Deaconess Hospital [1-3]	Milwaukee	M. A. Jochimsen	3,967	34	3	3	2	250
Milwaukee Hospital [1-3]	Milwaukee	E. R. Daniels	.....	...	1	1	1	195
St. Luke's Hospital	Milwaukee	W. Krygier	7,663	69	2	2	2	275
St. Michael Hospital [1-3]	Milwaukee	A. Verdone	.....	...	3	6	2	275

9. INTERNAL MEDICINE

Residency programs in the following hospitals have been approved by the Council, the American Board of Internal Medicine, and the American College of Physicians through the Residency Review Committee for Internal Medicine as offering acceptable training in the specialty under any of the several programs leading to eligibility for examination by the American Board of Internal Medicine.

Hospitals, 613; Assistant Residencies and Residencies, 5055

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Year)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	P. S. Fancher	1,331	50	5	15	3	...
Fitzsimons Army Hospital [1]	Denver	G. M. Powell	2,224	43	2	6	3	...
Army Medical Center [1-3]	Washington, D. C.	F. W. Pruitt	1,038	10	6	18	3	...
Valley Forge Army Hospital [1]	Phoenixville, Pa.	M. C. Davenport	2,701	36	2	6	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	D. J. Sheehan	3,524	87	7	21	3	...
Madigan Army Hospital	Tacoma, Wash.	W. S. George	881	9	2	2	1	...
Tripler Army Hospital [1]	Honolulu, T. H.	W. C. Berry	6,778	105	5	15	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Oakland, Calif.	R. O. Canada, Jr.	2,427	48	2	6	3	...

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
U. S. Naval Hospital [1]	San Diego, Calif.	A. L. Lawler	1,961	40	3	8	3	...
U. S. Naval Hospital [1-3]	Great Lakes, Ill.	V. G. Colvin	3,721	19	1	1	2	...
U. S. Naval Hospital	Bethesda, Md.	R. C. Parker, Jr.	2,608	5	2	4	3	...
U. S. Naval Hospital [1-3]	Chelsea, Mass.	J. B. MacGregor	1,042	15	1	2	3	...
U. S. Naval Hospital	St. Albans, N. Y.	L. E. Bach	1,323	33	2	4	3	...
U. S. Naval Hospital [1-3]	Philadelphia	L. J. Pope	2,404	46	1	3	3	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	G. G. Burkley	3,760	...	4	6	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	San Francisco	A. A. Doerner	.....	38	1	3	3	...
U. S. Public Health Service Hospital [1-3]	New Orleans	R. H. Linn	2,301	39	1	3	3	...
U. S. Public Health Service Hospital [1-3-157]	Baltimore	G. F. Ellinger	1,611	29	2	6	3	...
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	L. Terry	267	28	..	8	1	...
U. S. Public Health Service Hospital [1-3-187]	Boston	W. H. Stimson	2,531	17	1	3	3	...
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	C. G. Spicknall	2,101	53	3	9	3	...
U. S. Public Health Service Hospital [1]	Seattle	J. G. Telfer	1,570	43	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	J. B. Johnson	923	73	4	9	..	218
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	(See University of Alabama Medical Center)						
Veterans Admin. Hospital [1-3]	Tuskegee, Ala.	E. T. Odom	1,995	59	6	12	3	...
Veterans Admin. Hospital [1-3]	Little Rock, Ark.	H. R. Hipp	3,154	100	2	4	3	...
Veterans Admin. Hospital [1-3-23]	Long Beach, Calif.	D. W. Leik	2,684	166	9	27	3	...
Veterans Admin. Hospital [1-3-24]	Los Angeles	L. Fred	4,699	407	20	54	3	...
Veterans Admin. Hospital [1]	San Francisco	F. M. Willett	1,342	127	14	23	2	...
Veterans Admin. Hospital [1-3-55]	Denver	T. P. Sears	2,881	115	6	20	3	...
Veterans Admin. Hospital-Newington Division [1-3-72]	West Haven, Conn.	P. Lipton	1,053	65	4	5	3	...
Veterans Admin. Hospital-West Haven Division [1-3]	West Haven, Conn.	J. W. Hollingsworth	1,642	79	4	9	3	...
Veterans Admin. Hospital [1-3-83]	Washington, D. C.	E. D. Freis	1,647	148	6	13	3	...
Veterans Admin. Hospital [1-90]	Coral Gables, Fla.	J. M. Rumball	2,669	206	8	18	3	...
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	B. R. Gendel	1,752	102	4	6	3	...
Veterans Admin. Hospital [1-3-91]	Augusta, Ga.	J. G. Bohorfoush	1,496	36	3	9	3	...
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. West Side Hospital [1-3-117]	Chicago	H. J. Zimmerman	1,852	139	6	18	2	...
Veterans Admin. Hospital [1-120]	Hines, Ill.	L. A. Baker	4,103	121	7	27	3	...
Veterans Admin. Hospital [1]	Indianapolis	W. A. Christian	1,966	141	2	6	3	...
Veterans Admin. Hospital [1]	Des Moines, Iowa	J. C. Parsons	2,799	86	6	13	1	...
Veterans Admin. Hospital [1-3]	Iowa City	W. M. Kirkendall	2,217	94	4	11	3	...
Veterans Admin. Hospital [1-3]	Topeka, Kan.	R. Chess	1,371	41	4	4	1	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	A. Jackson	1,369	192	2	4	3	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. R. Gott, Jr.	1,786	83	3	9	3	...
Veterans Admin. Hospital [1-3-142]	New Orleans	C. A. Jones	1,703	115	5	14	3	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	F. G. Dickey	1,932	117	3	6	3	...
terans Admin. Hospital [1-3]	Perry Point, Md.	S. Goldgraben	1,263	18	1	4	3	...
rans Admin. Hospital [1-3]	Boston (Jamaica Plain)	M. B. Strauss	5,368	233	4	29	3	...
ans Admin. Hospital [1-3-103-104-106]	Dearborn, Mich	M. R. Weed	4,373	198	7	19	3	...
ans Admin. Hospital [1-3-207]	Minneapolis	E. B. Flink	2,328	175	12	35	3	...
rans Admin. Hospital [1-219]	Kansas City, Mo.	(See University of Kansas Medical Center)						
erans Admin. Hospital [1-3-230]	St. Louis	R. J. Bing-R. E. Mack	1,565	128	6	12	3	...
etreans Admin. Hospital [1-3]	Lincoln, Neb.	J. R. Gordon	1,299	46	1	3	3	...
Veterans Admin. Hospital [1-3]	Omaha	J. R. Walsh	1,684	57	4	12	3	...
Veterans Admin. Hospital [1-3]	East Orange, N. J.	H. A. Weiner	1,584	124	4	8	3	...
Veterans Admin. Hospital [1-3]	Albuquerque, N. M.	W. S. Taylor	823	78	5	10	3	...
Veterans Admin. Hospital [1-3-247]	Albany, N. Y.	W. P. Nelson, III	2,807	171	4	10	3	...
Veterans Admin. Hospital [1-3]	Bath, N. Y.	H. W. Baum	652	34	1	3	2	...
Veterans Admin. Hospital [1-3-253]	Brooklyn, N. Y.	P. W. Spear	3,066	223	10	35	3	...
Veterans Admin. Hospital [1-3-259]	Buffalo	G. W. Bissell	2,853	131	4	12	3	...
Veterans Admin. Hospital [1-3-303]	New York City (Bronx)	J. Wolf	5,170	264	11	37	3	...
Veterans Admin. Hospital [1-3-299]	New York City (Manhattan)	J. J. Smith	1,349	56	10	31	3	...
Veterans Admin. Hospital	Syracuse, N. Y.	(See State University of New York Upstate Medical Center)						
Veterans Admin. Hospital [1-3]	Durham, N. C.	(See Duke University Affiliated Hospitals)						
Veterans Admin. Hospital [1-3-341-342]	Cleveland	N. P. Shumway	2,772	172	8	21	2	...
Veterans Admin. Hospital	Dayton, Ohio	S. Simerman	2,585	216	11	29	3	...
Veterans Admin. Hospital [1]	Oklahoma City	J. F. Hammarsten	1,930	97	5	11	3	...
Veterans Admin. Hospital [1-3-363]	Portland, Ore.	Z. T. Wirtschatter	2,516	123	6	18	3	...
Veterans Admin. Hospital [1-3-373]	Philadelphia	H. P. Close	3,519	216	5	19	3	...
Veterans Admin. Hospital [1]	Pittsburgh	A. S. Glushiem	2,328	169	6	18	3	...
Veterans Admin. Hospital [1-3]	Providence, R. I.	H. A. Lawson	1,745	68	1	4	2	...
Veterans Admin. Hospital [3-384]	Columbia, S. C.	S. L. Zimmerman	2,947	117	2	4	3	...
Veterans Admin. Hospital [1-3-389]	Memphis, Tenn.	F. S. Dietrich	4,493	119	5	18	3	...
Veterans Admin. Hospital [1-394]	Nashville, Tenn.	R. France	2,102	74	2	5	3	...
Veterans Admin. Hospital [1-3-398]	Dallas, Texas	C. W. Sensenbach	1,012	64	..	3	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	McKinney, Texas	G. A. Edwards	2,821	73	4	4	3	...
Veterans Admin. Hospital [409]	Salt Lake City	H. Brown	1,211	63	4	10	3	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	(See Dartmouth Medical School Affiliated Hospitals)						
Veterans Admin. Hospital [1-3-420]	Richmond, Va.	W. T. Thompson, Jr.	5,886	123	9	27	3	...
Veterans Admin. Hospital [1-3]	Seattle	R. S. Evans	1,228	115	6	14	2	...
Veterans Admin. Hospital [1-3-437-441-455]	Milwaukee (Wood)	M. Garry	4,719	246	7	22	3	...
Veterans Admin. Hospital [1-3]	San Juan, P. R.	R. Rodriquez Molina	1,153	25	2	5	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	E. D. Lineberry-O. McCarn	2,490	28	1	3	3	250
University of Alabama Medical Center								
University Hospital and Hillman Clinic [1-3-11]	Birmingham, Ala.	T. Harrison	3,381	143	8	18	3	108
Veterans Admin. Hospital [1-3-14]	Birmingham, Ala.	B. Friedman	659	35	3	11	3	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	C. E. Porter	2,859	47	2	6	3	225
Mobile County Hospital [1-3]	Mobile, Ala.	G. O. Segrest	1,360	94	1	1	1	250
Maricopa County General Hospital	Phoenix, Ariz.	M. Green	1,155	53	1	3	3	300
St. Joseph's Hospital	Phoenix, Ariz.	H. Caldwell	3,672	54	1	3	3	200
St. Mary's Hospital and Sanitorium [1-3]	Tucson, Ariz.	L. J. Kent	4,532	70	3	3	1	200
Tucson Medical Center [1-3]	Tucson, Ariz.	M. A. Carreras	944	20	2	2	1	200
University Hospital [1]	Little Rock, Ark.	R. V. Ebert	951	75	3	7	3	145
General Hospital of Riverside County [1]	Arlington, Calif.	....	1,549	118	1	1	1	496
Kern General Hospital [1]	Bakersfield, Calif.	H. Einstein	2,714	...	3	7	3	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	H. I. Harvey	2,491	87	1	3	3	175
City of Hope Medical Center [1]	Duarte, Calif.	H. R. Bierman	1,283	175	1	1	1	300

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
San Joaquin General Hospital	French Camp, Calif.	G. K. Wever	1,445	159	3	6	3	260
General Hospital of Fresno County [1-3]	Fresno, Calif.	O. Steinbach	798	102	2	6	2	300
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	D. L. John	4,381	119	2	4	3	165
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	E. M. Duvall	3,440	57	1	3	1	150
California Hospital [1-3]	Los Angeles	W. F. Wessels	3,262	124	3	5	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	M. Prinzmetal-J. Reynolds	4,951	185	3	8	3	175
Hospital of the Good Samaritan [1-3]	Los Angeles	C. L. Davison	3,983	71	2	6	3	200
Los Angeles County Hospital [1]	Los Angeles	W. D. Evans	23,792	806	16	32	3	246
~~Presbyterian Hospital-Olmsted Memorial [1-3]~~	~~Los Angeles~~	~~J. McDonald~~	1,317	22	3	3	1	200
Queen of Angels Hospital [1-3]	Los Angeles	K. A. Smith	3,629	138	1	4	2	175
St. Vincent's Hospital [3]	Los Angeles	E. W. Boland	1,451	31	1	1	1	200
University of California Medical Center [1-3]	Los Angeles	J. S. Lawrence	.....	...	6	10	3	259
White Memorial Hospital [1-3]	Los Angeles	D. E. Griggs	1,203	63	1	3	3	151
Highland-Alameda County Hospital [1-3-41]	Oakland, Calif.	T. C. McCleave, Jr.	5,605	171	4	11	3	195
Kaiser Foundation Hospital [1-3]	*Oakland, Calif.*	*P. J. Raimondi*	1,851	90	6	9	3	245
Collis P. and Howard Huntington Memorial Hospital [1-3]	Pasadena, Calif.	D. T. *Proctor*	*2,502*	*154*	*1*	3	3	240
San Bernardino County Charity Hospital	San Bernardino, Calif.	W. L. Cover	1,510	162	4	4	1	190
Mercy Hospital [1]	San Diego, Calif.	E. M. Fetter	4,234	133	1	4	3	200
San Diego County General Hospital [1-3]	San Diego, Calif.	H. M. Messenger	2,471	184	4	7	3	150
Franklin Hospital [1-3]	*San Francisco*	C. D. Mote	1,840	45	3	3	1	200
French Hospital [1-7]	San Francisco	D. L. Wilbur	3,720	66	1	3	2	150
Mary's Help Hospital	San Francisco	F. Rochex	1,300	40	1	2	1	200
Mount Zion Hospital [1-3]	San Francisco	J. J. Sampson	1,873	46	3	6	3	150
St. Joseph's Hospital [1-3]	San Francisco	M. E. Leonard	2,182	42	1	1	1	200
St. *Luke's Hospital* [1-3]	San Francisco	E. L. Bruck	2,788	95	2	5	3	200
St. Mary's *Hospital* [1-3]	San Francisco	J. J. McGinnis	1,896	66	2	5	3	...
San Francisco Hospital								
Stanford University Service [1-3]	San Francisco	J. K. Lewis	1,675	123	3	7	3	195
University of California Service [1-3]	*San Francisco*	*H. D. Brainerd*	1,648	120	6	8	3	195
Southern Pacific General Hospital [1-3]	San Francisco	R. E. Allen	3,705	117	2	5	3	175
Stanford University Hospitals [1-3]	San Francisco	D. A. Rytand	2,634	53	6	13	3	80
University of California Hospital [1-3]	San Francisco	T. L. Althausen	1,525	58	7	18	3	200
Santa Clara County Hospital [1]	San Jose, Calif.	J. M. Stone	1,245	179	4	4	3	200
Community Hospital of San Mateo County	San Mateo, Calif.	W. F. Knorp	781	92	1	2	2	500
Santa Barbara Cottage Hospital [1-3]	Santa Barbara, Calif.	R. I. Cord	1,994	63	3	7	3	200
Harbor General Hospital [1-3-2-62]	Torrance, Calif.	W. P. Martin-F. Kellogg	3,823	318	8	24	3	246
Mercy Hospital [1-3]	Denver	L. W. Robinson	3,016	76	2	4	2	250
Presbyterian Hospital [1-3]	Denver	H. A. Bradford	1,546	65	1	2	2	225
St. Anthony Hospital [1-3]	Denver	F. R. Calhoun	*2,640*	82	*1*	*3*	*3*	*175*
St. Joseph's Hospital [1-3]	Denver	E. B. Badger	2,769	38	2	5	3	200
St. Luke's Hospital [1-3]	Denver	M. Nims	5,194	163	1	1	1	225
University of Colorado Medical Center [463]								
Colorado General Hospital [1-3]	Denver	G. Meiklejohn	1,216	130	9	25	3	160
Denver General Hospital [1-3]	Denver	G. Meiklejohn	2,246	221	..	..	3	157
Colorado State Hospital [1-3-59]	*Pueblo, Colo.*	G. R. Curless	1,764	139	4	9	1	415
Bridgeport Hospital [1-3]	Bridgeport, Conn.	D. Hardenbergh	2,780	101	2	4	2	275
St. Vincent's Hospital [1-3]	*Bridgeport*, Conn.	V. Lynch	3,292	133	1	3	3	300
Greenwich Hospital [1-3]	Greenwich, Conn.	J. Lockwood	2,103	79	1	2	2	150
Hartford Hospital [1-3-62]	Hartford, Conn.	M. O. Phelps	4,937	225	11	18	3	100
Hartford Municipal Hospital and Health Center [1-3]	Hartford, Conn.	W. F. Smith	988	78	1	2	2	250
St. Francis Hospital [1-3-67]	Hartford, Conn.	F. L. *De Pasquale*	4,139	137	2	4	3	125
New Britain General Hospital [1-3]	New Britain, Conn.	J. C. White	2,578	147	1	3	3	200
Grace-New Haven Community Hospital [1-3-75]	New Haven, Conn.	P. B. Beeson-T. S. Evans	3,897	226	7	14	3	50
Hospital of St. Raphael [3-70]	New Haven, Conn.	T. S. Evans	2,098	119	3	7	3	125
Lawrence and Memorial Associated Hospitals [1-3]	*New London, Conn.*	A. Labensky	2,778	62	3	3	1	250
Norwalk Hospital [1-3]	Norwalk, Conn.	D. L. Ellrich	2,553	93	2	2	1	160
St. Mary's Hospital [1-3]	Waterbury, Conn.	W Finkelstein	3,518	75	2	4	3	225
Waterbury Hospital [1]	Waterbury, Conn.	J. A. Smith	3,388	117	1	3	3	225
Delaware Hospital [1-3]	Wilmington, Del.	L. B. Flinn	2,250	162	2	5	3	180
Memorial Hospital [1-3]	Wilmington, Del.	L. P. Lang	1,770	105	1	3	3	185
Wilmington General Hospital [1-3]	Wilmington, Del.	J. R. Durham, Jr.	1,583	40	2	2	1	250
Central Dispensary and Emergency Hospital [1-3-462]	Washington, D. C.	T. J. Abernethy	1,971	84	2	5	3	225
District of Columbia General Hospital [1-3]	Washington, D. C.	H. H. Hussey-M. J. Romansky	4,779	283	16	18	3	153
Doctors Hospital [1-3]	Washington, D. C.	F. A. J. Geier	2,016	93	2	2	1	150
Garfield Memorial Hospital [1-3-462]	Washington, D. C.	W. L. Dunn	2,358	119	1	4	3	210
Georgetown University Hospital	Washington, D. C.	H. Jeghers	2,942	142	9	29	3	100
George Washington University Hospital [1-3]	Washington, D. C.	T. McP. *Brown*	4,713	84	1	8	3	150
Providence Hospital [1-3]	Washington, D. C.	M. McInerney	1,511	53	2	6	3	300
Duval Medical Center [1-3]	Jacksonville, Fla.	K. B. Hanson	1,783	85	2	5	3	150
Riverside Hospital [1-3]	Jacksonville, Fla.	D. White	886	7	1	1	1	150
St. *Luke's Hospital* [1-3]	Jacksonville, Fla.	J. L. Borland	1,899	30	1	1	1	225
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	L. E. Geeslin	2,275	50	2	4	3	225
Jackson Memorial Hospital [1-3]	Miami, Fla.	R. Jones, Jr.	4,289	220	8	24	3	75
Mount Sinai Hospital of Greater Miami [1-3]	Miami Beach, Fla.	D. A. Nathan	3,731	129	3	6	3	250
St. Francis Hospital [1-3]	Miami Beach, Fla.	F. A. Reed	2,763	49	2	2	1	200
Orange Memorial Hospital [1-3]	Orlando, Fla.	F. Mathers	2,020	76	2	2	1	150
Mound Park Hospital [1-3]	*St. Petersburg*, Fla.	C. Voyles	1,658	102	1	1	1	264
Tampa Municipal Hospital [1-3]	Tampa, Fla.	H. P. Hampton	1,919	108	1	3	3	250
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	L. H. Bishop, Jr.	3,502	70	4	7	3	110
Georgia Baptist *Hospital* [1]	Atlanta, Ga.	H. M. Davison	3,806	131	2	5	3	290
Grady Memorial Hospital [1]	Atlanta, Ga.	E. B. Ferris, Jr.	2,472	298	9	15	3	20
Piedmont Hospital [1]	Atlanta, Ga.	C. Smith	1,199	12	1	3	1	225
St. Joseph's Infirmary	Atlanta, Ga.	T. T. Blalock	3,086	62	2	3	2	270
University *Hospital* [1]	Augusta, Ga.	J. D. Gray	2,261	87	11	32	3	200
Emory University Hospital	Emory University, Ga.	E. *Ferris*	4,918	192	6	17	3	190
Augustana *Hospital* [1-3]	Chicago	C. A. Hedberg	4,200	140	1	3	1	150
Columbus Hospital [3]	Chicago	E. F. *Foley*	3,264	78	2	6	2	100
Cook County *Hospital* [1-3]	Chicago	E. F. Foley	17,493	890	12	36	3	75
Grant Hospital [1]	Chicago	A. Van der Kloot	1,868	86	1	3	2	225
Illinois Central Hospital [1-3]	Chicago	L. H. Sloan	2,479	64	2	2	2	205
Illinois Masonic Hospital [1-3]	Chicago	L. L. Braun	4,359	145	1	1	2	115
Mercy Hospital [1-3-69]	Chicago	G. F. O'Brien	2,191	48	4	9	3	100
Michael Reese Hospital [1-3]	Chicago	R. Levine	3,140	107	5	15	3	75
Mount Sinai Hospital [1-3-444]	Chicago	E. B. Freilich	3,252	121	2	5	3	100
Northwestern University Medical Center [102]								
Chicago Wesley Memorial Hospital [1-3]	Chicago	P. S Rhoads	5,292	139	3	7	3	75
Passavant Memorial		A. R. Colwell	2,439	69	2	4	3	50
Veterans Admin. Rese	ago	C. Borden	1,486	79	12	24	3	...
Evanston Hospital [1-3]	. Ill.	L. D. Snorf	3,439	180	2	6	3	225
Norwegian American Hospital [1]	Chicago	M. Gethner	858	25	2	[illegible]		225

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE–Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Presbyterian Hospital [1-108]	Chicago	J. A. Campbell	4,129	127	4	12	3	125
Provident Hospital [1-3]	Chicago	A. F. Connor	1,061	32	1	3	2	200
Ravenswood Hospital [1-3]	Chicago	M. Zeller	2,507	107	2	2	1	100
St. Joseph Hospital [1-3]	Chicago	D. L. Kessler	1,389	54	1	3	1	300
St. Luke's Hospital [1-3]	Chicago	H. Wakefield	4,011	109	4	12	3	75
St. Mary of Nazareth Hospital [1-3]	Chicago	S. A. Motto	2,975	86	2	2	1	150
University of Chicago Clinics [1-3]	Chicago	W. Adams	3,489	135	8	24	3	200
University of Illinois Research and Educational Hospitals [1-3-112]	Chicago	H. F. Dowling	1,343	84	8	20	3	125
St. Francis Hospital [1]	Evanston, Ill.	R. M. Jones	2,833	149	2	4	1	175
Little Company of Mary Hospital [1-3]	Evergreen Park, Ill.	W. J. Hagstrom	4,351	67	4	4	1	175
St. Francis Hospital [1-3]	Peoria, Ill.	R. B. Rutherford	4,527	137	1	3	3	225
Clinic Hospital [3]	Bluffton, Ind.	A. C. Nickel	2,934	38	1	3	3	300
Indianapolis General Hospital [1-3]	Indianapolis	P. J. Fouts	1,473	121	5	16	3	205
Indiana University Medical Center [1-125]	Indianapolis	J. O. Ritchey	2,277	72	3	9	3	165
Methodist Hospital [1-3]	Indianapolis	E. P. Tischer	3,106	78	1	3	3	278
St. Vincent's Hospital [1-3]	Indianapolis	R. M. Vandivier	1,969	77	1	4	3	275
St. Elizabeth Hospital [1]	Lafayette, Ind.	B. Z. Klatch	1,689	48	2	2	1	225
Iowa Methodist Hospital [1-3]	Des Moines, Iowa	A. L. Jenks	2,850	95	1	3	3	175
State University of Iowa Hospitals [1-3]	Iowa City	W. B. Bean	3,025	147	8	23	3	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	E. G. Dimond	2,280	110	8	24	3	125
Veterans Admin. Hospital	Kansas City, Mo.	W. E. Larson	640	16	4	12	1	...
St. Francis Hospital [1-3]	Wichita, Kan.	B. Matassarin	4,265	84	3	3	1	275
Wesley Hospital [1-3]	Wichita, Kan.	T. J. Luellen	3,125	42	1	3	1	175
Good Samaritan Hospital [3]	Lexington, Ky.	J. Scott	1,990	57	1	1	1	225
St. Joseph Hospital	Lexington, Ky.	J. W. Scott	1,774	54	1	2	1	230
Louisville General Hospital [1-3]	Louisville, Ky.	B. T. Towery	1,564	137	8	17	3	131
St. Joseph Infirmary [1-3]	Louisville, Ky.	R. Denham	3,768	77	1	3	1	210
Charity Hospital of Louisiana								
Independent Unit [1]	New Orleans	J. O. Weilbaecher, Jr.	1,259	110	3	9	3	100
Louisiana State University Unit [1]	New Orleans	W. R. Akenhead	2,927	228	6	18	3	100
Tulane University Unit [1-145-149]	New Orleans	G. E. Burch	3,485	208	6	18	3	100
Ochsner Foundation Hospital [1]	New Orleans	W. A. Arrowsmith	2,935	50	4	12	3	225
Southern Baptist Hospital [1-3]	New Orleans	M. E. St. Martin	6,493	81	1	3	1	225
Touro Infirmary [1]	New Orleans	S. Jacobs	3,497	118	2	6	3	125
Confederate Memorial Medical Center [1]	Shreveport, La.	M. D. Hargrove	5,555	122	3	9	3	125
Central Maine General Hospital [1]	Lewiston, Maine	M. A. Chapin	1,623	68	1	1	1	225
Maine General Hospital [1]	Portland, Maine	R. S. Hawkes	2,123	81	2	6	3	100
Baltimore City Hospitals [1-3]	Baltimore	G. S. Mirick	2,330	175	4	9	3	50
Church Home and Hospital [1-3]	Baltimore	Z. R. Morgan	1,211	43	2	6	3	200
Franklin Square Hospital [1-3]	Baltimore	L. M. Serra	969	24	3	5	2	225
Johns Hopkins Hospital [1-3]	Baltimore	A. M. Harvey	4,721	284	16	18	3	25
Lutheran Hospital [1-3]	Baltimore	L. A. M. Krause	1,712	...	4	8	3	220
Maryland General Hospital [1-3]	Baltimore	E. F. Cotter	1,398	52	2	3	1	225
Mercy Hospital [1-3]	Baltimore	H. R. Peters	1 791	99	2	5	3	275
Provident Hospital and Free Dispensary [1-3]	Baltimore	L. Martin	912	51	1	2	1	150
St. Agnes Hospital [1]	Baltimore	L. P. Gundry	2,419	66	2	4	1	125
Sinai Hospital [1-3-156]	Baltimore	A. I. Mendeloff	1,937	76	3	9	3	110
South Baltimore General Hospital [1-3]	Baltimore	L. P. Gundry	1,454	48	2	4	1	180
Union Memorial Hospital [1-3]	Baltimore	W. Fort	2,238	110	4	6	3	215
University Hospital [1-3-158]	Baltimore	T. E. Woodward	3,221	167	7	15	3	75
Prince George's General Hospital [1-3]	Cheverly, Md.	W. B. Moyers	2,976	56	2	2	1	200
Beverly Hospital	Beverly, Mass	A. E. Parkhurst	2,027	83	..	1	1	100
Beth Israel Hospital [1-3]	Boston	H. L. Blumgart	2,945	140	6	14	3	42
Boston City Hospital	Boston		.....	...	24	48	3	112
I and III Medical Service [1-3]		F. Biguria	3,689	267	..	..	..	...
II and IV Medical Service [1-3]		W. B. Castle	3,851	262	..	..	..	...
V and VI Medical Service [1-3]		K. Katz	3,540	169	..	..	..	...
Carney Hospital [1-3-108]	Boston	N. A. Welch	4,284	61	4	5	3	150
Faulkner Hospital [1-3]	Boston	J. R. Graham	1,133	...	2	3	1	150
Lahey Clinic [1-3-174]	Boston	L. M. Hurxthal	1,446	44	10	30	3	200
Lemuel Shattuck Hospital	Boston	T. C. Chalmers	736	17	12	12	1	250
Massachusetts General Hospital [1-3-171]	Boston	W. Bauer	7,262	...	12	16	3	67
Massachusetts Memorial Hospitals [1-3]	Boston	C. Keefer	1,837	72	2	16	3	100
New England Center Hospital [1-3]	Boston	S. Proger	3,838	36	5	41	3	100
New England Deaconess Hospital	Boston	H. F. Root	4,191	82	8	9	1	175
Peter Bent Brigham Hospital [1-3-183]	Boston	G. W. Thorn	3,012	206	12	19	3	25
Veterans Admin. Hospital	West Roxbury, Mass.		....	...	..	..	..	...
St. Elizabeth's Hospital [1-3]	Boston	S. McGinn	2,433	125	2	3	3	125
Cambridge City Hospital [1]	Cambridge, Mass.	E. E. Hinton	1,140	93	1	3	2	125
Mount Auburn Hospital [1-3]	Cambridge, Mass.	D. Hurwitz	1,640	90	1	3	2	125
Lawrence F. Quigley Memorial Hospital [1-3]	Chelsea, Mass.	W. R. Ohler	696	34	4	4	1	255
Truesdale Hospital [1-3]	Fall River, Mass.	W. Mason	1,422	...	2	2	1	150
Lynn Hospital [1-3]	Lynn, Mass.	C. A. Palladino	2,356	47	1	1	2	150
Malden Hospital [1-3]	Malden, Mass.	D. Merrill	1,963	61	2	3	1	175
Newton-Wellesley Hospital [1-3]	Newton, Mass.	A. W. Locke	3,411	85	2	2	1	170
Quincy City Hospital [1-3]	Quincy, Mass.	D. M. Swan	1,185	44	..	1	1	163
Salem Hospital [1-3]	Salem, Mass.	S. N. Gardner	1,536	46	1	1	1	125
Springfield Hospital [1-3]	Springfield, Mass.	H. P. Kennedy	2,842	151	3	6	3	150
Pondville Hospital [1]	Walpole, Mass.	D. Merrill	....	...	..	1	1	490
Memorial Hospital [1-3]	Worcester, Mass.	R. W. Robinson	2,685	90	3	3	1	200
St. Vincent Hospital [1-3]	Worcester, Mass.	J. T. Brosnan	4,535	99	5	9	3	175
Worcester City Hospital [3]	Worcester, Mass.	G. Ballantyne	2,198	113	2	4	3	215
St. Joseph Mercy Hospital [1-3]	Ann Arbor, Mich.	M. Marshall	2,394	84	4	7	3	250
University Hospital [1-3]	Ann Arbor, Mich.	C. C. Sturgis	7,448	179	21	55	3	154
Alexander Blain Hospital	Detroit	J. W. Kingsley	1,839	25	1	3	2	250
Detroit Memorial Hospital [1]	Detroit	J. L. Cahalan	4,078	88	2	4	3	275
Evangelical Deaconess Hospital [1-3]	Detroit	L. D. Stern	1,682	55	2	4	3	300
Grace Hospital [1-3]	Detroit	D. Myers	4,994	132	4	12	3	275
Harper Hospital [1-3]	Detroit	R. J. Schneck	3,076	119	4	12	3	225
Henry Ford Hospital [1-3]	Detroit	J. G. Mateer	8,862	228	22	55	3	225
Jennings Memorial Hospital [1-3]	Detroit	D. Donald	459	3	3	3	1	350
Mount Carmel Mercy Hospital [1-3]	Detroit	H. L. Smith	4,964	176	4	8	3	225
Providence Hospital [1]	Detroit	N. E. Clarke	3,185	126	1	3	3	275
Receiving Hospital [1-3-200]	Detroit	G. B. Myers	1,925	408	11	30	3	250
St. John Hospital	Detroit	J. Murphy	1,101	14	1	3	2	275
St. Joseph Mercy Hospital	Detroit	E. D. Maire	1,815	70	1	2	3	275
Sinai Hospital [1-3]	Detroit	J. E. Berk	2,774	94	3	7	3	275
Woman's Hospital [1-3]	Detroit	B. I. Johnstone	1,235	58	1	2	3	275
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	S. D. Jacobson	3,434	234	5	17	3	306
Hurley Hospital [1-3]	Flint, Mich.	G. E. Drewyer	5,245	167	2	6	3	325

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
McLaren General Hospital [1]	Flint, Mich.	H. V. Sparks	2,423	68	1	3	2	325
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	C. B. Beeman	2,214	103	1	3	3	250
Butterworth Hospital [1-3]	Grand Rapids, Mich.	J. R. Venema	2,208	122	3	9	3	225
Bon Secours Hospital	Grosse Pointe, Mich.	L. C. Heavner	1,251	33	2	4	2	300
Highland Park General Hospital [1]	Highland Park, Mich.	L. Jaffe	1,676	66	1	3	3	325
Bronson Methodist Hospital [1]	Kalamazoo, Mich.	H. E. DePree	1,904	67	1	3	3	200
Edward W. Sparrow Hospital [1-3]	Lansing, Mich.	W. D. Hayford	7,241	87	1	3	1	400
St. Lawrence Hospital [1-3]	Lansing, Mich.	G. A. Sherman-J. Cordes	2,733	105	1	3	3	350
Pontiac General Hospital [1-3]	Pontiac, Mich.	C. R. Gatley	2,743	73	1	3	2	300
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	S. Miller	3,341	78	1	3	3	325
Saginaw General Hospital [1-3]	Saginaw, Mich.	B. M. Bullington	1,708	62	1	3	3	325
St. Mary's Hospital [1]	Duluth, Minn.	W. D. Coventry	2,096	126	1	1	1	175
Asbury Methodist Hospital [1-3]	Minneapolis	K. D. A. Andresen	2,174	78	1	1	1	250
Minneapolis General Hospital [1-3]	Minneapolis	T. Lowry	1,315	115	4	10	3	185
Mount Sinai Hospital [1-3]	Minneapolis	D. Fingerman	2,395	72	1	1	1	200
Northwestern Hospital [1-3]	Minneapolis	M. C. L. Hanson	2,607	60	2	2	1	200
St. Barnabas Hospital [1-3]	Minneapolis	R. J. Fray	2,899	116	1	1	1	235
University of Minnesota Hospitals [1-3-212]	Minneapolis	C. J. Watson	1,940	133	4	15	3	185
Mayo Foundation [1]	Rochester, Minn.	....	23,142	218	50	164	3	150
Ancker Hospital [1-3]	St. Paul	J. F. Borg	1,429	136	2	6	3	185
Charles T. Miller Hospital [1-3]	St. Paul	B. Sommers	2,953	66	1	3	3	185
University Hospital	Jackson, Miss.	J. R. Snavely	313	22	3	6	3	250
St. Louis County Hospital [1-3]	Clayton, Mo.	R. O. Muether	1,014	95	2	5	3	225
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	P. L. Byers	1,238	104	4	12	3	170
Menorah Medical Center [1-3]	Kansas City, Mo.	J. W. Wolf	4,136	82	3	7	3	300
St. Joseph Hospital [1-3]	Kansas City, Mo.	M. P. Hunter	3,289	95	1	4	1	250
St. Luke's Hospital [1-3]	Kansas City, Mo.	M. G. Berry	3,196	132	2	4	3	175
Barnes Hospital [1-3]	St. Louis	C. V. Moore	5,556	245	22	24	3	50
De Paul Hospital [1-3]	St. Louis	D. B. Flavan	3,543	110	1	3	3	200
Homer G. Phillips Hospital [1-3]	St. Louis	J. R. Smith	2,731	147	9	24	3	190
Jewish Hospital [1-3]	St. Louis	S. Sherry	3,153	124	6	10	3	100
Missouri Pacific Hospital [3]	St. Louis	L. B. Harrison	4,143	82	5	8	3	200
St. John's Hospital [1-3]	St. Louis	A. McMahon	2,920	88	1	3	2	200
St. Louis City Hospital [1-3]	St. Louis	B. Bercu-J. Berry	3,713	305	12	24	3	190
St. Luke's Hospital [1-3]	St. Louis	P. O. Hagemann	1,872	77	2	4	3	250
St. Mary's Group of Hospitals [1-3-225]	St. Louis	G. O. Broun	3,537	154	6	15	3	100
Montana Deaconess Hospital [1-3]	Great Falls, Mont.	T. F. Walker	1,456	76	2	6	3	200
Creighton Memorial-St. Joseph's Hospital [1]	Omaha	B. B. Wells	4,591	135	4	7	3	175
University of Nebraska Hospital [1-3-237]	Omaha	R. Grissom	539	48	2	6	3	175
Dartmouth Medical School Affiliated Hospitals		....	3,706	139	6	16	3	...
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	J. W. Wright	....	...	..	..	..	[illegible]
Veterans Admin. Hospital	White River Jct., Vt.	J. L. Grant	.....	...	..	..	..	...
Atlantic City Hospital [1-3]	Atlantic City, N. J.	W. B. Stewart	2,356	94	1	3	2	200
Cooper Hospital [1-3]	Camden, N. J.	R. L. Sharp	2,331	150	1	3	3	200
Hackensack Hospital [1-3]	Hackensack, N. J.	L. W. Black	2,284	117	2	3	2	150
Jersey City Medical Center [1-3]	Jersey City, N. J.	T. J. White	8,680	178	8	23	3	92
[illegible]	Montclair, N. J.	C. F. Turner	2,824	177	2	4	3	175
[illegible] tal [1-3]	Morristown, N. J.	F. C. Bowers	3,638	102	1	2	2	185
[illegible] [1]	Mt. Holly, N. J.	P. S. MacNeal	978	56	3	3	1	100
Fitkin Memorial Hospital [1-3]	Neptune, N. J.	L. F. Albright	2,010	60	1	1	1	200
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	J. Levin	4,002	157	6	11	3	162
Newark Beth Israel Hospital [1-3]	Newark, N. J.	H. H. Goldberg	2,374	87	1	3	3	100
St. Michael's Hospital [1-3]	Newark, N. J.	N. A. Antonius	2,559	88	3	6	3	150
St. Peter's General Hospital [1-3]	New Brunswick, N. J.	J. Sandella	1,234	47	1	1	1	175
Orange Memorial Hospital [1-3]	Orange, N. J.	W. I. Reinhardt	3,044	106	1	2	1	150
Bergen Pines County Hospital [1-3]	Paramus, N. J.	G. B. Barlow	1,010	182	6	6	1	200
Mercer Hospital [1-3]	Trenton, N. J.	J. F. Pessel	1,844	103	1	1	1	170
St. Francis Hospital [1-3]	Trenton, N. J.	P. Corrigan	2,358	130	1	2	2	210
Bataan Memorial Methodist Hospital	Albuquerque, N. M.	H. L. January	1,453	15	4	12	3	250
Albany Hospital [1-3]	Albany, N. Y.	R. T. Beebe	3,040	207	7	15	3	100
Binghamton City Hospital [1-3]	Binghamton, N. Y.	G. C. Hamilton	4,207	95	1	3	3	150
Beth El Hospital [1-3]	Brooklyn, N. Y.	I. Snapper	1,895	30	4	7	3	125
Brooklyn Hospital [1-3]	Brooklyn, N. Y.	G. E. Anderson	2,023	67	4	8	3	165
Coney Island Hospital [1-3]	Brooklyn, N. Y.	M. Mensch	1,735	96	..	..	3	165
Cumberland Hospital [1-3]	Brooklyn, N. Y.	S. P. Bailey	1,897	79	3	5	3	165
Greenpoint Hospital [1-3]	Brooklyn, N. Y.	J. N. Cohen	1,954	65	2	4	2	165
Jewish Chronic Disease Hospital [1-3]	Brooklyn, N. Y.	M. G. Goldner	1,153	79	8	20	3	175
Jewish Hospital [1-3]	Brooklyn, N. Y.	J. Goldstein	2,600	92	4	8	3	100
Kings County Hospital								
County Service [1]	Brooklyn, N. Y.	A. Fankhauser	5,909	218	6	19	3	104
University Service [1]	Brooklyn, N. Y.	P. H. Long	5,218	351	6	20	3	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	J. H. Crawford	1,836	43	3	5	3	150
Maimonides Hospital [1-3]	Brooklyn, N. Y.	M. Michael, Jr.	3,083	111	8	13	3	75
Methodist Hospital [1-3]	Brooklyn, N. Y.	H. D. Fearon	1,987	54	2	5	3	175
Norwegian Lutheran Deaconesses' Home and Hospital [1-3]	Brooklyn, N. Y.	W. F. Rexer	847	108	1	3	3	185
St. Catherine's Hospital [1-3]	Brooklyn, N. Y.	M. Murphy	1,153	45	2	4	3	150
St. John's Episcopal Hospital [1-3]	Brooklyn, N. Y.	E. R. Marzullo	1,045	43	2	4	1	175
St. Mary's Hospital [1]	Brooklyn, N. Y.	V. Annunciata	773	26	1	1	1	175
Wyckoff Heights Hospital [1-3]	Brooklyn, N. Y.	J. Indelicato	1,441	28	1	3	3	100
Allied Hospitals of the Sisters of Charity								
Emergency Hospital	Buffalo							
Sisters of [illegible]	Buffalo	H. F. Brown	5,928	147	2	6	3	250
Buffalo Gen[illegible]	Buffalo	J. H. Talbott	4,641	172	7	9	3	175
Deaconess Hospital [illegible]	Buffalo	M. S. Howland, Jr.	2,309	74	2	4	1	300
Edward J. Meyer Memorial Hospital [1]	Buffalo	D. K. Miller	2,853	172	6	18	3	248
Millard Fillmore Hospital	Buffalo	J. F. Painton	2,191	84	3	8	3	285
Roswell Park [illegible] [1-3]	Buffalo	R. Tarail	249	36	..	..	1	...
Clifton [illegible] Clinic [1-3]	Clifton Springs, N. Y.	B. A. Watson	2,389	39	1	3	3	150
Mary [illegible] [1-3]	Cooperstown, N. Y.	E. D. Thomas	1,039	52	2	3	3	145
Elmhurst General Hospital [1-3-458]	Elmhurst, N. Y.	C. Reich-J. H. Hodas	3,164	107	4	8	3	165
Flushing Hospital and Dispensary [1-3-249]	Flushing, N. Y.	C. Cramer	1,646	44	1	3	3	175
Meadowbrook Hospital [illegible]	[illegible]npstead, N. Y.	A. W. Freireich	3,540	321	4	12	3	225
Cornell University Infi[illegible]	Ithaca, N. Y.	N. S. Moore	1,585	...	4	4	1	208
Tompkins County M[illegible]	Ithaca, N. Y.	....	....	...	..	..	..	...
Jamaica Hospital [1-3]	Jamaica, N. Y.	M. A. Sanders	2,008	49	1	2	1	200
Mary Immaculate Hospital [1-3]	Jamaica, N. Y.	F. Mazzola	3,436	66	1	2	1	160
Queens Hospital Center [1-3]	Jamaica, N. Y.	A. A. Fischl	3,744	351	7	10	3	105
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	N. Occhino	5,470	84	3	6	2	225
North Shore Hospital [1-3]	Manhasset, N. Y.	W. J. Messinger	1,251	39	2	4	2	200
Mount Vernon Hospital [1-3]	Mount Vernon, N. Y.	H. Belsky	1,653	63	1	2	2	200

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Long Island Jewish Hospital [1-3]	New Hyde Park, N. Y.	E. Meilman	1,502	73	2	4	3	75
New Rochelle Hospital [1-3]	New Rochelle, N. Y.	W. C. Meredith	3,551	79	1	3	3	125
Bellevue Hospital Center								
Div. I—Columbia University [1-3-274]	New York City	D. W. Richards	1,507	77	7	13	3	105
Div. II—Cornell University [1-3-460]	New York City	T. P. Almy	1,427	69	8	13	3	105
Div. III—New York University College of Medicine [1-3]	New York City	W. S. Tillett	1,867	74	8	16	3	105
Div. IV—New York University Post Graduate Medical School [1-3-278]	New York City	C. F. Wilkinson, Jr.	1,657	69	10	30	3	105
Beth David Hospital [1-3]	New York City	H. A. Solomon	1,191	35	1	1	1	125
Beth Israel Hospital [1-3]	New York City	A. M. Fishberg	1,732	52	3	7	3	140
Bronx Hospital [1-3]	New York City	E. E. Fischel	2,075	69	2	7	3	60
Bronx Municipal Hospital Center [1-3]	New York City	I. M. London	1,423	124	12	24	3	105
Columbus Hospital [3]	New York City	R. R. Ferayorni	1,676	35	1	3	3	125
Fordham Hospital [1-3]	New York City	M. M. Levites	3,334	110	6	8	2	105
Francis Delafield Hospital [1-3]	New York City	R. Loeb	289	74	4	8	3	105
French Hospital [1-3]	New York City	H. J. McNeile	1,270	15	1	4	3	50
Goldwater Memorial Hospital 3rd (N.Y.U.) Division [1-3]	New York City	M. Rosenbluth	710	39	4	11	3	104
Harlem Hospital [1-3]	New York City	A. Altschul	4,279	88	4	10	3	105
Hospital for Joint Diseases [1-3]	New York City	M. L. Kramer	836	14	2	3	2	80
Jewish Memorial Hospital [1-3]	New York City	B. M. Hershfield	1,525	41	1	1	1	150
Knickerbocker Hospital [1-3]	New York City	M. S. Bruno	2,910	62	2	3	3	110
Lebanon Hospital [1-3]	New York City	H. L. Frosch-S. Weiskopf	1,912	50	1	1	1	100
Lenox Hill Hospital [1-3]	New York City	C. E. de la Chapelle-E. A. Lawrence	1,976	53	3	6	2	180
Lincoln Hospital [1-3]	New York City	C. R. Messeloff	2,360	104	4	11	3	105
Memorial Center for Cancer and Allied Diseases		....	.....	...	..	..	3	...
James Ewing Hospital [1-3]	New York City	R. W. Rawson	805	160	..	..	..	104
Memorial Hospital [1-3]	New York City	L. F. Craver	849	54	12	24	..	104
Misericordia Hospital [1-3]	New York City	L. V. Rooney	901	25	1	2	1	125
Montefiore Hospital [1-3]	New York City	L. Leiter	3,115	158	16	28	3	75
Morrisania City Hospital [1-3]	New York City	S. Biloon	3,774	178	7	11	2	105
Mount Sinai Hospital [1-3]	New York City	A. B. Gutman	6,617	255	14	32	3	50
New York Hospital [1-3]	New York City	D. P. Barr	2,637	166	12	26	3	116.67
New York Infirmary [2-3]	New York City	A. P. McCombs	461	10	1	2	1	150
New York Medical College-Metropolitan Medical Center		L. J. Boyd	.....	...	..	..	..	...
Bird S. Coler Memorial Hospital and Home [1-3]	New York City	....	2,365	34	28	54	2	105
Flower & Fifth Avenue Hospitals [1-3]	New York City	....	1,391	24	2	5	3	...
Metropolitan Hospital [1-3]	New York City	....	3,134	178	6	14	3	105
New York Polyclinic Medical School and Hospital [1-3]	New York City	J. P. Croce	1,263	24	1	3	3	100
New York University-Bellevue Medical Center								
University Hospital	New York City	C. F. Wilkinson, Jr.	2,103	32	..	1	1	135
Presbyterian Hospital [1]	New York City	R. F. Loeb	7,730	130	12	20	3	250
Roosevelt Hospital [1-3]	New York City	A. Antenucci-J. M. Freston	2,502	89	6	12	3	133
St. Barnabas Hospital for Chronic Diseases [1-3]	New York City	A. J. Patek, Jr.	825	42	2	4	2	75
St. Clare's Hospital [1-3]	New York City	J. P. Croce	1,882	55	1	3	3	200
St. Francis Hospital [1-3]	New York City	E. P. Flood	....	...	1	3	3	125
St. Luke's Hospital [1-3]	New York City	G. J. Collin	3,307	145	6	18	3	100
St. Vincent's Hospital [1-3]	New York City	O. La Rotonda	5,824	193	6	13	3	125
Sydenham Hospital [1-3]	New York City	E. Appelbaum	406	13	2	3	1	100
United Hospital [1-3]	Port Chester, N. Y.	N. H. Schwartz	2,163	51	2	2	1	200
Genesee Hospital [1-3]	Rochester, N. Y.	H. Segal	1,533	103	2	5	3	150
Highland Hospital [1-3]	Rochester, N. Y.	J. W. Holler	1,300	72	2	5	3	175
Rochester General Hospital [1-3]	Rochester, N. Y.	L. Horn	2,327	113	3	9	3	125
St. Mary's Hospital [1-3]	Rochester, N. Y.	L. F. La Palm	4,076	145	2	4	3	200
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	W. S. McCann	4,510	344	..	15	3	92
Ellis Hospital [1-3]	Schenectady, N. Y.	H. Reynolds	5,128	143	2	4	3	150
Staten Island Hospital [1-3]	Staten Island, N. Y.	C. N. Accettola	1,792	48	1	1	1	200
State University of New York Upstate Medical Center								
Hospitals [1-3]	Syracuse, N. Y.	R. H. Lyons	6,533	269	12	36	3	192
Veterans Admin. Hospital	Syracuse, N. Y.	J. J. Duggar	....	...	..	..	..	...
Grasslands Hospital [1-3]	Valhalla, N. Y.	R. R. Heffner	912	81	1	5	3	175
White Plains Hospital [1-3]	White Plains, N. Y.	E. W. Weber	1,444	45	1	3	3	175
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	C. H. Burnett	1,171	23	7	15	3	150
Charlotte Memorial Hospital [1]	Charlotte, N. C.	J. M. Alexander	2,468	80	1	3	2	250
Duke University Affiliated Hospitals		....	.....	...	..	..	3	...
Duke Hospital [1-3]	Durham, N. C.	E. A. Stead, Jr.	2,938	94	14	36	..	102
Veterans Admin. Hospital	Durham, N. C.	W. B. Tucker	2,573	86	5	13	..	...
Watts Hospital [1-3]	Durham, N. C.	I. H. Manning	3,058	41	2	5	3	175
Rex Hospital [1]	Raleigh, N. C.	T. L. Umphlet	596	10	1	1	1	200
St. Agnes Hospital [1]	Raleigh, N. C.	V. S. Caviness	869	...	1	1	1	250
City Memorial Hospital [1]	Winston-Salem, N. C.	C. R. Welfare	2,813	19	1	3	3	300
Kate Bitting Reynolds Memorial Hospital [1]	Winston-Salem, N. C.	R. L. Smith	1,810	31	.	1	2	300
North Carolina Baptist Hospital [1-3-320]	Winston-Salem, N. C.	E. H. Yount, Jr.	3,169	82	3	11	3	125
Bismarck Hospital [3]	Bismarck, N. Dak.	C. H. Peters	1,399	40	2	2	1	300
St. Luke's Hospital	Fargo, N. Dak.	A. C. Fortney	1,778	62	1	1	1	300
Akron City Hospital [1-3]	Akron, Ohio	R. Wilson	17,939	180	3	6	3	250
Akron General Hospital [1]	Akron, Ohio	R. F. Jukes	2,298	168	2	5	3	250
St. Thomas Hospital [1-3]	Akron, Ohio	A. H. Loomis	2,371	102	2	5	3	250
Aultman Hospital [1-3]	Canton, Ohio	R. E. Tschantz	4,882	137	3	6	3	275
Mercy Hospital [1-3]	Canton, Ohio	L. C. Underwood	3,726	123	4	8	3	200
Bethesda Hospital [1-3]	Cincinnati	J. N. Gamm	1,246	58	1	2	1	200
Christ Hospital [1]	Cincinnati	I. H. Schroth	1,400	93	2	4	3	200
Cincinnati General Hospital [1-3-330]	Cincinnati	M. A. Blankenhorn	1,406	214	12	38	3	20
Deaconess Hospital [1-3]	Cincinnati	R. Woolford-C. Vilter	3,116	42	2	2	1	175
Good Samaritan Hospital [1-3-336]	Cincinnati	R. B. Homan	2,765	92	2	6	2	270
Jewish Hospital [1-3]	Cincinnati	H. S. Schiro	2,912	160	6	11	3	115
St. Mary's Hospital [1-3]	Cleveland	J. D. Marioni	1,203	55	1	3	3	270
City Hospital [1-3]	Cleveland	R. W. Scott	1,509	173	8	19	3	150
Cleveland Clinic Hospital [1-3]	Cleveland	A. C. Ernstene	4,444	118	18	43	3	175
Fairview Park Hospital [1-3]	Cleveland	H. E. Christman	1,745	34	3	3	2	250
Highland View Hospital	Cleveland	D. R. Weir	864	39	1	1	1	120
Huron Road Hospital [1-3]	Cleveland	E. A. Marshall	2,194	74	2	4	1	210
Lutheran Hospital [1-3]	Cleveland	M. August	2,108	50	1	3	3	250
Mount Sinai Hospital [1-3]	Cleveland	M. Siegel	2,912	155	5	9	3	215
St. Alexis Hospital [1-3]	Cleveland	R. R. Bartunek	4,016	104	2	4	2	250
St. John's Hospital [1-3]	Cleveland	W. J. Fornes	1,440	7	2	4	3	170
St. Luke's Hospital [1-3]	Cleveland	A. D. Nichol	3,633	157	3	8	3	120
St. Vincent Charity Hospital [1-3]		F. R. Hanrahan	3,377	110	3	6	3	210

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [9]	Length of Approved Program (Years)	Beginning Stipend (Month)
University Hospitals [1-3]	Cleveland	J. T. Wearn	4,691	240	12	21	3	125
Mount Carmel Hospital [1]	Columbus, Ohio	P. T. Knies	2,550	116	2	4	2	275
Ohio State University Hospitals University Hospital [1-3-348-349]	Columbus, Ohio	B. K. Wiseman	4,406	166	6	14	3	152
White Cross Hospital [1-3]	Columbus, Ohio	D. J. Vincent	2,985	54	1	3	2	275
Marymount Hospital [1-3]	Garfield Heights, Ohio	A. S. Broglio	2,489	48	2	2	1	200
Lakewood Hospital [1-3]	Lakewood, Ohio	J. T. Ledman	2,354	107	3	6	3	200
Lima Memorial Hospital [1-3]	Lima, Ohio	H. Warshawsky	3,116	12	1	3	1	275
St. Rita's Hospital [1-3]	Lima, Ohio	F. G. Maurer	1,656	27	1	3	3	275
Maumee Valley Hospital [1-3]	Toledo, Ohio	W. S. Thal	1,132	74	2	6	3	225
Mercy Hospital [1-3]	Toledo, Ohio	G W. Bascom	343	18	1	1	1	275
St. Vincent's Hospital [1-3]	Toledo, Ohio	M A. Schultker	4,436	93	1	3	2	275
Toledo Hospital [1-3]	Toledo, Ohio	C. S Mundy	2,315	92	1	3	3	200
St. Elizabeth Hospital [1]	Youngstown, Ohio	P. Mahar	2,528	46	2	3	2	300
Youngstown Hospital [1-3]	Youngstown, Ohio	J. Noll	1,873	112	2	6	3	175
St. Anthony Hospital	Oklahoma City	P. M. McNeill	2,469	61	1	2	2	150
University of Oklahoma Hospitals [1-3-351]	Oklahoma City	S. Wolf	1,131	74	5	12	3	85
Wesley Hospital [1]	Oklahoma City	W. W. Rucks, Jr.	1,519	37	1	1	1	225
St. John's Hospital [1-3]	Tulsa, Okla.	P. Strong	3,085	75	2	8	2	175
Emanuel Hospital [1-3]	Portland, Ore.	J. E. Field	3,431	135	1	3	3	275
Good Samaritan Hospital [1-3]	Portland, Ore.	O Page	4,614	159	2	6	1	275
Providence Hospital [1-3]	Portland, Ore.	L. A. Lodmell	3,672	167	2	6	3	275
St. Vincent's Hospital [1-3]	Portland, Ore.	L. Meienberg	4,425	121	2	6	3	275
University of Oregon Medical School Hospitals and Clinics	Portland, Ore	H. P. Lewis	2,467	276	3	8	3	100
Abington Memorial Hospital [1-3]	Abington, Pa.	J. T. Beardwood, Jr.	1,645	58	1	3	3	150
Allentown Hospital [1-3]	Allentown, Pa	C. H Kelchner	3,263	142	1	2	3	225
Sacred Heart Hospital [1-3]	Allentown, Pa	A. W Dubbs	2,495	70	1	2	2	225
St. Luke's Hospital	Bethlehem, Pa	R K. Shields	2,588	139	2	2	3	275
Bryn Mawr Hospital [1-3-354]	Bryn Mawr, Pa	W W. Dyer	2,922	152	1	4	3	200
Geo. F. Geisinger Memorial *Hospital and Foss Clinic* [1-3]	Danville, Pa.	W. J. Stainsby	2,424	74	3	8	3	175
Easton Hospital [1-3]	Easton, Pa.	J Kincov	1,158	27	2	3	2	250
Hamot Hospital [1-3]	Erie, Pa.	J B. Tredway	3,055	85	1	1	1	200
Westmoreland Hospital [1-3]	Greensburg, Pa.	W. V. Conn-D. W. Bortz	1,846	66	1	1	2	300
Harrisburg Hospital [1-3]	Harrisburg, Pa	J A Daugherty	4,973	122	1	3	3	250
[illegible]	Harrisburg, Pa.	A. W Cowley	2,524	111	2	4	2	200
[illegible]	Philadelphia	B A. Gouley	3,070	89	4	11	3	150
[illegible]	Philadelphia	T Mendell	2,239	93	1	4	3	150
[illegible]	Philadelphia	R M. Truitt, Jr	1,272	46	1	2	1	250
[illegible]	Philadelphia	S R. Vogel-L. A. Soloff	2,204	101	2	6	3	150
Frankford Hospital	Philadelphia	G. E. Mark, Jr.	969	49	1	2	1	250
Germantown Dispens[illegible]	Philadelphia	R. W. Mays	2,395	95	1	3	3	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. L. Bockus	1,284	47	2	5	3	...
Hahnemann Medical College and Hospital [3]	Philadelphia	J. B. Donaldson	2,615	117	4	12	3	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F. C. Wood	5,262	153	12	29	3	...
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	W. G. Leaman, Jr.	1,376	48	1	5	3	110
Jefferson Medical College Hospital [1-3]	Philadelphia	J E. Deitrick	3,373	131	15	22	3	50
Lankenau Hospital [1-3]	Philadelphia	E I. Bortz-F. L. Hartmann	2,711	81	2	4	2	100
Methodist Episcopal Hospital [1-3]	Philadelphia	H. F. Robertson	1,523	36	..	2	1	150
Pennsylvania Hospital [1-3]	Philadelphia	G. G Duncan	2,841	128	11	11	3	20
Philadelphia General Hospital [1-3]	Philadelphia	H. Goldburgh	5,121	476	20	20	3	114
Presbyterian Hospital [1-3]	Philadelphia	G. P. Rouse	2,930	91	1	3	3	150
Temple University Hospital [1-3]	Philadelphia	R. A. Kern	3,071	98	..	..	3	...
Woman's Hospital [1-3]	Philadelphia	M Easby	1,214	...	1	2	2	175
Allegheny General Hospital [1]	Pittsburgh	M. H. McCaffrey	3,295	133	1	2	2	200
Elizabeth Steel Magee Hospital [1-3]	Pittsburgh	L. A Gregg	1,463	45	1	2	3	125
Mercy Hospital [1-3]	Pittsburgh	J. M Johnston	1,188	22	3	9	3	175
Montefiore Hospital [1-3]	Pittsburgh	Y D. Koskoff	2,438	89	4	12	3	225
Pittsburgh Hospital [1-3]	Pittsburgh	A. V. Morgan	1,590	29	1	1	1	300
Presbyterian Hospital	Pittsburgh	J D Myers	2,387	94	6	11	3	125
St. Francis General Hospital and Rehabilitation Institute [1]	Pittsburgh	A. P. D'Zmura	2,482	48	1	3	3	200
St. Margaret Memorial Hospital [1-3]	Pittsburgh	C. J. Bowen	1,035	35	1	1	1	300
Western Pennsylvania Hospital [1-3]	Pittsburgh	G. Booth	3,645	124	3	6	3	225
Reading Hospital [1-3]	Reading, Pa.	J. R. Spannuth	2,144	125	2	4	2	225
St. Joseph's Hospital [1-3]	Reading, Pa.	J. B. Levan	1,545	110	1	1	1	250
Robert Packer Hospital [1-3]	Sayre, Pa	S D Conklin	2,520	26	3	9	3	200
Scranton State Hospital [1]	Scranton, Pa.	M. Goldstein	1,691	65	1	1	2	266
Wilkes-Barre General Hospital [1-3]	Wilkes-Barre, Pa	J. F. Giering	2,465	58	1	1	1	225
York Hospital	York, Pa.	H. B. Thomas	2,637	117	1	1	1	225
Rhode Island Hospital [1-3]	Providence, R. I.	M. N Fulton	3,276	265	5	9	3	100
Roper Hospital [1-3-353]	Charleston, S. C.	V. Moseley	2,880	75	4	10	3	138
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	E W. Patton	4,447	63	4	7	3	150
Memorial Hospital [1-3]	Chattanooga, Tenn.	C. A. Hartung	[illegible]	20	2	2	1	250
St. Mary's Memorial Hospital [1-3-355]	Knoxville, Tenn.	B. M Overholt	4,403	63	5	4	2	250
Baptist Memorial Hospital [1-3-357-358]	Memphis, Tenn.	C V Dowling	3,061	78	2	5	3	150
City of Memphis Hospitals [1-3]	Memphis, Tenn	L. F Tullis	2,582	200	4	11	3	100
St. Joseph Hospital [1-3]	Memphis, Tenn.	S. Blackwell	3,114	64	1	3	3	170
Baptist Hospital [1-3]	Nashville, Tenn.	J. L. Wyatt	2,351	41	3	3	1	75
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	F. T. Billings, Jr.	1,148	69	3	6	3	125
Nashville General Hospital [1-3]	Nashville, Tenn.	W. J. Card	1,616	16	2	4	1	150
St. Thomas Hospital [1-3]	Nashville, Tenn.	A. B. Scoville	2,445	60	3	6	2	200
Vanderbilt University [illegible]	Nashville, Tenn.	H. J. Morgan	3,240	86	4	9	3	50
Oak Ridge Institute of N[illegible]	Oak Ridge, Tenn	G. A. Andrews	273	25	..	2	1	288
Baylor University Hospital [1-3]	Dallas, Texas	P. J Thomas	5,343	130	2	7	3	100
Methodist Hospital [1-3]	Dallas, Texas	T. S. Barnes	1,578	47	1	3	3	125
Parkland Memorial Hospital [1-3]	Dallas, Texas	D. W. Seldin	1,417	103	8	16	3	50
St. Paul's Hospital [1-3]	Dallas, Texas	P. Q. Needham	3,772	115	2	6	3	125
Harris Hospital [1-3]	Fort Worth, Texas	J. M. Church	7,496	69	1	2	2	200
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	C. T. Stone, Sr.	3,764	165	8	20	3	100
Baylor University College of *Medicine* Affiliated Hospitals								
Jefferson Davis Hospital [1-3]	Houston, Texas	J. A. Greene	1,742	214	6	14	3	75
Methodist Hospital [1-3]	Houston, Texas	H. W. Cummings, Jr.	2,525	75	2	4	3	220
Veterans Admin. Hospital [1-3]	Houston, Texas	H. D. Bennett	4,022	178	7	21	3	...
Hermann Hospital [1-3-400]	Houston, Texas	E. A. Wilkerson	5,667	114	2	6	3	100
St. Joseph's Hospital [3-464]	Houston, Texas	W. M. Donohue	2,344	65	1	1	1	225
Southern Pacific Hospital [3-464]	Houston, Texas	M. D. Levy	708	2	1	3	1	...
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3-464]	Houston, Texas	C. D. Howe	622	103	1	8	1	150

Numerical and other references will be found on pages 387 through 390.

9. INTERNAL MEDICINE—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	W. W. Bondurant	847	49	1	3	2	150
Santa Rosa Hospital [1-3]	San Antonio, Texas	D. R. Sacks	8,405	120	..	1	1	250
Scott and White Memorial Hospitals [1-3]	Temple, Texas	O. B. Gober	5,345	62	2	6	3	250
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	G. H. Keyes	1,790	67	2	2	1	275
Dr. W. H. Groves Latter-Day Saints Hospital [3]	Salt Lake City	A. MacFarlane	2,825	98	1	3	3	200
Holy Cross Hospital [1-3]	Salt Lake City	E. M. Kilpatrick	1,311	40	1	1	1	175
Salt Lake County General Hospital	Salt Lake City	M. M. Wintrobe	726	86	6	31	3	200
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	C. M. Terrien	1,627	45	1	3	2	100
Mary Fletcher Hospital [1-3]	Burlington, Vt.	E. L. Amidon	1,471	54	3	6	2	110
Alexandria Hospital [1-3]	Alexandria, Va.	J. E. Watson	1,538	122	3	3	1	260
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. Parson	2,910	100	9	24	3	50
Chesapeake and Ohio Hospital [1-3]	Clifton Forge, Va.	A. D. Williams	2,513	33	3	4	1	200
Riverside Hospital [1-3]	Newport News, Va.	J. W. Massey	2,281	70	1	1	1	250
De Paul Hospital [1-3]	Norfolk, Va.	J. D. Lea	1,758	57	2	4	3	200
Norfolk General Hospital [1-3]	Norfolk, Va.	M. R. Whitehill	2,716	96	2	4	3	185
Johnston-Willis Hospital [1-3]	Richmond, Va.	J. M. Hutcheson	2,517	69	2	2	1	250
Medical College of Virginia-Hospital Division [1-3-415-418]	Richmond, Va.	W. B. Porter	3,811	168	10	19	3	50
Jefferson Hospital [1-3]	Roanoke, Va.	R. C. Crawford	1,251	51	1	3	1	150
Lewis-Gale Hospital [1-3]	Roanoke, Va.	R. H. Jones, Jr.	1,980	34	1	1	1	300
Doctors Hospital [1-3]	Seattle	J. D. Collins	2,158	108	1	2	1	250
King County Hospital Unit No. 1 (Harborview) [1-424]	Seattle	R. H. Williams	4,846	339	6	12	3	125
Providence Hospital [1-3]	Seattle	R. Simpson	3,294	101	1	2	2	200
Swedish Hospital [1-3]	Seattle	W. W Lindahl	2,345	134	1	2	1	150
Virginia Mason Hospital [1-3]	Seattle	R. L. King	2,902	85	2	6	3	150
Charleston General Hospital [1-3]	Charleston, W. Va.	W. A. Thornhill, Jr.	2,602	54	2	5	3	225
Memorial Hospital [1-3]	Charleston, W. Va.	P. A. Tuckwiller	2,372	52	1	3	3	225
Chesapeake and Ohio Hospital [1-3]	Huntington, W. Va.	W. E. Bray, Jr.	2,225	35	4	4	1	200
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	R. M. Sonneborn	1,803	93	1	3	3	300
La Crosse Lutheran Hospital [1-3]	La Crosse, Wis.	T. E. Gundersen	2,027	38	..	..	2	...
Madison General Hospital [1-3]	Madison, Wis.	R. M. Becker	2,408	126	2	2	1	150
St. Mary's Hospital [1-3]	Madison, Wis.	R. X. Farrell	2,104	61	2	2	3	250
University Hospitals [1-3-426]	Madison, Wis.	O. O. Meyer	4,839	172	6	18	3	175
St. Joseph's Hospital	Marshfield, Wis.	K. H. Doege	1,583	47	1	1	3	...
Columbia Hospital [1-3-433]	Milwaukee	E. W. Mason	1,319	59	2	6	1	195
Milwaukee County Hospital [1-3]	Milwaukee	J. Shaiken	9,864	414	8	24	3	207
Milwaukee Hospital [1-3-432]	Milwaukee	E. R. Daniels	2,341	99	1	3	3	195
Mount Sinai Hospital [1-3]	Milwaukee	N. Grossman	1,526	39	1	3	3	300
St. Joseph's Hospital [1-3]	Milwaukee	W. L. Coffey, Jr.	2,751	123	1	3	3	300
St. Luke's Hospital [1-3]	Milwaukee	M. Hardgrove	501	17	2	2	1	275
St. Mary's Hospital	Milwaukee	W. M. Jermain	1,187	45	..	..	1	...
Gorgas Hospital [1]	Ancon, Canal Zone	E. A. Cleve	3,679	66	2	6	..	345
Queen's Hospital [1-430]	Honolulu, T. H.	H. L. Arnold, Sr.	2,764	104	2	6	3	150
St. Francis Hospital [3]	Honolulu, T. H.	T. S. Min	2,493	64	1	2	2	100
Bayamon District Hospital [1-3]	Bayamon, P. R.	E. Martinez	1,109	88	1	3	3	150
San Juan City Hospital [1-3]	San Juan, P. R.	R. S. Diaz Rivera	1,162	63	3	7	3	150

10. MALIGNANT DISEASES

Residency programs in the following hospitals have been approved for ONE year of training by the Council on Medical Education and Hospitals.

Hospitals, 11; Assistant Residencies and Residencies, 42

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1]	Hines, Ill.	W. S. Walsh	765	98	..	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
City of Hope Medical Center	Duarte, Calif.	H. R. Bierman	1,031	119	2	8	300
Presbyterian Hospital-Olmsted Memorial [1-3]	Los Angeles	H. M. Kersten	459	32	1	1	200
Collis P. and Howard Huntington Memorial Hospital [1-3]	Pasadena, Calif.	C. F. Doehring-G. Sharp	655	27	1	1	240
Michael Reese Hospital [1-3]	Chicago	E. Uhlmann	918	85	2	2	...
Westfield State Sanatorium [1-3]	Westfield, Mass.	F. S. Hopkins	715	32	..	3	490
Ellis Fischel State Cancer Hospital [1-3]	Columbia, Mo.	N. D. Rodes	1,340	43	..	6	200
Montefiore Hospital [1-3]	New York City	D. Laszlo	722	125	..	6	75
[illegible] Oncologic Hospital [1-3]	Philadelphia	J. W. Bransfield	1,042	9	4	4	250
[illegible]	Philadelphia	J. W. Carnwath-R. H. Driscoll	2,999	55	6	6	150
[illegible] D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	E. C. White	622	163	..	4	150

11. NEUROLOGICAL SURGERY

Residency programs in the following hospitals have been approved by the Council and the American Board of Neurological Surgery, through the Residency Review Committee for Neurological Surgery, as offering acceptable training in the specialty.

Hospitals, 108; Assistant Residencies **and Residencies, 317**

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Army Medical Center	Washington, D. C.	G. J. Hayes	709	12	1	4	4	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	J. D. French	402	20	1	3	3	...
Veterans Admin. Hospital [1-3]	Los Angeles	(See University of California at Los Angeles Medical Center)						
Veterans Admin. Hospital [1-46]	San Francisco	O. W. Jones, Jr.	169	11	1	2	..	...
Veterans Admin. Hospital		(See University of California Hospitals)						
	Denver	(See University of Colorado Medical Center)						

Numerical and other references will be found on pages 387 through 390.

11. NEUROLOGICAL SURGERY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. Hospital	Hines, Ill.	(See Loyola University (Stritch School of Medicine) Affiliated Hospitals)						
Veterans Admin. Hospital [1]	Indianapolis	(See Indiana University Medical Center)						
Veterans Admin. Hospital [1-3]	Louisville, Ky.	(See University of Louisville Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	(See Massachusetts General Hospital, Boston)						
Veterans Admin. Hospital [1-3-285]	New York City (Bronx)	J. E. Scarff	247	14	1	4	4	...
Veterans Admin. Hospital [1-3]	Cleveland	(See Western Reserve University Hospitals)						
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	C. D. Scheibert	786	18	1	1	1	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	(See Dartmouth Medical School Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Richmond, Va.	(See University of Virginia Hospitals)						
Veterans Admin. Hospital [1-3]	Seattle	(See University of Washington Affiliated Hospitals)						

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
University of Alabama Medical Center								
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	J. G. Galbraith	922	32	..	1	3	168
Los Angeles County Hospital [1-27]	Los Angeles	C. Rand	2,691	40	1	5	4	246
University of California at Los Angeles Medical Center		....	....	..	..	..	4	...
University Hospital	Los Angeles	W. E. Stern	....	..	..	..	..	...
Veterans Admin. Hospital [1-3]	Los Angeles	....	488	25	1	2	..	...
White Memorial Hospital [1-3-28]	Los Angeles	P. A. Vogel	865	20	1	2	3	151
Collis P. and Howard								
Huntington Memorial Hospital [1-3]	Pasadena, Calif.	C. F. Doehring-C. H. Shelden	112	11	1	2	2	240
Franklin Hospital [1-3]	San Francisco	H. A. Brown	762	7	2	2	..	200
		(See University of California Hospitals)						
University of California Hospitals		....	....	..	..	..	4	...
University of California Hospital [1-3]	San Francisco	E. B. Boldrey	692	17	..	5	..	200
University of Colorado Medical Center [163]		....	....	..	..	..	4	...
Colorado General Hospital [1-3]	Denver	C. G. Freed-K. Welch	458	26	1	4	..	160
Denver General Hospital [1-3]	Denver	C. G. Freed	....	..	..	..	..	...
Veterans Admin. Hospital	Denver	....	....	..	..	..	..	...
St. Francis Hospital [1-3]	Hartford, Conn.	R. C. Buckley	769	14	1	1	1	125
Grace-New Haven Community Hospital [1-3-58]-Hartford Hospital [1-3]	New Haven-Hartford, Conn.	W. J. German-W. B. Scoville	1,776	92	..	7	4	50
Georgetown University Affiliated Hospitals		O. H. Fulcher	....	..	..	..	3	...
Children's Hospital	Washington, D. C.	....	....	..	..	..	..	...
District of Columbia General Hospital	Washington, D. C.	....	....	..	..	..	..	...
University Hospital	Washington, D. C.	....	336	13	1	4	..	100
George Washington University Affiliated Hospitals		J. W. Watts	....	..	..	..	3	...
Children's Hospital	Washington, D. C.	....	....	..	..	..	..	...
District of Columbia General Hospital	Washington, D. C.	....	....	..	..	..	..	...
University Hospital [1-3]	Washington, D. C.	....	181	6	..	1	..	150
Emory University Hospital	Emory University, Ga.	[illegible]	227	16	1	4	4	129
Loyola University (Stritch School of Medicine) Affiliated Hospitals		H. C. Voris	....	..	..	..	4	...
Mercy Hospital [1-3]	Chicago	....	324	7	1	3	..	100
Veterans Admin. Hospital	Hines, Ill.	....	410	20	1	1	..	...
Northwestern University Medical Center		....	....	..	..	..	4	...
Chicago Wesley Memorial Hospital [1-3]	Chicago	P. C. Bucy	450	12	..	3	4	75
Passavant Memorial Hospital	Chicago	L. Davis	150	6	1	1	..	50
Veterans Admin. Research Hospital [1]	Chicago	L. Davis	157	5	..	2	..	...
Evanston Hospital [1-3]	Evanston, Ill.	J. Tarkington	77	13	1	1	..	225
Presbyterian Hospital [1]	Chicago	A. Ver Brugghen	382	17	2	2	3	125
St. Luke's Hospital [1-3]	Chicago	E. Oldberg	(See University of Illinois Neuropsychiatric Institute)					
University of Chicago Clinics [1-3]	Chicago	J. P. Evans	305	18	3	5	3	250
University of Illinois Neuropsychiatric Institute [1-3-113]	Chicago	E. Oldberg	674	35	1	6	4	125
Indiana University Medical Center		....	....	..	..	..	4	...
Indiana University Medical Center Hospital [1]	Indianapolis	R. F. Heimburger	313	26	1	2	..	165
Veterans Admin. Hospital [1]	Indianapolis	R. F. Heimburger	281	13	..	..	..	...
State University of Iowa Hospitals [1-3]	Iowa City	R. Meyers	471	21	..	3	4	160
University of Kansas Medical Center [1-3]	Kansas City, Kan.	W. Williamson	388	20	1	3	4	125
University of Louisville Affiliated Hospitals		....	....	..	..	..	4	...
Louisville General Hospital [1-3-139]	Louisville, Ky.	R. G. Spurling	1,531	31	1	3	..	83
Veterans Admin. Hospital [1-3]	Louisville, Ky.	E. Grantham	....	..	..	..	..	...
Charity Hospital of Louisiana								
Tulane University Unit [1]	New Orleans	D. H. Echols	249	19	..	1	1	175
Ochsner Foundation Hospital [1-142]	New Orleans	D. H. Echols	287	9	1	4	4	225
Johns Hopkins Hospital [1-3-165]	Baltimore	A. E. Walker	871	20	2	2	4	25
University Hospital [1-3-159]	Baltimore	J. G. Arnold, Jr.	689	18	..	5	4	75
Boston City Hospital [1-3]	Boston	W. Wegner	546	6	1	5	3	112
Children's Medical Center [1-3]	Boston	F. D. Ingraham	470	11	..	4	4	50
Peter Bent Brigham Hospital [1-3]	Boston	F. D. Ingraham	....	..	..	..	..	...
Lahey Clinic [1-3-171-176]	Boston	G. Horrax	869	15	4	8	1	175
Massachusetts General Hospital [1-3]	Boston	J. C. White	871	..	1	3	4	67
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	J. Drew	301	23	..	3	..	...
New England Center Hospital [1-3]	Boston	B. Selverstone	221	2	1	3	4	83
University Hospital [1-3]	Ann Arbor, Mich.	E. A. Kahn	855	39	2	8	4	186
Grace Hospital [1-3-197]	Detroit	E. S.	1,026	19	1	3	4	275
Henry Ford Hospital [1-3]	Detroit	R. S.	459	23	1	4	4	225
University of Minnesota Hospitals [1-3-214]	Minneapolis	W. T. Peyton	485	14	1	6	4	185
Mayo Foundation [1]	Rochester, Minn.	J. G. Love	2,469	59	11	27	4	150
Barnes Hospital [1-3]	St. Louis	H. G. Schwartz	489	43	1	4	4	50
Dartmouth Medical School Affiliated Hospitals		...						
Mary Hitchcock Memorial Hospital	Hanover, N. H.		....	..	..	..	..	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	R.	252	20	1	3	4	158
Albany Hospital [1-3]	Albany, N. Y.	E.	1,015	44	1	3	3	160
Kings County Hospital								
University Service [1]	Brooklyn, N. Y.	E. J. Browder	3,317	93	2	6	4	104
Buffalo General Hospital [1-3-256]	Buffalo	W. B. Hamby	513	23	1	4	4	175
Bellevue Hospital Center								
Div. IV.-New York University Post Graduate Medical School [1-3-270]	New York City	T. I. Hoen	129	1	2	8	3	105
Albert Einstein Coll. of Med. Affil. Hospitals		....	....	..	..	..	4	...
Bronx Municipal Hospital Center	New York City	L. M. Davidoff	....	..	1	3	..	105
Montefiore Hospital [1-3]	New York City	L. M. Davidoff	....	..	..	..	..	...
Mount Sinai Hospital [1-3]	New York City	....	422	14	..	2	3	50
New York Hospital [1-3]	New York City	B. S. Ray	265	..	1	2	4	158.34
Presbyterian Hospital [1]	New York City	J. L. Pool	784	19	6	9	4	250
St. Vincent's Hospital [1-3]	New York City	C. G. De [illegible]	1,046	28	2	4	3	125
Duke University Hospital [1-3-323]	Durham, N. C.	B.	1,180	29	1	5	4	127
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	E.	511	27	1	3	4	125
University of Cincinnati Affiliated Hospitals		....	....	..	..	..	4	...
Christ Hospital [1]	Cincinnati	F. H. Mayfield	354	15	1	1	..	200

Numerical and other references will be found on pages 387 through 390.

11. NEUROLOGICAL SURGERY—*Continued*

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Cincinnati General Hospital[1-3-332]	Cincinnati	R. L. McLaurin	291	34	1	3	..	84
Good Samaritan Hospital[1-3-335]	Cincinnati	F. Mayfield	116	5	..	1	..	300
Cleveland Clinic Hospital[1-3]	Cleveland	W. J. Gardner	4,178	32	2	5	4	175
Western Reserve University Affiliated Hospitals		....	....	..	..	..	4	...
City Hospital[1-3]	Cleveland	H. W. Slade	264	29	1	4	..	150
University Hospitals[1-3-339]	Cleveland	F. E. Nulsen	231	13	..	4	..	125
Veterans Admin. Hospital[1-3-343]	Cleveland	F. E. Nulsen	253	9	1	1	..	...
Ohio State University Hospitals		....	....	..	..	..	4	...
Children's Hospital[1-3]	Columbus, Ohio	M. P. Sayers	383	20	..	..	..	...
University Hospital[1-3]	Columbus, Ohio	H. E. Le Fever	493	46	..	2	..	152
White Cross Hospital[1-3]	Columbus, Ohio	H. E. Le Fever	939	36	1	1	..	275
University of Oklahoma Hospitals[1-3]	Oklahoma City	H. Wilkins	172	14	..	2	4	...
University of Oregon Medical School Affiliated Hospitals		J. Raaf	....	..	..	..	4	...
Good Samaritan Hospital	Portland, Ore.	....	244	18	1	1	..	275
University of Oregon Medical School Hospitals and Clinics[350]	Portland, Ore.	....	629	18	1	3	..	100
Graduate Hospital of the University of Pennsylvania[1-3]	Philadelphia	R. A. Groff	434	27	2	3	4	100
Hahnemann Medical College and Hospital[3]	Philadelphia	A. K. Olsen	280	7	1	3	3	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	F. C. Grant	379	27	1	4	4	...
Jefferson Medical College Hospital[1-3]	Philadelphia	R. Jaeger	394	13	1	2	4	100
Temple University Hospital[1-3]	Philadelphia	M. Scott	695	13	..	..	4	...
Mercy Hospital[1-3]	Pittsburgh	F. H. Bragdon	445	13	1	3	3	175
Pittsburgh Medical Center[457]		....	....	..	..	..	4	...
Children's Hospital[1-3]	*Pittsburgh*	J. F. Grunnagle	357	..	..	..	..	...
Presbyterian Hospital and Woman's Hospital	*Pittsburgh*	S. N. *Rowe*	265	9	..	1	..	125
Robert Packer Hospital[1-3]	*Sayre, Pa.*	A. B. King	632	14	1	1	1	200
Baptist Memorial Hospital[1-3-359]	Memphis, Tenn.	R. L. De Saussure	776	18	1	4	3	150
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	W. F. Meacham	578	18	1	4	4	50
University of Texas Medical Branch Hospitals[1-3]	*Galveston, Texas*	S. R. *Snodgrass*	598	23	1	3	4	160
Baylor University College of Medicine Affiliated Hospitals		....	....	..	..	..	4	...
Jefferson Davis Hospital[1-3]	Houston, Texas	C. A. Carton	204	8	1	3	..	100
Methodist Hospital[1-3]	Houston, Texas	J. A. Greenwood	827	24	1	3	..	220
Veterans Admin. Hospital[1-3]	Houston, Texas	C. A. Carton	310	14	2	4	..	...
University of Virginia Hospitals		....	....	..	..	..	4	...
University Hospital[1-3-410]	Charlottesville, Va.	W. G. Crutchfield	741	14	2	5	..	50
Veterans Admin. Hospital[1-3-410]	Richmond, Va.	J. L. Ulmer	308	9	1	2	..	...
Medical College [illegible] Division[1-3]	Richmond, Va.	J. M. Meredith	944	40	1	4	4	50
University of W[illegible] Hospitals		A. A. Ward, Jr.	....	..	..	..	4	...
King County [illegible] (Harborview)[1]	Seattle	....	410	57	..	1	..	145
Veterans Admin. Hospital[1-3]	Seattle	....	114	8	..	1	..	...
University Hospitals[1-3]	Madison, Wis.	T. C. Erickson	366	32	1	4	3	175

12. NEUROLOGY

Residency programs in the following hospitals have been approved for THREE years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty.

Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., *should refer to the* Board requirements that the candidate have had at least two of the three years of his training in a program approved at the two or three year level—see summary of requirements, American Board of Psychiatry and Neurology, Inc., page 410.

Hospitals, 60; Assistant Residencies and Residencies, 273

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
UNITED STATES ARMY							
Fitzsimons Army Hospital[1]	Denver	H. Collings	141	...	1	3	...
Army Medical Center[1-3]	Washington D. C.	R. E. Clausen, Jr.	404	7	2	6	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	M. Feld	619	30	1	3	...
Veterans Admin. Hospital[1-3]	Los Angeles	W. H. Oldendorf	336	15	1	1	...
Veterans Admin. Hospital[1-48]	San Francisco	W. J. Friedlander	154	8	1	3	...
Veterans Admin. Hospital[1-3]	Denver	W. V. Huber	786	39	2	2	...
Veterans Admin. Hospital[1-3-84]	Washington, D. C.	H. F. Corson	144	5	1	3	...
Veterans Admin. Hospital[1]	Hines, Ill.	B. H. Kesert	1,209	53	4	4	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	I. O. Dein	281	10	1	1	...
Veterans Admin. Hospital	Boston (Jamaica Plain)	F. A. Quadfasel	799	21	5	10	...
Veterans Admin. Hospital[1-3]	Minneapolis	R. C. Gray	447	10	2	2	...
Veterans Admin. Hospital[1-3-305]	New York City (Bronx)	H. L. Flowers	611	16	2	4	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital[1-3]	Richmond, Va.	J. B. Funkhouser	373	2	1	3	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Los Angeles County Hospital[1]	Los Angeles	J. M. Nielsen	3,553	231	2	3	246
University of California Medical Center	Los Angeles	A. S Rose	.....	...	..	2	259
White Memorial Hospital[1-3-38]	Los Angeles	L. B. Mann	160	...	1	3	151
Stanford University Hospitals[1-3]	San Francisco	H. W. Newman	618	8	1	2	200
University of Colorado Medical Center[103]							
Colorado General Hospital[1-3]	Denver	L. E. Daniels	116	...	1	3	160
Denver General Hospital[1-3]	Denver	L. E. Daniels	51	5	..	..	157
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	G. H. Glaser	500	...	1	3	150
Jackson Memorial Hospital	Miami, Fla.	P. Scheinberg	384	60	2	6	200
[illegible]ty Medical Center[1-3-104]	Chicago	B. Boshes	513	14	3	12	...
[illegible][3]	Chicago	R. MacKay	125	...	1	2	75
[illegible] Clinics[1-3]	Chicago	R. B. Richter	372	10	2	3	200
University of Illinois Neuropsychiatric Institute[1-3-113]	Chicago	E. Oldberg	Incl. in Neurosurg.		..	..	125
Indiana University Affiliated Hospitals							
[illegible] General Hospital[1-3]	Indianapolis	A. T. Ross	200	17	..	..	205
[illegible] Medical Center Hospital[1-3-125]	Indianapolis	A. Ross	Incl. in Neurosurg.		2	6	165
[illegible]owa Hospitals[1-3]	Iowa City	A. L. Sahs	1,027	46	2	4	140
[illegible] Medical Center[1-3]	Kansas City, Kan.	A. T. Steegmann	161	1	1	2	125
Louisville [illegible] Hospital[1-3]	Louisville, Ky.	E. Roseman	728	55	1	3	131
Charity Hospital of Louisiana							
[illegible] University Unit[1]	New Orleans	R. G. Heath	396	12	1	3	100
[illegible][1-3]	Baltimore	J. W. Magladery	945	46	1	2	50
[illegible][1-3]	Baltimore	F. Ford	Incl. in Medicine		2	2	25
[illegible]	Baltimore	C. Van Buskirk	14	2	1	3	75
[illegible]	Boston	D. E. Denny Brown	318	10	3	8	112

Numerical and other references will be found on pages 387 through 390.

12. NEUROLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Massachusetts General Hospital $^{1-3-173}$	Boston	R. D. Adams	685	...	1	2	67
University Hospital $^{1-3}$	Ann Arbor, Mich.	R. N. De Jong	862	18	5	15	154
Henry Ford Hospital $^{1-3}$	Detroit	L. D. Proctor	384	13	1	3	225
University of Minnesota Hospitals							
Minneapolis General Hospital $^{1-3}$	Minneapolis	H. H. Noran	427	41	..	..	171
University Hospital $^{1-3}$	Minneapolis	A. B. Baker	588	12	3	7	185
Mayo Foundation ^{1}	Rochester, Minn.	L. M. Eaton	3,165	30	6	14	150
Barnes Hospital $^{1-3}$	St. Louis	J. L. O'Leary	503	10	1	2	75
Albany Hospital $^{1-3}$	Albany, N. Y.	R. Graves	381	6	2	4	160
Kings County Hospital ^{1}							
University Service	Brooklyn, N. Y.	A. Rabiner	1,622	51	2	4	104
Bellevue Hospital Center							
Div. II. Cornell University $^{1-3-291}$	New York City	F. McDowell	420	17	2	6	105
Div. III. New York University College of Medicine $^{1-3-275}$	New York City	M. Bender	242	8	8	21	105
Montefiore Hospital $^{1-3}$	New York City	T. Lawyer, Jr.	558	20	2	5	75
Mount Sinai Hospital $^{1-3}$	New York City	M. Bender	753	36	7	11	50
New York Hospital $^{1-3}$	New York City	H. G. Wolff	Incl. in Medicine		1	1	116.67
Presbyterian Hospital (Neurological Institute) ^{1}	New York City	H. H. Merritt	3,095	42	10	15	250
North Carolina Memorial Hospital $^{1-2}$	Chapel Hill, N. C.	T. W. Farmer	230	3	2	6	156
North Carolina Baptist Hospital $^{1-3}$	Winston-Salem, N. C.	R. L. Masland	277	5	1	3	125
Cincinnati General Hospital $^{1-3-329}$	Cincinnati	C. D. Aring	151	67	1	5	50
Hospital of the University of Pennsylvania $^{1-3}$	Philadelphia	G. Gammon	545	3	3	8	100
Jefferson Medical College Hospital $^{1-3}$	Philadelphia	B. J. Alpers	581	11	1	3	50
Philadelphia General Hospital $^{1-4}$	Philadelphia	A. Ornsteen	1,183	127	3	5	114
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital	Houston, Texas	....	.. ..	...	..	..	...
Methodist Hospital $^{1-3}$	Houston, Texas	W. S. Fields	134	1	1	1	220
Veterans Admin. Hospital $^{1-3}$	Houston, Texas	W. S. Fields	445	15	2	4	...
University Hospitals $^{1-3}$	Madison, Wis.	H. H. Reese	571	...	1	4	175

Residency programs in the following hospitals have been approved for TWO years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty.

Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program approved at the two or three year level—see summary of requirements, American Board of Psychiatry and Neurology, Inc., page 410.

Hospitals, 18; Assistant Residencies and Residencies, 47

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital $^{1-3}$	Washington, D. C.	E. Y. Williams	181	2	1	2	218
VETERANS ADMINISTRATION							
Veterans Admin. Hospital	Oakland, Calif.	J. K. Smith	650	33	..	..	...
Veterans Admin. Hospital-West Haven Division	West Haven, Conn.	L. Levy	255	19	..	1	...
Veterans Admin. Hospital $^{1-3}$	Pittsburgh	E. L. Youngue	370	9	1	4	...
Veterans Admin. Hospital $^{1-411}$	Salt Lake City	M. H. Thomas	143	5	2	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
University of California Hospital $^{1-2}$	San Francisco	R. B. Aird	304	6	..	3	200
District of Columbia General Hospital $^{1-2}$	Washington, D. C.	F. M. Forster-H. Stevens	610	13	1	3	153
Georgetown University Hospital	Washington, D. C.	F. M. Forster	109	1	4	10	100
George Washington University Hospital $^{1-3}$	Washington, D. C.	H. Stevens	308	7	..	2	175
Charity Hospital of Louisiana							
Louisiana State University Unit ^{1}	New Orleans	R. Paddison	252	6	1	3	100
Elmhurst General Hospital $^{1-3-458}$	Elmhurst, N. Y.	M. Heltand	486	26	1	2	105
Lenox Hill Hospital $^{1-3}$	New York City	A. Bell	355	8	1	1	180
Duke University Hospital $^{1-3-323}$	Durham, N. C.	E. C. Kunkle	241	1	2	5	162
Cleveland Clinic Hospital $^{1-3}$	Cleveland	L. J. Karnosh	Incl. in Psychiatry		2	3	175
Ohio State University Hospitals							
University Hospital $^{1-3}$	Columbus	D. M. Palmer	Incl. in Int. Med.		..	..	152
University of Oregon Medical School Hospitals and Clinics $^{-360}$	Portland, Ore	R. L. Swank	296	21	1	2	166
Graduate Hospital of the University of Pennsylvania $^{1-2}$	Philadelphia	A. S. Tornay	669	22	2	3	...
St. Francis General Hospital and Rehabilitation Institute ^{1}	Pittsburgh	H. L. Mitchell	966	8	..	1	200

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology, as offering acceptable training in the specialty.

Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program approved at the two or three year level—see summary of requirements, American Board of Psychiatry and Neurology, Inc., page 410.

Hospitals, 26; Assistant Residencies and Residencies, 51

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES NAVY							
U. S. Naval Hospital	Bethesda, Md.	J. E. Nardini	231	..	1	1	...
U. S. Naval Hospital $^{1-3}$	Philadelphia	J. F. McMullin	257	2	1	1	...
UNITED STATES PUBLIC HEALTH SERVICE							
National Institutes of Health-Clinical Center $^{1-3}$	Bethesda, Md	M. Shy	370	10	..	4	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
St. Elizabeth's Hospital $^{1-3}$	Washington, D. C.	H. Stevens	62	4	1	1	318
VETERANS ADMINISTRATION							
Veterans Admin. Hospital $^{1-3}$	Topeka, Kan.	M. R. Shaver	303	7	1	2	...
Veterans Admin. Hospital $^{1-3-192}$	Dearborn, Mich.	R. T. Costello	366	22	1	1	...
Veterans Admin. Hospital $^{1-219}$	Kansas City, Mo.	W. A. Stephenson	394	11	1	2	...
Veterans Admin. Hospital $^{1-4}$	Omaha	F. A. Majka	262	15	2	2	...
Veterans Admin. Hospital $^{1-3-241}$	East Orange, N. J.	J. Sobin	414	24	2	4	...
Veterans Admin. Hospital $^{1-3}$	Albany, N. Y.	....	.....	...	..	..	...

Numerical and other references will be found on pages 387 through 390.

12. NEUROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
FEDERAL							
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	M. E. Margulies	230	18	1	1	...
Veterans Admin. Hospital [1-3-26a]	New York City (Manhattan)	D. P. Morton	164	3	4	11	...
Veterans Admin. Hospital	Seattle	(See University of Washington Affiliated Hospitals)					
NONFEDERAL							
Cook County Hospital [1-3]	Chicago	B. W. Lichtenstein	347	5	2	2	75
New England Center Hospital [1-3]	Boston	J. F. Sullivan	298	3	2	5	83
Bergen Pines County Hospital [1-3]	Paramus, N. J.	S. A. Sandler	143	28	1	1	200
Jewish Chronic Disease Hospital [1-3]	Brooklyn, N. Y.	A. M. Rabiner	562	..	1	3	175
Buffalo General Hospital [1-3]	Buffalo	I. M. Hyman	116	..	1	1	175
Edward J. Meyer Memorial Hospital [1]	Buffalo	B. H. Smith	175	2	1	1	248
Fordham Hospital [1-3]	New York City	J. H. Friedman	75	2	1	1	105
Goldwater Memorial Hospital 3rd (N. Y. U.) Division [1-3]	New York City	I. S. Freiman	351	13	1	3	104
New York Medical College-Metropolitan Medical Center Metropolitan Hospital [1-3]	New York City	I. Tarlov	34	2	1	2	105
Morrisania City Hospital [1-3]	New York City	M. J. Madonick	Incl. in Medicine		1	1	105
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	T. Harris	Incl. in Psychiatry		..	1	100
University of Washington Affiliated Hospitals							
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	....	.....	...	..	..	...
Veterans Admin. Hospital [1-3]	Seattle	M. H. Johnson	174	6	..	..	...

13. OBSTETRICS AND GYNECOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Obstetrics and Gynecology.
Hospitals, 471; Assistant Residencies and Residencies, 2,311

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL									
UNITED STATES ARMY									
Letterman Army Hospital [1]	San Francisco	E. A. Zimmermann	OBG	3,153	3	2	6	3	...
Fitzsimons Army Hospital [1]	Denver	J. H. Smith	OBG	2,936	2	2	6	3	...
Army Medical Center [1-3]	Washington, D. C.	H. L. Riva	OBG	3,377	1	3	9	3	...
William Beaumont Army Hospital	El Paso, Texas	S. L. Avner	OBG	4,320	1	2	2	3	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. W. Simpson	OBG	3,137	10	3	9	3	...
Tripler Army Hospital [1]	Honolulu, T. H.	E. B. Hopper	OBG	4,845	1	2	6	3	...
UNITED STATES NAVY									
U. S. Naval Hospital	Corona, Calif.	A. J. Pereyra	OBG	5,175	..	..	..	1	...
U. S. Naval Hospital [1-3]	Oakland, Calif.	R. W. Tandy, Sr.	OBG	4,194	..	6	9	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	W. S. Baker, Jr.	OBG	5,918	45	4	9	3	..
U. S. Naval Hospital [1-3]	Great Lakes, Ill.	M. M. Rubin	OBG	3,406	.	2	4	3	...
U. S. Naval Hospital	Bethesda, Md.	H. H. Hill	OBG	3,477	..	3	6	3	...
U. S. Naval Hospital [1-3]	Chelsea, Mass.	M. A. Godinez	OBG	2,325	3	1	3	3	...
U. S. Naval Hospital	St. Albans, N. Y.	J. A. Pease	OBG	3,384	1	1	3	3	...
U. S. Naval Hospital [1-3]	Philadelphia	H. J. Hunter	OBG	2,787	..	2	4	3	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	D. A. Callagan	OBG	6,558	201	4	9	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1-3]	Washington, D. C.	J. W. Ross	OBG	4,201	9	2	6	3	250
NONFEDERAL									
Carraway Mc[illegible] [1-3]	Birmingham, Ala.	T. M. Boulware	OB	2,337	..	1	1	1	250
University of [illegible] Center University [illegible] Clinic [1-3]	Birmingham, Ala.	W. N. Jones	OBG	6,788	2	2	6	3	100
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	O. T. West	OBG	1,641	2	1	3	3	225
Good Samaritan Hospital [1]	Phoenix, Ariz.	R. L. Moore	OBG	3,881	..	1	2	1	200
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	P. Windrow	OBG	1,591	1	..	1	1	300
St. Joseph's Hospital [1-3]	Phoenix, Ariz.	R. Jennett	OBG	5,452	1	1	3	3	200
University Hospital [1]	Little Rock, Ark.	W. E. Brown	OBG	3,230	4	2	11	3	160
Herrick Memorial Hospital [1-4]	Berkeley, Calif.	T. R. Hofmann	OBG	2,835	2	1	2	1	175
San Joaquin General Hospital	French Camp, Calif.	D. Harrington	OBG	1,771	..	2	4	3	350
General Hospital of Fresno County	Fresno, Calif.	H. L. Tieche	OBG	2,913	2	1	3	3	300
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	J. B. Brown	OBG	2,505	4	1	1	1	200
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	L. R. Hill	OB	4,281	1	1	1	1	170
California Hospital [1-3]	Los Angeles	G. W. Hewitt-J. F. Nolan	OBG	3,964	14	4	10	3	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	L. Krohn-G. Rosenblum	OBG	3,962	..	1	3	2	175
H[illegible] Good Samaritan [1-3]	Los Angeles	H. C. Alward	OBG	3,467	3	1	3	3	200
[illegible] Hospital	Los Angeles	....	OBG	.....	..	..	..	3	...
[illegible] Hospital [1]	Los Angeles	B. J. Hanley	OBG	22,789	42	4	11	3	246
Presbyterian *Hospital-Olmsted Memorial* [1-3]	Los Angeles	R. R. Herren-H. C. Gernand	OBG	3,229	..	2	5	3	200
Queen of Angels Hospital [1-3]	Los Angeles	A. M. McCarthy	OBG	6,521	6	2	6	3	175
University of California *Medical Center*	Los Angeles	D. G. Morton	OBG	542	2	2	7	3	200
White *Memorial* Hospital [1-3]	Los Angeles	H. F. Ziprick	OBG	2,532	5	2	4	3	151
Highland-Alameda County Hospital [1-3-11]	Oakland, Calif.	G. F. Calvin	OBG	3,517	8	2	5	3	195
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	R. W. King	OBG	4,000	5	3	9	3	235
Collis P. and Howard *Huntington Memorial* Hospital [1-3]	Pasadena, Calif.	W. C. Rogers	OBG	3,012	..	1	1	1	250
Mercy Hospital [1]	San Diego, Calif.	P. L. Martin	OBG	7,347	1	2	5	3	200
San Diego County *General Hospital* [1-3]	San Diego, Calif.	J. A. Rust	OBG	1,254	2	1	2	2	150
Children's Hospital [1-3]	San Francisco	D. A. Dallas	OBG	2,785	1	2	4	3	...
Kaiser Foundation Hospital [1-3]	San Francisco	H. B. Nelson	OBG	3,308	5	2	6	3	175
Mary's Help Hospital	San Francisco	C. L. Cooley	OBG	2,556	..	1	2	2	200
St. Francis Memorial Hospital [1-3]	San Francisco	C. D. Hart	OBG	2,577	3	3	3	1	300
St. Joseph's Hospital [1-3]	San Francisco	H. Von Geldern	OBG	1,977	1	1	2	1	200
St. Luke's Hospital [1-3]	San Francisco	J. R. Upton	OBG	1,628	..	2	3	2	200
St. Mary's Hospital [1-3]	San Francisco	P. H. Arnot	OBG	1,913	1	1	3	3	...
San Francisco Hospital University of California Service [1-3]	San Francisco	E. B. King	OBG	1,528	..	2	3	1	195
Stanford University Affiliated Hospitals		....	OBG	.....	..	..	..	3	...
San Francisco Hospital Stanford University Service [1-3]	San Francisco	K. Schaupp Jr.-P. Hoffmann	.....	1,654	..	1	3	..	175
Stanford University Hospital [1-3]	San Francisco	C. E. McLennan	.....	2,809	2	4	10	..	85
University of California Hospital [1-3]	San Francisco	H. F. Traut	OBG	2,151	3	3	9	3	200

Numerical and other references will be found on pages 387 through 390.

13. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Santa Clara County Hospital [1-50]	San Jose, Calif.	J. C. Muir	OBG	1,848	10	5	5	3	260
St. John's Hospital	Santa Monica, Calif.	B. H. Watson	OBG	5,071	3	1	1	2	200
Harbor General Hospital [1-2]	Torrence, Calif.	D. G. Morton	OBG	3,097	5	2	6	3	246
Presbyterian Hospital [1-3]	Denver	M. C. Waddell	OBG	3,030	3	1	1	1	225
St. Joseph's Hospital [1-3]	Denver	G. W. Del Junco	OBG	3,474	1	1	3	3	200
University of Colorado Medical Center [-463]									
Colorado General Hospital [1-3]	Denver	E. S. Taylor	OBG	1,972	8	3	9	3	160
Denver General Hospital [1-3]	Denver	N. P. Isbell	OBG	1,735	8	..	..	3	157
Bridgeport Hospital [1-3]	Bridgeport, Conn.	C. Griswold	OB	3,355	1	1	2	2	275
St. Vincent's Hospital [1-3]	Bridgeport, Conn.	F. Kinder	OB	3,792	1	2	4	2	300
Hartford Hospital [1-3]	Hartford, Conn.	L. F. Middlebrook	OBG	8,553	4	1	3	3	100
St. Francis Hospital [1-3]	Hartford, Conn.	F. X. Fagan	OBG	5,022	8	1	3	3	125
New Britain General Hospital [1-3]	New Britain, Conn.	D. A. Bristoll	OBG	3,042	..	1	3	3	200
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	C. L. Buxton-J. A. Fiorito	OBG	6,778	9	4	12	3	50
Hospital of St. Raphael [3]	New Haven, Conn.	C. E. Johnson	OBG	3,698	4	2	5	3	125
Lawrence and Memorial Associated Hospitals [1-3]	New London, Conn.	E. H. Blank	OBG	2,692	1	3	3	1	250
Norwalk Hospital [1-3]	Norwalk, Conn.	G. V. Gorham	OB	2,282	1	1	1	1	100
Delaware Hospital [1-3-77]	Wilmington, Del.	S. W. Rennie	OBG	4,555	3	1	2	2	180
Columbia Hospital for Women and Lying-in Asylum [1-3]	Washington, D. C.	D. H. Kushner	OBG	7,300	..	4	10	3	75
District of Columbia General Hospital [1-3]	Washington, D. C.	J. Parks-A. Marchetti	OBG	7,957	11	3	7	3	153
Doctors Hospital [1-3]	Washington, D. C.	J. K. Cromer	OBG	3,072	5	1	3	2	150
Garfield Memorial Hospital [1-3-162]	Washington, D. C.	W. Terrell, Jr.-H. Ramsey	OBG	3,972	6	2	6	3	210
Georgetown University Hospital	Washington, D. C.	A. A Marchetti	OBG	4,553	3	2	7	3	100
George Washington University Hospital [1-3]	Washington, D C.	J. Parks	OBG	6,127	31	2	5	3	150
Providence Hospital [1-3]	Washington, D. C.	G. Ellis	OBG	2,944	1	2	6	3	200
Sibley Memorial Hospital [1-3]	Washington, D C.	M. Kaufman	OBG	3,498	..	4	5	2	200
Duval Medical Center [1-3]	Jacksonville, Fla.	D. M. Baldwin	OBG	2,359	8	1	3	3	150
St. Luke's Hospital [1-3]	Jacksonville, Fla.	J. C. Taylor	OBG	3,288	1	2	4	2	250
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	E. F. McCall-V. Hughes	OBG	5,231	1	2	6	3	225
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. H. Ferguson	OBG	6,796	7	3	9	3	75
Mount Sinai Hospital of Greater Miami [1-3]	Miami Beach, Fla.	H. Kraff	OBG	1,928	1	1	2	2	250
Orange Memorial Hospital [1-3]	Orlando, Fla.	F. M. Parish-C. J. Collins	OBG	3,910	1	2	2	2	150
Mound Park Hospital [1-3]	St. Petersburg, Fla.	E. Pollard	OBG	2,440	4	1	1	1	284
Tampa Municipal Hospital [1-3]	Tampa, Fla.	R. H. Douglas	OBG	2,573	29	1	3	3	250
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	R. K. Hancock	OBG	8,135	1	5	9	3	110
Georgia Baptist Hospital [1]	Atlanta, Ga.	E. D. Colvin	OBG	4,936	1	3	6	3	200
Grady Memorial Hospital [1]	Atlanta, Ga	W. L. Caton	OBG	8,684	1	5	15	3	20
Piedmont Hospital [1]	Atlanta, Ga	C. B. Upshaw	OBG	2,162	..	1	3	1	235
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	V. Skiles	OBG	2,696	1	2	3	2	165
University Hospital [1]	Augusta, Ga.	R. Torpin	OBG	4,144	..	7	17	3	200
Augustana Hospital [1-3]	Chicago	W. H. Browne	OB	1,257	..	2	2	1	150
Chicago Maternity Center [1-3-92]	Chicago	B. E. Tucker-H. B Benaron	OB	4,301	..	3	11	1	150
Cook County Hospital [1-3]	Chicago	A. Webster-F. Falls	OBG	24,075	21	8	18	3	75
Englewood Hospital [3]	Chicago	C D. Krause	OB	1,596	..	1	1	1	200
Frank Cuneo Memorial Hospital [3]	Chicago	A. Daro-H. O. Maryan	OBG	2,272	2	..	2	1	150
Grant Hospital [1]	Chicago	W. J. Reich	OBG	2,124	2	1	3	2	225
Hospital of St. Anthony De Padua [1-3]	Chicago	J. J. Donlon	OB	1,491	..	2	2	1	250
Illinois Masonic Hospital [1-3]	Chicago	F. J. Roos	OBG	2,975	..	1	1	1	115
Lewis Memorial Maternity Hospital [1-3-95]	Chicago	H. E. Schmitz	OBG	3,957	6	4	13	3	50
Lutheran Deaconess Home and Hospital [3]	Chicago	A. D. Green	OB	1,521	..	2	2	1	200
Mercy Hospital [1-3-96]	Chicago	H. E. Schmitz	OBG	2,163	11	1	4	3	100
Michael Reese Hospital [1-3-100]	Chicago	L. E. Frankenthal	OBG	4,715	2	2	6	3	75
Mount Sinai Hospital [1-3]	Chicago	H. M. Brill	OBG	3,285	9	2	4	3	100
Northwestern University Medical Center									
Chicago Wesley Memorial Hospital [1-3]	Chicago	G. H. Gardner	OBG	3,350	6	2	7	3	75
Passavant Memorial Hospital	Chicago	J. I. Brewer	OBG	2,238	2	2	4	3	50
Evanston Hospital [1-3]	Evanston, Ill.	D. N. Danforth	OBG	2,910	2	1	3	3	225
Presbyterian Hospital [1-96]	Chicago	E. Allen	OBG	2,888	1	3	7	3	125
Provident Hospital [1-3]	Chicago	R. C. Stepto-M. F Gleason	OBG	2,914	39	3	5	3	200
Ravenswood Hospital [1-3]	Chicago	J. Davis	OBG	2,010	3	2	2	1	100
St. Anne's Hospital [1-3]	Chicago	R. J. Hawkins	OB	4,634	..	6	6	1	250
St. Elizabeth Hospital [3]	Chicago	F. J. Walsh	OBG	3,613	..	3	3	2	200
St. Joseph Hospital [1-3]	Chicago	C. Geiger	OBG	1,842	1	1	3	3	300
St. Luke's Hospital [1-3]	Chicago	E. A. Edwards	OBG	2,536	1	2	6	3	75
Swedish Covenant Hospital [1-2]	Chicago	G. L. Rosene	OB	1,882	..	2	2	1	200
University of Chicago Clinics [1-3]	Chicago	M. E. Davis	OBG	5,655	10	14	23	3	200
Billings Hospital									
Chicago Lying-In Hospital & Dispensary									
University of Illinois Research and Educational Hospitals [1-3]	Chicago	W. F. Mengert	OBG	3,481	5	3	9	3	125
St. Francis Hospital [1]	Evanston, Ill.	J. M. Bailey	OBG	4,296	5	1	3	3	175
Little Company of Mary Hospital [1-3]	Evergreen Park, Ill.	P. E. Lawler-W. T. Carlisle	OBG	5,211	4	3	9	3	175
West Suburban Hospital [3]	Oak Park, Ill.	F. H. Falls	OBG	5,143	..	2	4	2	225
Methodist Hospital of Central Illinois [3]	Peoria, Ill.	R. W. Brandes	OB	2,847	..	2	2	1	200
St. Francis Hospital [1-3]	Peoria, Ill.	E. P. Burt	OBG	4,383	..	1	2	2	225
St. Anthony Hospital [1-3]	Rockford, Ill.	G. T. Burns	OBG	2,439	..	1	1	1	200
Indianapolis General	Indianapolis	C. F. Gillespie	OBG	3,774	2	..	..	3	205
Indiana University	Indianapolis	C. P. Huber	OBG	4,176	65	4	16	3	165
Methodist Hospital [1-3]	Indianapolis	J. H. Hawk	OBG	8,797	7	1	3	3	278
St. Vincent's Hospital [1-3]	Indianapolis	P. F. Muller	OBG	3,501	1	1	3	3	275
St. Elizabeth Hospital [1]	Lafayette, Ind.	F. W. Peyton	OBG	728	4	..	2	2	225
State University of Iowa Hospitals [1-3]	Iowa City	J. H. Randall	OBG	2,548	6	3	9	3	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	L. A. Calkins	OBG	2,820	3	2	7	3	125
St. Francis Hospital [1-3]	Wichita, Kan.	E. G. Anderson	OBG	5,221	3	1	3	1	275
Wesley Hospital [1-3]	Wichita, Kan.	E. G. Anderson	OBG	5,466	..	1	1	1	175
St. Joseph Hospital	Lexington, Ky.	J. B. Stith	OBG	1,605	1	1	1	1	230
Louisville General Hospital [1-3-135]	Louisville, Ky.	W. O. Johnson	OBG	3,948	4	3	9	3	105
St. Joseph Infirmary [1-3]	Louisville, Ky.	E. R. Cadden	OBG	3,907	5	1	3	3	210
Charity Hospital of Louisiana									
Independent Unit [1]	New Orleans	A. Jacobs	OBG	5,405	5	3	9	3	100
Louisiana State University Unit [1]	New Orleans	M. L. McCall	OBG	8,141	10	5	13	3	100
Tulane University Unit [1-445-446]	New Orleans	C. G. Collins	OBG	7,192	17	4	12	3	100
Hotel Dieu-Sisters Hospital [1]	New Orleans	M. J. St. Romain	OBG	4,049	..	2	2	1	225
Ochsner Foundation Hospital [1]	New Orleans	C. Tyrone	OBG	455	2	2	6	3	225
Southern Baptist Hospital [1-2]	New Orleans	D. W. Beacham	OBG	4,290	4	2	6	3	225

Numerical and other references will be found on pages 387 through 390.

13. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Approved Residencies	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Touro Infirmary[1]	New Orleans	W. E. Levy-C. G. Johnson	OBG	4,207	1	2	6	3	125
Confederate Memorial Medical Center[1]	Shreveport, La.	E. E. Dilworth	OBG	5,919	2	3	9	3	125
Baltimore City Hospitals[1-3]	Baltimore	P. Molumphy	OBG	6,729	1	5	16	3	50
Bon Secours Hospital[3]	Baltimore	H. B. McNally-E. Novak	OBG	3,436	3	2	5	3	285
Church Home and Hospital[1-3]	Baltimore	J. K. B. E. Seegar	OB	1,131	..	1	1	1	200
Franklin Square Hospital[1-3]	Baltimore	I. A. Siegel	OBG	1,249	..	2	6	3	225
Hospital for Women	Baltimore	J. F. Savage-L. Brady	OBG	5,112	2	2	11	3	220
Johns Hopkins Hospital[1-3]	Baltimore	N. J. Eastman-R. W. Te Linde	OBG	6,392	17	9	12	3	25
Lutheran Hospital[1-3]	Baltimore	W. N. Long, Jr.-W. K. Diehl	OBG	3,778	..	2	6	3	220
Maryland General Hospital[1-3]	Baltimore	D. M. Dixon-J. D. Woodruff	OBG	2,554	..	2	6	3	225
Mercy Hospital[1-3]	Baltimore	J. J. Erwin-F. K. Morris	OBG	3,868	5	2	5	3	275
Provident Hospital and Free Dispensary[1-3]	*Baltimore*	*W. B. Butler*	*OB*	1,532	1	1	2	1	150
St. Agnes Hospital[1]	Baltimore	H. B. McNally-T. S. Bowyer	OBG	2,520	7	2	4	3	125
St. Joseph's Hospital[3]	Baltimore	J. B. Boyle-G. A. Galvin	OBG	1,120	2	2	4	3	225
Sinai Hospital[1-3]	Baltimore	I. A. Siegel-A. Sondheimer	OBG	5,070	2	8	11	3	110
South Baltimore General Hospital[1-3]	Baltimore	J. H. Morrison	OB	757	..	3	6	2	180
Union Memorial Hospital[1-3]	Baltimore	J. M. Haws	OBG	2,062	..	1	3	3	215
University Hospital[1-3]	Baltimore	A. L. Haskins	*OBG*	4,708	5	5	14	3	75
Prince George's General Hospital[1-3]	Cheverly, Md.	J. F. Warren	OBG	3,201	..	8	3	1	200
Beth Israel Hospital[1-3]	Boston	H. L. Rosenfield	OB	2,652	..	3	4	2	42
Boston City Hospital[1-3]	Boston	B. Tenney, Jr.	OBG	5,447	5	9	19	3	112
Boston Lying-In Hospital[1-167]	Boston	D. E. Reid	OB	7,937	2	8	16	3	100
Carney Hospital-St. Margaret's Hospital[1-3]	Boston	R. J. Heffernan-D. J. McSweeney	OBG	8,414	1	4	10	3	150
Massachusetts Memorial Hospitals[1-3-170]	Boston	L. Parsons	OBG	1,772	4	2	6	3	50
New England Hospital[1-3]	Boston	M. A. Phillips	OB	1,136	..	2	3	2	75
St. Elizabeth's Hospital[1-3]	Boston	W. J. McDonald	OBG	4,801	4	2	6	3	125
Booth Memorial Hospital[1-3]	Brookline, Mass.	S. C. Kasdon	OB	638	..	2	2	1	200
Free Hospital for Women[1-3]	*Brookline, Mass.*	G. V. S. Smith	GYN	2,998	13	4	12	3	100
Cambridge City Hospital[1]	Cambridge, Mass.	P. P. McGovern	OBG	2,212	1	1	3	3	125
St. Anne's Hospital[3]	Fall River, Mass.	E. F. Shay	OBG	1,659	2	1	1	1	200
Quincy City Hospital[1-3]	*Quincy, Mass.*	L. H. vanRaalte	OBG	2,496	2	1	2	2	163
St. Joseph Mercy Hospital[1-3]	Ann Arbor, Mich.	W. Belser	OBG	2,387	3	2	4	3	250
University Hospital[1-3]	Ann Arbor, Mich.	N. F. Miller	OBG	4,057	56	3	12	3	154
Detroit Memorial Hospital[1]	Detroit	H. F. Jarvis	OBG	2,517	4	1	3	3	275
Evangelical Deaconess Hospital[1-3]	Detroit	L. Braun	OBG	2,502	1	3	3	1	...
Florence Crittenton Hospital[1-3]	Detroit	S. W. Trythall	OBG	3,816	1	2	6	3	250
Grace Hospital[1-3]	*Detroit*	O. W. Pickard	OBG	9,026	51	4	16	3	275
Harper Hospital[1-3-192]	Detroit	H. C. Mack	OBG	5,545	5	3	7	3	225
Henry Ford Hospital[1-3]	Detroit	C. P. Hodgkinson	OBG	3,675	8	2	8	3	225
Mount Carmel Mercy Hospital[1-3]	Detroit	J. W. Pichette	OBG	Incl. in Surg.		3	9	3	225
Providence Hospital[1]	Detroit	H. Henderson	OBG	4,925	6	2	5	3	275
St. John Hospital[1-3]	Detroit	J. P. Ottaway	OBG	4,991	1	1	3	1	275
St. Joseph Mercy Hospital	Detroit	J. E. Clifford	OBG	2,750	..	1	3	3	275
Sinai Hospital[1-3]	Detroit	L. Braun	OBG	3,140	3	2	4	2	275
Wayne University Affiliated Hospitals		....	OBG	....	..	..	..	3	...
Herman Kiefer Hospital[1-3]	Detroit	C. S. Stevenson	.....	5,868	2	2	4	..	279
Receiving Hospital[1-3]	Detroit	C. S. Stevenson	.....	715	12	3	7	..	[illegible]
Woman's Hospital[1-3]	Detroit	H. M. Nelson-C. Shelton	OBG	5,904	4	2	7	3	25
Hurley Hospital[1-3]	Flint, Mich.	I. H. Gutow	OBG	4,180	5	1	3	2	325
Blodgett Memorial Hospital[1-3]	Grand Rapids, Mich.	W. J. Jack	OBG	3,166	2	1	2	2	250
Butterworth Hospital[1-3]	Grand Rapids, Mich.	E. Y. Postma	OBG	9,010	28	2	5	3	225
St. Mary's Hospital[1-3]	Grand Rapids, Mich.	R. Nanzig	OBG	4,083	2	..	2	2	200
Highland Park General Hospital[1]	Highland Park, Mich.	R. Siddall	OBG	3,648	1	1	3	3	306
Pontiac General Hospital[1-3]	Pontiac, Mich.	H. A. Furlong	OBG	4,605	1	1	3	3	300
St. Joseph Mercy Hospital[1-3]	Pontiac, Mich.	F. Gaensbauer	OBG	5,375	1	2	6	3	325
Saginaw General Hospital[1-3]	Saginaw, Mich.	C. E. Toshach	OBG	2,922	1	1	3	3	325
Minneapolis General Hospital[1-3]	Minneapolis	W. P. Sadler	OBG	1,229	4	1	3	3	185
Northwestern Hospital[1-3]	Minneapolis	E. Ingalls	OBG	3,563	16	1	2	2	200
St. Barnabas Hospital[1-3]	Minneapolis	O. F. Robbins	OBG	3,481	2	2	2	2	235
St. Mary's Hospital[1-3]	Minneapolis	J. F. Shandorf	OBG	5,799	3	2	4	2	200
University of Minnesota Hospitals[1-3-217]	Minneapolis	J. L. McKelvey	OBG	1,364	8	2	7	3	185
Mayo Foundation[1]	Rochester, Minn.	L. M. Randall	OBG	3,986	15	3	12	3	150
Charles T. Miller Hospital[1-3]	St. Paul	A. F. Hayes	OBG	2,870	1	..	2	3	185
St. Joseph's Hospital[1-3]	*St. Paul*	J. W. Goldsmith	OBG	3,272	..	1	3	3	185
University Hospital	Jackson, Miss.	M. Newton	OBG	325	1	2	6	3	250
St. Louis County Hospital[1-3]	Clayton, Mo.	E. L. Dorsett	OBG	1,006	1	1	3	3	225
University Hospitals	Columbia, Mo.	C. D. Davis	OBG	158	1	1	3	3	250
Kansas City General Hospital No. 1[1-3]	Kansas City, Mo.	J. G. Webster	OBG	1,764	2	1	4	3	150
Kansas City General Hospital No. 2[1-3]	Kansas City, Mo.	H. L. Gainey	OBG	1,700	6	2	6	3	150
St. Joseph Hospital[1-3]	Kansas City, Mo.	G. L. Miller	OBG	2,301	..	1	3	2	250
St. Luke's Hospital[1-3]	Kansas City, Mo.	K. E. Cox	OBG	4,186	1	2	4	3	175
Barnes Hospital[1-3]	St. Louis	W. Allen	OBG	6,431	5	10	20	3	50
De Paul Hospital[1-3]	St. Louis	R. V. Boedeker	OBG	3,639	3	1	2	2	200
Homer G. Phillips Hospital[1-3]	St. Louis	S. M. Monat	OBG	6,481	9	3	12	3	190
Jewish Hospital[1-3-223]	St. Louis	H. C. Wasserman	OBG	2,750	1	..	3	2	100
Missouri Baptist Hospital[1-3]	St. Louis	J. B. O Neil	OBG	2,178	2	2	4	1	175
St. John's Hospital[1-3]	St. Louis	M. W. Weis	OB	3,046	1	1	1	1	200
St. Louis City Hospital[1-3]	St. *Louis*	*R. J. Crossen*-L. Hartnett	OBG	2,556	5	4	8	3	190
St. Luke's Hospital[1-3]	*St. Louis*	G. J. L. Wulff, Jr.	OBG	2,160	1	..	2	3	250
St. Mary's Group of Hospitals[1-3-228]	St. Louis	J. A. Hardy, Jr.	*OBG*	*8,366*	4	5	11	3	100
Lincoln General Hospital[1-3]	Lincoln, Neb.	H. E. Harvey	OBG	1,332	1	1	1	1	250
St. Elizabeth Hospital[1-3]	Lincoln, Neb.	S. T. Thierstein	OBG	2,893	1	2	2	1	300
Bishop Cla[illegible] H[illegible]tal[1-3]	Omaha	C. F. Moon	OBG	1,459	..	1	1	1	175
Creighton [illegible]ter		M. E. Grier	OBG	....	..	..	..	3	...
Creighto[illegible]'s Hospital[1]	Omaha	....	.....	3,954	3	1	4	..	175
St. Cath[illegible]	Omaha	....	.....	.....	..	..	..	..	...
Immanuel Hospital[1-3]	Omaha	L. J. Olson	OBG	1,775	..	1	1	1	175
University of Nebraska Hospital[1-3-237-239]	Omaha	R. G. Holly	OBG	1,342	4	2	6	3	175
Cooper Hospital[1-3]	Camden, N. J.	G. B. German-H. P. Shipps	OBG	5,277	8	3	4	3	200
Hackensack Hospital[1-3]	[illegible] N. J.	R. C. Schretzmann	OB	3,023	..	2	2	1	170
Jersey City Medical Center[1-3]	[illegible] N. J.	E. N. Brookrajian	GYN	1,044	1	2	5	2	92
Margaret Hague Maternity H[illegible]	[illegible] N. J.	J. P. Donnelly	OB	11,294	85	..	20	3	67
Monmouth Memorial Hospital[1-3]	Long Branch, N. J.	*W. Shanik*	OB	2,001	..	2	2	1	200

Numerical and other references will be found on pages 387 through 390.

13. OBSTETRICS AND GYNECOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Residencies Approved	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	J. Pannullo-A. J. Gordon	OBG	3,126	3	2	6	3	162
Newark Beth Israel Hospital [1-3]	Newark, N. J.	O. Glass	OBG	5,477	7	1	3	3	100
St. Michael's Hospital [1-3]	Newark, N. J.	G. W. Hayes-O. Glass	OBG	4,205	3	2	4	2	150
Passaic General Hospital [3]	Passaic, N. J.	W. M. Sullivan	OBG	3,458	4	2	2	1	250
Paterson General Hospital [1-3]	Paterson, N. J.	L. E. Thron-P. Rauschenbach	OB	2,795	..	1	1	1	150
Holy Name Hospital [3]	Teaneck, N. J.	J. W. Prather	OB	2,547	..	1	1	1	200
St. Francis Hospital [1-3]	Trenton, N. J.	J. M. Harmon	OBG	5,273	38	1	2	2	210
Albany Hospital [1-3]	Albany, N. Y.	T. O. Gamble-A. Wallingford	OBG	4,772	6	2	5	3	160
A. N. Brady Hospital [1-247]	Albany, N. Y.	J. G. Hayes	OB	3,382	..	2	3	2	200
Beth El Hospital [1-3]	Brooklyn, N. Y.	W. Levine	OBG	4,881	..	3	7	3	125
Brooklyn Hospital [1-3]	Brooklyn, N. Y.	J. T. Wallace	OBG	2,809	1	1	4	3	165
Brooklyn Women's Hospital [1-3]	Brooklyn, N. Y.	J. Halperin	OBG	2,562	..	4	4	1	125
Coney Island Hospital [1-3]	Brooklyn, N. Y.	M. G. Der Brucke	OBG	1,459	..	..	..	2	105
Cumberland Hospital [1-3]	Brooklyn, N. Y.	C. H. Loughran	OBG	2,680	8	2	6	3	105
Greenpoint Hospital [1-3]	Brooklyn, N. Y.	W. C. Meagher	OBG	2,475	2	2	6	2	165
Jewish Hospital [1-3]	Brooklyn, N. Y.	F. Moskowitz—I. Daichman	OBG	7,275	1	2	8	3	100
Kings County Hospital University Service [1]	Brooklyn, N. Y.	L. M. Hellman	OBG	10,276	31	8	20	3	71
Long Island College Hospital [1-3]	Brooklyn, N. Y.	W. T. Daily	OBG	3,260	3	2	5	3	150
Maimonides Hospital [1-3]	Brooklyn, N. Y.	E. Solomons	OBG	5,086	2	2	8	3	75
Methodist Hospital [1-3]	Brooklyn, N. Y.	S. Hall, Sr.—H. Acken, Jr.	OBG	3,922	..	2	8	3	175
Norwegian Lutheran Deaconesses Home and Hospital [1-3]	Brooklyn, N. Y	A. S. MacGregor	OBG	2,795	..	1	3	3	155
St. Catherine's Hospital [1-3]	Brooklyn, N. Y	W. Meagher	OBG	2,346	..	1	5	3	150
St. John's Episcopal Hospital [1-3]	Brooklyn, N. Y.	C. W. Mueller	OBG	2,703	1	1	3	3	175
St. Mary's Hospital [1]	Brooklyn, N. Y.	A. A. Schenone	OBG	2,681	1	1	3	3	200
Unity Hospital [1-3]	Brooklyn, N. Y.	M. M. Berlind	OBG	2,585	2	2	4	2	125
Wyckoff Heights Hospital [1-3]	Brooklyn, N. Y.	F. W. Benschine	OBG	2,054	1	1	3	1	100
Allied Hospitals of the Sisters of Charity [1-3]	Buffalo	E. G. Winkler	OBG	6,025	1	2	8	3	230
Emergency Hospital	Buffalo	....	....	.....	..	..	..	..	...
Sisters of Charity Hospital	Buffalo	....	....	.....	..	..	..	..	...
Buffalo General Hospital [1-3-255]	Buffalo	C. L. Randall	OBG	3,534	2	3	9	3	175
Deaconess Hospital [1-3]	Buffalo	H. Burwig	OBG	3,491	5	2	6	3	300
Edward J. Meyer Memorial Hospital [1]	Buffalo	E. G. Winkler	OBG	2,315	5	2	5	3	245
Millard Fillmore Hospital	Buffalo	L. F. McLean	OBG	6,820	..	2	8	3	255
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	O. J. Severud	OBG	671	..	1	2	3	145
Elmhurst General Hospital [1-3-458]	Elmhurst, N. Y.	M. Rashbaum—R. J. Lowrie	OBG	2,346	20	1	5	3	165
Flushing Hospital and Dispensary [1-3-258]	Flushing, N. Y.	E. Veprovsky	OBG	5,127	3	1	3	3	175
Meadowbrook Hospital	Hempstead, N. Y.	G. T. Lilly	OBG	2,054	15	1	4	3	225
Jamaica Hospital [1-3]	Jamaica, N. Y.	M. P. Bates	OBG	3,336	..	1	2	2	200
Mary Immaculate Hospital [1-3]	Jamaica, N. Y.	J. V. Rizzi	OB	2,483	..	1	1	1	160
Queens General Hospital [1-3]	Jamaica, N. Y.	E. C. Veprovsky	OBG	2,745	11	1	3	3	165
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	S. Nagyty	OBG	3,093	4	1	3	3	225
North Shore Hospital [1-3]	Manhasset, N. Y.	W. F. Finn	OBG	1,716	3	2	4	3	200
Nassau Hospital [3]	Mineola, N. Y.	A. Wright	OBG	3,925	2	1	3	3	225
Mount Vernon Hospital	Mount Vernon, N. Y.	N. M. Weinrod	OBG	2,504	19	1	1	3	...
Long Island Jewish Hospital [1-3]	New Hyde Park, N. Y.	A. H. Rosenthal	OBG	2,258	1	1	3	3	75
Bellevue Hospital Center Div. III—New York University College of Medicine [1-3]	New York City	W. E. Studdiford	OBG	4,523	10	16	16	3	105
Beth David Hospital [1-3]	New York City	M. Speiser	OBG	1,751	1	1	2	2	125
Beth Israel Hospital [1-3-256]	New York City	H. C. Falk	OBG	3,470	..	2	8	3	140
Bronx Hospital [1-3]	New York City	A. C. Posner—A. J. Fleischer	OBG	3,768	..	2	6	3	60
Bronx Municipal Hospital Center	New York City	M. Glass	OBG	....	..	8	16	3	165
Fordham Hospital [1-3]	New York City	M. L. Brandt	OBG	2,220	..	2	4	3	105
Francis Delafield Hospital [1-3]	New York City	H. C. Taylor, Jr.	GYN	200	25	..	5	1	105
French Hospital [1-3]	New York City	C. E. Heaton—H. C. Falk	OBG	1,993	2	2	4	3	90
Harlem Hospital [1-3]	New York City	A. C. Posner—M. Bobrow	OBG	6,976	15	2	6	3	165
Hospital for Joint Diseases [1-3]	New York City	E. L. Hecht	GYN	275	1	..	1	1	80
Jewish Memorial Hospital [1-3]	New York City	M. J. Goodfriend	OBG	2,441	..	1	1	1	150
Lenox Hill Hospital [1-3]	New York City	L. O'Donnell—J. C. Kilroe	OBG	2,040	1	1	3	3	180
Lincoln Hospital [1-3]	New York City	W. H. Godsick	OBG	4,173	4	3	7	3	165
Misericordia Hospital [1-3]	New York City	J. A. Kelly	OB	1,422	1	1	2	2	125
Morrisania City Hospital [1-3]	New York City	M. Goodfriend	OBG	2,189	13	1	4	3	105
Mount Sinai Hospital [1-3]	New York City	A. Guttmacher	OBG	7,191	4	13	19	3	50
New York Hospital [1-3]	New York City	R. G. Douglas	OBG	7,041	13	5	20	3	116.67
New York Infirmary [2-3]	New York City	I. Widenius—I. Knowlton	OBG	1,522	..	2	4	3	150
New York Medical College—Metropolitan Medical Center Flower and Fifth Avenue Hospitals [1-3]	New York City	M. L. Stone	OBG	3,296	2	1	3	3	...
Metropolitan Hospital [1-3]	New York City	M. L. Stone	OBG	3,849	17	3	9	3	105
New York Polyclinic Medical School and Hospital [1-3]	New York City	E. H. Dennen—D. N. Barrows	OBG	1,952	1	2	4	3	100
New York University—Bellevue Medical Center University Hospital	New York City	W. Studdiford	GYN	714	1	2	2	2	85
Presbyterian Hospital [1] (Sloan Hospital for Women)	New York City	H. C. Taylor, Jr.	OBG	7,195	13	6	21	3	250
Roosevelt Hospital [1-3]	New York City	T. C. Peightal	GYN	923	2	1	3	2	133
St. Claire's Hospital [1-3-298]	New York City	M. J. Jordan	OBG	2,186	2	2	6	3	200
St. Francis Hospital [1-3]	New York City	J. S. Labate	OBG	...	..	1	3	3	125
St. Vincent's Hospital [1-3]	New York City	B. J. Pisani	OBG	3,832	3	2	6	3	125
Sydenham Hospital [1-3]	New York City	P. M. Murray	OBG	2,352	1	1	3	3	105
Woman's Hospital [3]	New York City	A. H. Aldridge	OBG	6,669	3	4	14	3	100
United Hospital [1-3]	Port Chester, N. Y.	C. N. Jeffries	OB	1,306	..	1	1	1	200
Genesee Hospital [1-3-309]	Rochester, N. Y.	A. J. Tatelbaum	OBG	3,126	5	2	4	3	150
Highland Hospital [1-3]	Rochester, N. Y.	F. Fumia	OBG	2,323	..	1	3	3	175
Rochester General Hospital [1-3]	Rochester, N. Y.	J. W. Cooney—J. C. Potter	OBG	3,529	2	1	3	3	125
St. Mary's Hospital [1-3]	Rochester, N. Y.	H. I. Norton	OBG	4,125	1	1	4	3	200
Strong Memorial—Rochester Municipal Hospital [1-3]	Rochester, N. Y.	C. J. Lund	OBG	4,227	6	4	8	3	92
Ellis Hospital [1-3]	Schenectady, N. Y.	W. Mallia—W. Jameson, Sr.	OBG	2,945	2	2	2	2	150
General Hospital	Syracuse, N. Y.	R. J. Pieri	OBG	2,635	4	1	4	2	192

Numerical and other references will be found on pages 387 through 390.

14. OPHTHALMOLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatients Visits	First Year Residencies Offered[9]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
UNITED STATES NAVY								
U. S. Naval Hospital[1-3]	Oakland, Calif.	K. J. Palmberg	304	4,373	1	1	3	...
U. S. Naval Hospital[1]	San Diego, Calif.	V. A. Beuerman	516	9,379	2	4	3	...
U. S. Naval Hospital	Bethesda, Md.	S. J. Ryan	...	5,802	1	3	3	...
U. S. Naval Hospital	St. Albans, N. Y.	A. C. Hohn	142	6,106	1	2	2	...
U. S. Naval Hospital[1-3]	Philadelphia	W. L. Smith	159	6,020	1	3	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital[1-3]	New Orleans	J. B. Peebles, Jr.	143	3,449	1	3	3	...
U. S. Public Health Service Hospital[1-3-157]	Baltimore	W. P. Griffey	118	3,316	..	3	3	...
U. S. Public Health Service Hospital[1-3]	Staten Island, N. Y.	J. B. Peebles	622	7,912	1	3	3	...
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE								
Freedmen's Hospital[1-3]	Washington, D. C.	C. Cowan	61	2,289	1	1	3	25
VETERANS ADMINISTRATION								
Veterans Admin. Hospital	Birmingham, Ala.	(See University of Alabama Medical Center)						
Veterans Admin. Hospital[452]	Tuskegee, Ala.	H. G. Dwiggins	162	984	1	3	3	...
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	G. C. Struble	201	2,560	1	3	3	...
Veterans Admin. Hospital[1-3-27]	Los Angeles	C. S. Mumma	474	4,098	..	2	3	...
Veterans Admin. Hospital[1]	San Francisco	M. Fine—D. O. Harrington	167	1,992	1	3	3	...
Veterans Admin. Hospital[1-3]	Atlanta, Ga.	F. P. Calhoun, Jr.	143	.....	2	2	3	...
Veterans Admin. Research Hospital[1]	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. Hospital[1]	Hines, Ill.	W. A. Mann	370	.....	1	3	2	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	A. W. McAlester, III	87	850	1	2	3	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	(See University of Louisville Medical Center)						
Veterans Admin. Hospital[1-3-142]	New Orleans	J. H. Allen	143	688	1	3	3	...
Veterans Admin. Hospital[1-3]	Fort Howard, Md.	H. A. Naquin	86	134	..	1	3	...
Veterans Admin. Hospital[1-3-193]	Dearborn, Mich	A. D. Ruedeman	104	732	..	1	3	...
Veterans Admin. Hospital[1-3-208]	Minneapolis	E. W. Hansen	132	109	2	3	3	...
Veterans Admin. Hospital[1-3]	St. Louis	H. D. Rosenbaum	216	1,748	1	3	3	...
Veterans Admin. Hospital[1-3]	Brooklyn, N. Y.	M. A. Lasky	241	1	1	2	2	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	S. Fox	309	.....	1	3	3	...
Veterans Admin. Hospital[1-3]	New York City (Manhattan)	G. M. Breinin	118	730	1	3	3	...
Veterans Admin. Hospital[1-3]	Cleveland	J. E. L. Keyes	325	1,625	1	2	2	...
Veterans Admin. Hospital[1]	Pittsburgh	R. N. Lehman	154	.....	2	6	3	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	A. C. Krause	830	9	1	1	3	...
Veterans Admin. Hospital[1-3-307-308]	Dallas, Texas	S. B. Gostin	194	.....	..	2	3	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital[1-3]	Richmond, Va.	E. W. Perkins	418	2,617	1	3	3	...
Veterans Admin. Hospital[1-3-435]	Milwaukee (Wood)	R. H. Lehman	281	3,811	..	4	3	...
NONFEDERAL								
University of Alabama Medical Center								
University Hospital and Hillman Clinic[1-3]	Birmingham, Ala.	W. K. Livingston	1,177	7,820	..	4	2	125
Veterans Admin. Hospital	Birmingham, Ala.	T. O. Paul	422	.....	..	1	2	...
Arkansas Baptist Hospital	Little Rock, Ark.	R. C. Cook	546	.....	1	1	2	250
General Hospital of Fresno County[1-3]	Fresno, Calif.	R. A. Donald	171	1	1	2	2	300
Los Angeles County Hospital[1]	Los Angeles	W. J. Endres	1,129	27,370	3	4	2	216
Los Angeles Eye and Ear Hospital[1-3]	Los Angeles	O. H. Ellis	262	4,266	2	6	2	175
University of California Medical Center	Los Angeles	S. R. Irvine	...	.....	1	3	3	[illegible]
White Memorial Hospital[1-3]	Los Angeles	S. Browneberger	214	8,006	1	2	3	[illegible]
Highland-Alameda County Hospital[1-3]	*Oakland, Calif.*	M. E. Gump	164	3,299	1	1	3	[illegible]
San Diego County General Hospital[1-3]	San Diego, Calif.	J. S. Tuttle	56	3,598	1	1	2	[illegible]
Stanford University Hospitals[1-3]	San Francisco	D. K. Pischel	797	7,727	2	6	3	[illegible]
University of California Hospital[1-3]	San Francisco	F. C. Cordes	379	.....	2	5	3	[illegible]
Harbor General Hospital[1-3]	Torrance, Calif.	S. R. Irvine	195	6,614	1	2	2	[illegible]
University of Colorado Medical Center[463]								
Colorado General Hospital[1-3]	Denver	J. C. Long	145	9,260	1	3	3	150
Denver General Hospital[1-3]	Denver	G. A. Filmer	77	.....	..	..	3	[illegible]
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	R. M. Fasanella	392	6,764	1	3	3	50
District of Columbia General Hospital[1-3]	Washington, D. C.	E. Cummings-R. Cox	164	6,031	1	2	2	133
Episcopal Eye, Ear and Throat Hospital[3-462]	Washington, D. C.	H. R. Downey	1,769	32,917	2	6	3	170
Jackson Memorial Hospital[1-3]	Miami, Fla.	K. S. Whitmer	519	3,856	1	3	3	75
Grady Memorial Hospital[1]	Atlanta, Ga.	F. P. Calhoun, Jr.	551	19,151	2	6	3	[illegible]
Chicago Eye, Ear, Nose and Throat College and Hospital[1-3]	Chicago	O. B. Nugent	465	13,248	2	3	2	100
Cook County Hospital[1-3]	Chicago	T. N. Zekman	645	12,453	3	6	2	75
Illinois Eye and Ear Infirmary[1-3]	Chicago	(See University of Illinois Hospitals)						
Michael Reese Hospital[1-3]	Chicago	T. M. Shapira	916	5,552	2	4	2	75
Northwestern University Medical Center		....	...	.....	..	..	3	...
Chicago Wesley Memorial Hospital[1-3]	Chicago	W. A. Mann	371	.....	1	2	..	75
Passavant Memorial Hospital	Chicago	D. Vail	508	.....	1	3	..	50
Veterans Admin. Research Hospital[1]	Chicago	D. Vail	88	.....	2	2	..	...
P[illegible] Hospital[1-111]	Chicago	W. F. Hughes, Jr.	296	5,188	2	3	2	125
S[illegible][3]	Chicago	E. H. Merz	275	.....	1	2	2	75
[illegible] Clinics[1-3]	Chicago	F. W. Newell	346	7,740	1	3	3	200
University of Illinois Hospitals		....	...	.....	..	..	3	...
Illinois Eye and Ear Infirmary[1-3-94]	Chicago	W. F. Hughes, Jr.	1,676	56,484	9	19	..	125
Research and Educational Hospitals[1-3-120]	Chicago	W. F. Hughes, Jr.	117	8,976	1	2	..	125
Indiana University Medical Center and Affiliated Hospitals								
Indianapolis General Hospital[1-3]	Indianapolis	M. Bartley	247	9,922	..	..	2	95
Indiana University Medical Center Hospital[1-125]	Indianapolis	F. M. Wilson	282	6,988	3	12	3	165
State University of Iowa Hospitals[1-3]	Iowa City	A. E. Braley	1,474	4 800	2	6	3	110
University of Kansas Medical Center[1-3]	Kansas City, Kan.	A. Lemoine	595	4,525	1	3	3	125
University of Louisville Medical Center								
Louisville General Hospital[1-3]	Louisville, Ky.	C. D. Townes	134	6,756	..	2	2	105
Veterans Admin. Hospital[1-3]	Louisville, Ky.	C. D. Townes	572	698	1	2	2	...
Charity Hospital of Louisiana								
Independent Unit[1]	New Orleans	J. H. Larose	121	3,358	1	3	3	100
Louisiana State University Unit[1]	New Orleans	G. M. Haik	635	6,566	2	4	3	100
Tulane University Unit[1]	New Orleans	J. H. Allen	587	5,886	..	4	3	100
Eye, Ear, Nose and Throat Hospital[1-3]	New Orleans	W. B. Clark	1,388	14,655	..	10	3	125
Baltimore Eye, Ear, Nose and Throat Hospital	Baltimore	H. C. Dix	1,005	12,218	1	3	3	175
Johns Hopkins Hospital[1-3]	Baltimore	A. E. Maumenee	1,871	17,063	5	6	3	25
University Hospital[1-3]	Baltimore	....	11	1,921	1	2	2	75
Massachusetts Eye and Ear Infirmary[1-3-105]	Boston	E. B. Dunphy	3,932	41,383	5	11	3	42
Massachusetts Memorial Hospitals[1-3]	Boston	T. Gunderson	258	5,012	1	2	2	50
University Hospital[1-3]	Ann Arbor, Mich.	F. B. Fralick	752	14,396	5	15	3	134
Harper Hospital[1-3]	Detroit	A. D. Ruedemann	1,488	.....	1	3	3	25

Numerical and other references will be found on pages 387 through 390.

14. OPHTHALMOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Henry Ford Hospital [1-3]	Detroit	J. Guyton	659	19,400	4	12	3	225
Receiving Hospital [1-3-201]	Detroit	A. D. Ruedemann	639	.....	1	13	3	100
Minneapolis General Hospital [1-3]	Minneapolis	K. E. Sandt	117	3,845	1	2	3	185
University of Minnesota Hospitals [1-3-215]	Minneapolis	E. W. Hansen	165	6,191	1	5	3	185
Mayo Foundation [1]	Rochester, Minn.	C. W. Rucker	900	37,000	7	16	3	150
Charles T. Miller Hospital [1-3]	St. Paul, Minn.	A. F. Adair	580	2,887	1	2	3	185
University Hospital [1]	Jackson, Miss.	.....	.....	.....	..	2	3	250
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	J. R. Rufe	135	3,454	1	2	2	150
Barnes Hospital [1-3]	St. Louis	B. Becker	1,800	21,414	4	12	3	50
Homer G. Phillips Hospital [1-3]	St. Louis	B. Becker	145	.....	2	6	3	190
St. Louis City Hospital [1-3]	St. Louis	D. Bisno	166	6,004	2	3	3	190
St. Mary's Group of Hospitals [1-3]	St. Louis	R. D. Mattis	252	6,311	1	3	3	100
University of Nebraska Hospital [1-3]	Omaha	J. H. Judd	152	3,306	1	2	3	175
Jersey City Medical Center [1-3]	Jersey City, N. J.	F. X. Brophy	446	.....	1	3	3	92
Newark Eye and Ear Infirmary [1-3]	Newark, N. J.	L. W. Hughes	1,222	.....	2	2	2	125
Brooklyn Eye and Ear Hospital [1-3]	Brooklyn, N. Y.	W. V. Moore	3,149	42,612	3	6	2	100
Jewish Hospital [1-3]	Brooklyn, N. Y.	M. Lasky	213	3,373	2	3	2	100
Kings County Hospital University Service [1]	Brooklyn, N. Y.	R. Troutman	358	13,209	2	4	3	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	A. S. Rosenberg	81	3,072	1	1	2	150
Buffalo General Hospital [1-3]	Buffalo	I. J. Koenig	396	2,068	1	1	2	200
Edward J. Meyer Memorial Hospital [1]	Buffalo	W. Y. Jones	107	1,981	1	3	2	245
Elmhurst General Hospital [1-3-125]	Elmhurst, N. Y.	W. R. Loewe	112	4,412	1	2	2	105
Queens General Hospital [1-3]	Jamaica, N. Y.	T. D'Angelo	168	3,837	1	2	2	105
Bellevue Hospital Center Div. IV—New York University Post-Graduate Medical School [1-3-293]	New York City	A. DeVoe	450	17,698	4	10	3	105
Bronx Eye and Ear Infirmary	New York City	N. Gould-S. Epstein	966	15,470	1	2	2	100
Goldwater Memorial Hospital [1-3]	New York City	C. Fox	1,888	228	2	3	2	104
Lenox Hill Hospital [1-3]	New York City	B. F. Payne	373	4,588	1	2	3	150
Manhattan Eye, Ear and Throat Hospital [1-3]	New York City	R. T. Paton	2,829	52,264	5	10	2	...
Montefiore Hospital [1-3]	New York City	S. Gartner	155	4,199	1	2	2	75
Mount Sinai Hospital [1-3]	New York City	J. Laval	272	9,651	1	2	2	50
New York Eye and Ear Infirmary [1-3]	New York City	B. F. Payne	6,481	59,136	6	18	3	50
New York Hospital [1-3]	New York City	J. M. McLean	666	10,884	2	5	3	116.67
New York Polyclinic Medical School and Hospital [1-3]	New York City	H. H. Romaine	135	1	1	3	2	100
Presbyterian Hospital [1]	New York City	J. H. Dunnington	2,897	28,857	3	9	3	250
St. Luke's Hospital [1-3]	New York City	W. G. Frey	301	5,920	1	2	2	100
St. Mary's Hospital [1-3]	Rochester, N. Y.	C. Sullivan	417	846	1	1	2	200
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	J. F. Gipner	422	2,844	1	2	3	92
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	F. R. Webster	640	3,447	1	3	2	192
Grass	Valhalla, N. Y.	C. Wood	102	4,583	1	3	3	175
North	hapel Hill, N. C.	S. D. McPherson, Jr.	86	2,533	..	2	3	156
Duke	Durham, N. C.	W. B. Anderson	542	4,165	2	6	3	127
McPherson Hospital [1-3]	Durham, N. C.	S. D. McPherson	663	20,345	1	3	3	150
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	R. W. Roberts	214	1,770	1	3	3	125
Cincinnati General Hospital [1-3]	Cincinnati	D. J. Lyle	250	7,192	1	4	2	40
City Hospital [1-3]	Cleveland	R. J. Nicholl	141	6,395	1	3	2	150
Cleveland Clinic Hospital [1-3]	Cleveland	R. J. Kennedy	417	17,403	2	6	3	175
University Hospitals [1-3]	Cleveland	L. V. Johnson	869	7,337	1	3	2	125
Ohio State University Hospitals University Hospital [1-3-345]	Columbus, Ohio	W. H. Havener	390	9,205	4	10	3	152
University of Oklahom	Oklahoma City	J. R. Reed	352	3,808	1	3	2	85
University of Oregon Hospitals and Clinics	Portland, Ore.	K C. Swan	184	10,956	2	6	3	100
Geo. F. Geisinger Memorial Hospital and Foss Clinic [1-3]	Danville, Pa	A L. Rhoades	171	4,370	1	2	2	185
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	I Leopold	959	2,094	3	5	3	...
Hospital of the University of Pennsylvania [1-3]	Philadelphia	F H [illegible]ler	705	5,890	3	9	3	30
Jefferson Medical College Hospital [1-3]	Philadelphia	A E Town	230	4,554	..	2	3	50
Philadelphia General Hospital [1-3]	Philadelphia	T. H. Cowan	207	......	2	2	3	114
Temple University Hospital [1-3]	Philadelphia	G G Gibson	255	3,108	..	..	3	...
Wills Eye Hospital [1-3]	Philadelphia	.....	4,547	86,247	7	14	2	...
Montefiore Hospital [1-3]	Pittsburgh	H Thorpe	533	2,781	1	3	3	225
Pittsburgh Medical Center Eye and Ear Hospital [1-3]	Pittsburgh	M F. McCaslin	2,545	10,756	3	6	3	125
Roper Hospital [1-3]	Charleston S C	P G. Jenkins	227	......	1	3	2	135
City of Memphis Hospitals—Memphis Eye, Ear, Nose and Throat Hospital [1-3]	Memphis, Tenn	P M Lewis	1,926	5,077	1	5	2	100
Parkland Memorial Hospital [1-3]	Dallas, Texas	C W. Browning	235	4,108	1	3	2	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G Robertson	351	6,589	..	4	2	160
Baylor University College of Medicine Affiliated Hospitals Jefferson Davis Hospital [1-3]	Houston, Texas	E L Goar	28	9,658	..	2	2	75
Veterans Admin Hospital	Houston, Texas	E L Goar	297	......	1	3	3	...
Scott and White Memorial Hospitals [1-3]	Temple, Texas	E. R Veirs	214	3,215	1	1	2	250
pital [1-3]	Charlottesville, Va	E W Burton	375	2,984	2	4	3	50
Hospital Division [1-3]	Richmond, Va	D Guerry, III	353	7,041	1	3	3	50
Throat Hospital	Roanoke, Va	E. G Gill	2,010	24,038	1	1	3	300
No 1 (Harborview) [1-122]	Seattle	R. C Laughlin	115	......	..	1	2	145
	Madison, Wis	P. Duehr	525	4,182	2	4	3	175
[1-3]	Milwaukee	E. F Carl	278	9,398	2	4	2	207
Gorgas Hospital [1]	Ancon, Canal Zone	R H Rupp	164	8,483	1	1	2	345
San Juan City Hospital [1-3]	San Juan, P R	G Pico	216	......	1	2	2	150

Residency programs in the following hospitals have been approved by the Council and the American Board of Ophthalmology through the Residency Review Committee for Ophthalmology, as offering training of ONE year's duration. It should be noted that beginning July 1, 1957 only those hospitals which either intramurally or through affiliation are able to provide at least two years of clinical training in the specialty, will continue to be approved. These residency programs will be reviewed prior to July 1, 1957 relative to their qualifying for continued approval.

Hospitals, 11; Assistant Residencies and Residencies, 22

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend Offered *
Provident Hospital [1-3]	Chicago	W. M. Jones	26	4,084	1	1	200
Woodlawn Hospital [1]	Chicago	F. M. Whitsell	501	4,330	1	1	200

Numerical and other references will be found on pages 387 through 390.

14. OPHTHALMOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend Offered *
Evanston Hospital [1-3]	Evanston, Ill.	G. R. Soper	141	.....	1	1	225
Touro Infirmary [1]	New Orleans	A. L. Braunstein	79	1,952	1	3	125
Boston City Hospital [1-3]	Boston	D. R. Alpert	499	21,712	..	7	132
Beth Israel Hospital [1-3]	New York City	M. L. Berliner	140	2,888	1	1	146
Harlem Eye and Ear Hospital [1-3]	New York City	P. Muller	690	13,284	1	3	75
New York Medical College-Metropolitan Medical Center Metropolitan Hospital [1-3]	New York City	C. A. Turtz	119	......	2	2	105
Sea View Hospital [1-3]	Staten Island, N. Y.	S. L. Saltzman	1,743	......	1	1	157
St. Luke's Hospital [1-3]	Cleveland	M. W. Jacoby	422	2,769	..	1	120
Robert Packer Hospital [1-3]	Sayre, Pa.	E. Kulczycki	191	......	..	1	200

15. ORTHOPEDIC SURGERY

Type of training acceptable to Board: A—Adult orthopedics; C—Children's orthopedics; F—Fractures. Residency programs in the following hospitals have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in adult orthopedics, children's orthopedics, and fractures. Training in the basic sciences is given either as an integral part of these services or as a separate course. Services collaborating in an integral plan of training are designated by a program number, a list of which is found on pages 349 and 350. Residents completing their training in these hospitals are eligible for full certification by the American Board of Orthopedic Surgery, including children's orthopedic surgery.

Hospitals, 224; Assistant Residencies and Residencies, 883

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY									
Army Medical Center [1-3]	Washington, D. C.	M. S. Thompson	ACF	1,084	2	3	9	...	...
Brooke Army Hospital [1-3]	San Antonio, Texas	J. W. Batch	ACF	1,422	6	3	9	..	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE									
Freedmen's Hospital [1-3]	Washington, D. C.	J. R. Gladden	ACF	381	2	..	1	..	215
VETERANS ADMINISTRATION									
Veterans Admin. Hospital [1-3]	Birmingham, Ala	(See University of Alabama Medical Center)							
Veterans Admin. Hospital [1-3]	Long Beach, Calif	R. H. Hall	AF	191	2	1	3	64	...
Veterans Admin. Hospital [1]	San Francisco	L. C. Abbott-D. E. King	AF	254	3	1	3	2,3	...
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)							
Veterans Admin. Hospital	Hines, Ill.	H. A. Sofield	AF	1,320	9	5	10	50	...
Veterans Admin. Hospital [1]	Indianapolis	(See University of Indiana Medical Center)							
Veterans Admin. Hospital [1]	Des Moines, Iowa	D. N. Gibson	AF	912	10	1	3	55	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	R. L. Diveley	AF	211	4	2	4	18	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. Lyford, III	AF	1,601	2	1	4	9	...
Veterans Admin. Hospital [1-3]	New Orleans	R. H. Alldredge	AF	359	4	1	3	10	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	J. S. Barr	AF	1,024	..	..	4	13	...
Veterans Admin. Hospital [1-3]	Minneapolis	E. T. Evans	AF	628	7	5	6	16	...
Veterans Admin. Hospital [1-3]	[illegible]y, Mo.	R. L. Diveley	AF	246	..	1	2	18	...
Veterans Admin. Hospital [1-3]	Lincoln, Neb.	J. E. M. Thomson	AF	557	2	1	3	33	...
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	S. Chessid	AF	398	5	1	3	52	...
Veterans Admin. Hospital [1-3]	Buffalo	W. M. Chardack	AF	573	1	..	2	24	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	T. C. Thompson	AF	655	4	1	4	22	...
Veterans Admin. Hospital [1-3]	Durham, N. C.	E. S. Whitesides	AF	525	4	1	2	19	...
Veterans Admin. Hospital [1-3]	Cleveland	W. H. McGaw	AF	587	..	2	5	27	...
Veterans Admin. Hospital [1]	Oklahoma City	W. K. West	AF	498	2	..	1	53	...
Veterans Admin. Hospital	[illegible], S. C.	J. T. Green	AF	283	2	1	3	45	...
Veterans Admin. Hospital	[illegible] Tenn.	D. M. Street	AF	1,778	3	1	8	1	...
Veterans Admin. Hospital	[illegible] Texas	(See Baylor University College of Medicine Affiliated Hospitals)							
Veterans Admin. Hospital	Salt Lake City	J. A. Gubler	A	350	3	..	1	31	...
Veterans Admin. Hospital [1-3]	Richmond, Va.	R. D. Butterworth	AF	972	1	1	4	35	...
Veterans Admin. Hospital	Seattle	J. T. Payne	A	197	2	..	..	36	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	P. L. Carnesale	AF	1,165	11	2	5	40	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
University of Alabama Medical Center									
Unive[illegible] Hillman Clinic [1-3]	Birmingham, Ala.	J. D. Sherrill Sr.	ACF	1,586	6	2	7	44	16
Veter[illegible]	[illegible] Ala.	M. A. Accinno	AF	344	3	..	2	44	..
Lloyd N[illegible]	[illegible] Ala.	C. L. Yelton	AF	837	..	1	3	68	22
Mobile County Hospital [1-3]	[illegible], Ala.	W. C. Hannon	ACF	446	1	1	1	..	23
Arkansas [illegible] Hospital [1]	Little Rock, Ark	R. Rowen	C	384	..	1	1	1	..
Children's [illegible] [1-20]	Los Angeles	S. S. Matthews	C	628	..	..	2	64	15
Los Ange[illegible]	Los Angeles	G. M. Taylor	ACF	4,028	31	5	14	..	21
Orthopaedic Hospital	Los Angeles	J. V. Luck	ACF	2,753	..	4	5	..	20
University of California Medical Center	Los Angeles	P. McMaster	ACF	.....	..	1	3	..	23
Children's Hospital of the East Bay [1-3]	Oakland, Calif.	E. N. Ewer	C	.....	..	..	..	2	..
[illegible] County Hospital [1-3]	Oakland, Calif.	L. Barnard	AF	741	2	1	2	3	13
[illegible] [1]	Oakland, Calif.	E. G. Ewer	AF	1,396	3	1	2	2	15
[illegible]	San Francisco	L. J. Larsen	C	324	..	..	2	2	17
[illegible]	San Francisco	F. C. Bost	A	1,020	4	3	3	2	
[illegible]									
Stanford Service [1-3]	San Francisco	F. J. Cox	AF	823	1	..	1	3	
University of California Service [1-3]	San Francisco	E. R. Schottstaedt	AF	975	..	..	1	2	
Shriners Hospital for Crippled Children	San Francisco	F. C. Bost	C	260	..	..	2	2	
Stanford University Hospitals [1-3]	San Francisco	D. E. King	AC	1,295	..	1	3	3	
University of California Hospital [1-3]	San Francisco	L. C. Abbott	A	281	..	1	3	2	
Harbor General Hospital	Torrence, Calif.	S. S. Haft-W. G. Rhorer	AF	784	3	1	3	65	
Children's Hospital [1-3]	Denver	I. E. Hendryson	C	748	..	..	2	4	
University of Colorado Medical Center [1-3]									
Univ[illegible] C[illegible] Hospital [1-3]	Denver	A. Thomas	AF	299	2	1	3	4	
[illegible] [1-3]	Denver	J. Miles	AF	584	14	..	..	4	
[illegible]	Hartford, Conn.	....	AF	.....	..	..	..	5	
[illegible] ty Hospital [1-3]	New Haven, Conn.	C. O. Bechtol	AF	959	9	..	3	5	
Hospital of St. Raphael	New Haven, Conn.	W. H. Perham	AF	587	3	2	6	43	
Newington Home and Hospital for Crippled Children [3]	Newington, Conn.	B. H. Curtis	C	454	..	4	4	5	

Numerical and other references will be found on pages 387 through 390.

15. ORTHOPEDIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Program Identification	Beginning Stipend Offered *
Alfred I. Du Pont Institute of the Nemours Foundation [1-3]	Wilmington, Del.	A. R. Shands, Jr.	C	276	..	2	2	19, 20	150
Central Dispensary and Emergency Hospital [1-3-462]	Washington, D. C.	F. M. Hand-J. Neviaser	AF	1,223	4	..	..	54	...
District of Columbia General Hospital [1-3]	Washington, D. C.	M. C. Cobey-J. Neviaser	ACF	957	3	3	5	54	153
Jackson Memorial Hospital [1-3]	Miami, Fla.	A. H. Weiland	ACF	1,875	12	2	6	..	75
Orange Memorial [illegible]	Orlando, Fla.	N. C. McCollough	ACF	714	..	..	..	..	150
American Legion [illegible]	Petersburg, Fla.	R. C. Lonergan	C	650	1	..	1	7	150
Grady Memorial [illegible]	Atlanta, Ga.	R. P. Kelly	ACF	882	..	3	9	39	20
University Hospital [1]	Augusta, Ga.	J. L. Chandler	ACF	677	2	..	6	..	200
Emory University Hospital	Emory University, Ga.	R. P. Kelly	A	751	..	..	3	39	240
Cook County Hospital [1-3]	Chicago	F. N. Shapiro	ACF	786	4	1	4	..	75
Michael Reese Hospital [1-3]	Chicago	S. Sideman	ACF	1,066	3	1	3	42	75
Northwestern University Medical Center									
Chicago Wesley Memorial Hospital [1-3]	Chicago	E. L. Compere	ACF	1,676	3	1	3	7	75
Passavant Memorial Hospital	Chicago	E. Hauser	A	780	2	1	1	7	50
Veterans Admin. Research Hospital [1]	Chicago	E. L. Compere	AF	188	1	..	1	7	...
Evanston Hospital [1-3]	Evanston, Ill.	V. Turner	AF	823	4	1	1	7	225
St. Elizabeth Hospital [3]	Chicago	C. S. Scuderi	F	951	..	1	2	42	200
St. Luke's Hospital [1-3]	Chicago	C. N. Lambert	AF	564	5	2	2	47	75
Shriners Hospitals for Crippled Children [3]	Chicago	H. A. Sofield	C	263	..	3	3	50	...
University of Chicago Clinics [1-3]	Chicago	C. H. Hatcher	ACF	823	4	2	5	..	200
University of Illinois Research and Educational Hospitals [1-3-113]	Chicago	R. D. Ray	ACF	859	3	2	6	47	125
St. Francis Hospital [1]	Evanston, Ill.	J. J. Fahey	AF	1,032	1	2	2	7	175
West Suburban Hospital [3]	Oak Park, Ill.	H. A. Sofield	AF	490	3	1	1	50	225
St. Francis Hospital [1-3]	Peoria, Ill.	H. E. Cooper	ACF	1,814	3	1	2	..	225
Indianapolis General Hospital [1-3]	Indianapolis	L. Thomas	AF	774	7	1	4	8	205
Indiana University Medical Center									
Indiana University Medical Center Hospital [1]	Indianapolis	G. J. Garceau	ACF	879	3	..	7	8	215
Veterans Admin. Hospital [1]	Indianapolis	G. J. Garceau	AF	442	..	..	1	8	...
St. Vincents Hospital [1-3-122]	Indianapolis	G. J. Garceau	AF	1,289	2	1	2	8	275
State University of Iowa Hospitals [1-3]	Iowa City	C. B. Larson	ACF	2,133	13	4	12	55	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	J. B. Weaver	ACF	572	3	..	3	..	125
St. Francis Hospital [1-3]	Wichita, Kan.	H. O. Marsh	ACF	1,839	9	1	3	..	275
Good Samaritan Hospital [3]	Lexington, Ky.	K. Thompson	ACF	1,426	..	1	1	59	225
St. Joseph Hospital	Lexington, Ky.	O. B. Murphy	ACF	686	2	1	1	59	230
Kosair Crippled Children Hospital [1-3]	Louisville, Ky.	K. A. Fischer	C	611	..	4	4	9	200
Louisville General Hospital [1-3]	Louisville, Ky.	K. A. Fischer	AF	460	6	..	3	9	105
Charity Hospital of Louisiana									
Louisiana State University Unit [1]	New Orleans	H. T. Simon	ACF	927	7	4	12	..	100
Tulane University Unit [1-117]	New Orleans	J. Wickstrom	ACF	1,423	10	4	12	10	100
Ochsner Foundation Hospital [1-142-148]	New Orleans	G. A. Caldwell	AF	322	..	1	4	56	225
Touro Infirmary [1]	New Orleans	R. H. Alldredge	ACF	829	..	1	3	10, 56	125
Confederate Memorial Medical Center [1]	Shreveport, La.	C. R. Reed	ACF	1,225	2	2	6	70	125
Shriners Hospital for Crippled Children [1]	Shreveport, La.	G. A. Caldwell	C	336	..	..	1	70	100
Baltimore City Hospitals [1-3]	Baltimore	M. M. Ravitch	AF	782	2	..	1	58	50
Children's Hospital School [1-3]	Baltimore	G. O. Eaton	C	701	1	..	..	57	50
James Lawrence Kernan Hospital for Crippled Children [1-3]	Baltimore	A. F. Voshell	C	566	..	1	2	58	250
Johns Hopkins Hospital [1-3]	Baltimore	R. A. Robinson	AF	785	4	5	6	57	25
Boston City Hospital [1-3]	Boston	A. P. Aitken	AF	2,360	9	..	8	13, 66	132
Children's Medical Center [1-3]	Boston	W. T. Green	C	1,168	1	5	15	11	50
Lahey Clinic [1-3-174-169]	Boston	G. E. Haggart	A	521	..	4	12	66	200
Massachusetts General Hospital [1-3]	Boston	J. S. Barr	ACF	1,899	..	5	6	11	67
Peter Bent Brigham Hospital [1-3]	Boston	W. T. Green	AF	Incl. in Surgery		..	1	11	42
Massachusetts Hospital School [1-189]	Canton, Mass.	P. L. Norton	CF	177	..	..	2	13, 66	...
Shriners Hospital for Crippled Children [3]	Springfield, Mass.	G. deN. Hough, Jr.	C	346	..	..	2	66	50
University Hospital [1-3]	Ann Arbor, Mich.	C. E. Badgley	ACF	1,555	2	4	16	..	186
Children's Hospital [1]	Detroit	F. J. Fischer	C	349	..	..	2	12	200
Harper Hospital [1-3]	Detroit	C. W. Peabody	A	984	1	2	2	12	225
Henry Ford Hospital [1-3]	Detroit	C. L. Mitchell	ACF	1,363	6	4	12	..	225
Receiving Hospital [1-3]	Detroit	A. G. Goetz	F	752	6	..	2	12	260
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	C. F. Frantz	ACF	562	1	1	3	..	250
St. Mary's Hospital [1-3]	Grand Rapids, Mich.	G. T. Aitken	ACF	1,105	7	1	3	..	200
Borgess Hospital [1-3]	Kalamazoo, Mich.	R. DeLong	ACF	508	3	..	1	..	225
Shriners Hospital for Crippled Children [1-3]	Minneapolis	D. R. Lannin	C	264	..	2	2	16	100
University of Minnesota Hospitals [1-3]	Minneapolis	W. H. Cole	A	234	1	1	3	16	185
Mayo Foundation [1]	Rochester, Minn.	H. H. Young	ACF	5,600	5	8	25	..	150
Gillette State Hospital for Crippled Children [1-3]	St. Paul	W. H. Cole	C	866	4	..	..	16	205
Mississippi Baptist Hospital [1]	Jackson, Miss.	T. H. Blake	ACF	1,566	3	1	3	..	150
University Hospital	Jackson, Miss.	....	ACF	....	..	..	..	..	...
Children's Mercy Hospital [3]	Kansas City, Mo.	R. H. Kiene	C	192	..	..	1	18	125
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	F. G. Pipkin	AF	602	16	2	2	18	130
St. Luke's Hospital [1-3]	Kansas City, Mo.	R. L. Diveley	ACF	994	3	1	3	18	175
Barnes Hospital [1-3]	St. Louis	F. Reynolds	ACF	1,245	4	4	10	..	50
St. Louis City Hospital [1-3]	St. Louis	J. O. Lottes-R. Funsch	F	861	..	..	1	46, 60	190
St. Mary's Group of Hospitals [1-3]	St. Louis	R. M. O'Brien	ACF	776	6	2	6	46	100
Shriners Hospital for Crippled Children	St. Louis	C. H. Crego	C	486	..	..	2	60	...
Nebraska Orthopedic Hospital [1]	Lincoln, Neb.	F. Teal	C	634	4	1	1	33, 61	150
University of Nebraska Hospital [1-3]	Omaha	W. R. Hamsa	ACF	134	6	1	2	61	175
Monmouth Memorial Hospital [1-3]	Long Branch, N. J.	B. M. Halbstein	ACF	824	5	1	3	..	200
Hospital for Crippled Children [1-3]	Newark, N. J.	H. Kessler-D. Eisenberg	AC	1,420	2	..	3	67	150
Hospital Center at Orange		....	ACF	....	..	..	..	..	...
New Jersey Orthopaedic Hospital [1-3]	Orange, N. J.	H. T. Hansen	.....	951	2	1	3	..	150
Orange Memorial Hospital [1-3]	Orange, N. J.	H. T. Hansen	.....	....	..	..	..	..	...
House of St. Giles the Cripple	Brooklyn, N. Y.	M. Cleveland	C	173	..	..	2	26, 41	100
Kings County Hospital									
County Service [1]	Brooklyn, N. Y.	C. C. Vitale	ACF	266	1	..	2	..	104
University Service [1]	Brooklyn, N. Y.	R. F. Warren	ACF	550	1	1	2	..	104
St. Charles Hospital [1-3]	Brooklyn, N. Y.	H. C. Fett	C	336	..	4	4	52	125
Buffalo General [illegible]	Buffalo	B. E. Obletz	AF	944	3	3	8	24	175
[illegible]	Buffalo	F. N. Potts	C	511	..	..	3	24	125
[illegible]	Hempstead, N. Y.	O. C. Hudson	F	1,961	21	1	5	38	225
[illegible]	Mineola, N. Y.	O. Hudson	AF	1,748	..	1	3	38	225
Bellevue Hospital Center									
Div. IV—New York University									
Post-Graduate Medical School [1-3-290]	New York City	W. A. L. Thompson	ACF	309	..	4	12	51	105
Hospital for Joint Diseases [1-3-289]	New York City	J. E. Milgram	ACF	2,826	9	6	19	..	80
Hospital for Special Surgery [1-3]	New York City	T. C. Thompson	ACF	3,027	5	4	12	22	160
New York Medical College-Metropolitan Medical Center									
Metropolitan Hospital [1-3]	New York City	M. J. Wilson	AF	497	2	2	4	67	105
Mount Sinai Hospital [1-3]	New York City	R. K. Lippmann	ACF	962	3	2	5	..	50

Numerical and other references will be found on pages 387 through 390.

15. ORTHOPEDIC SURGERY–Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend Offered
New York Polyclinic Medical School and Hospital [1-3]	New York City	D. M. Bosworth	F	225	1	..	1	26	100
Presbyterian Hospital [1]	New York City	F. E. Stinchfield	ACF	2,644	4	6	24	..	250
St. Luke's Hospital [1-3]	New York City	D. M. Bosworth	ACF	890	7	1	3	41	100
St. Charles Hospital [3]	*Port Jefferson, N. Y.*	*F. S. Child*	C	539	..	..	6	38, 43	150
Rochester General Hospital [1-3]	Rochester, N. Y.	M. L. Rowe	A	686	1	..	..	31	125
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	R. P. Schwartz	ACF	1,196	..	3	7	31	92
Ellis Hospital [1-3]	Schenectady, N. Y.	W. E. Gazeley	ACF	789	1	1	3	..	150
St. Vincent's Hospital [1-3]	Staten Island, N. Y.	D. M. Bosworth	F	593	..	1	1	26	150
Sea View Hospital [1-3-316]	Staten Island, N. Y.	D. M. Bosworth	A	153	..	4	4	26	157
New York State Rehabilitation *Hospital* [1-3]	*West Haverstraw, N. Y.*	J. C. McCauley	C	598	3	4	4	14, 51	200
Charlotte Memorial *Hospital* [1]	Charlotte, N. C.	I. Rapp	AF	1,184	8	1	4	18	250
Duke University Hospital [1-3-320-323]	Durham, N. C.	L. D. Baker	ACF	880	..	6	19	19	162
North Carolina Orthopedic Hospital [3]	Gastonia, N. C.	W. M. Roberts	C	254	..	2	2	19	...
Akron City Hospital [1-3]	Akron, Ohio	A. E. Davis	AF	1,374	2	2	6	15	250
Mary Day Nursery and Children's Hospital [1-3]	Akron, Ohio	F. B. Roberts	C	765	..	2	6	15	250
Children's Hospital [1]	*Cincinnati*	*J. A. Freiberg*	C	350	..	..	..	17	...
Cincinnati General Hospital [1-3]	Cincinnati	J. A. Freiberg	AF	207	4	2	6	17	50
Jewish Hospital [1-3]	Cincinnati	R. Perlman	A	906	5	..	1	17	165
Cleveland Clinic Hospital [1-3]	Cleveland	J. I. Kendrick	ACF	826	10	2	6	..	175
St. Luke's Hospital [1-3]	Cleveland	W. H. McGaw	ACF	1,318	5	1	4	..	120
University Hospitals [1-3]	Cleveland	C. H. Herndon	ACF	1,269	1	..	5	27	125
Children's Hospital [1 3]	Columbus, Ohio	H. B. Lacey	C	490	..	..	3	25	...
Mount Carmel Hospital [1]	Columbus, Ohio	H. B. Lacey	AF	1,273	2	1	2	25	275
Ohio State University Hospitals									
University Hospital [1-3]	*Columbus, Ohio*	*J. D. Wilson*	AF	*Incl in Surgery*		..	7	25	152
White Cross Hospital [1-3]	Columbus, Ohio	J. D. Wilson	AF	1,199	1	1	3	25	275
Elyria Memorial Hospital	Elyria, Ohio	C. N. Heyman	C	181	..	..	1	27	250
St. Vincent's Hospital [1-3]	Toledo, Ohio	A. L. Bershon	ACF	1,241	5	1	3	..	275
Youngstown Hospital [1-3]	Youngstown, Ohio	W. D. McElroy	AF	1,176	12	1	2	71	175
Bone and Joint Hospital [3]	Oklahoma City	E. D. McBride	AF	1,722	2	..	4	53	250
St. Anthony Hospital	Oklahoma City	W. K. West	A	1,791	5	1	1	53	150
University of Oklahoma Hospitals [1-3-353]	*Oklahoma City*	D. H. O'Donoghue	ACF	1,177	2	1	8	53	...
Emanuel Hospital [1-3]	Portland, Ore.	H. E. Davis	AF	1,767	6	2	4	28	275
Shriners Hospital for Crippled Children [1-3]	Portland, Ore.	L. S. Lucas	C	369	..	..	2	28	100
University of *Oregon Medical School* Hospitals and Clinics [360]	Portland, Ore.	L. S. Lucas	AF	603	8	2	8	28	100
Geo. F. Geisinger Memorial Hospital and *Foss Clinic* [1-2]	Danville, Pa.	L. F. Bush	AF	868	4	1	3	6	175
State Hospital for Crippled Children [1]	Elizabethtown, Pa.	T. Outland	C	317	..	..	..	21	...
Hamot Hospital [1-3]	*Erie, Pa.*	C. W. Fortune	ACF	1,529	2	1	3	..	200
Children's Hospital [1 3]	Philadelphia	J. T. Nicholson	C	204	..	..	2	23, 72	75
Graduate Hospital of the University of Pennsylvania [1-3-369]	Philadelphia	J. T. Nicholson	A	297	..	1	1	23	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	P. Colonna	ACF	919	3	2	7	20	...
Jefferson Medical College Hospital [1-3]	Philadelphia	A. F. DePalma	AF	811	4	2	8	21	100
Pennsylvania Hospital [1-3]	Philadelphia	J. T. Nicholson	F	298	3	1	1	23	50
Philadelphia General Hospital [1-3]	Philadelphia	I. Stein	ACF	738	18	5	5	..	111
Shriners Hospital *for Crippled Children* [1-3]	Philadelphia	J. R. Moore	C	216	..	1	4	29	75
Temple University Hospital [1-3]	Philadelphia	J. R. Moore	AF	999	2	..	..	29	...
Allegheny General Hospital [1]	Pittsburgh	P. B. Steele- J. A. Heberling	ACF	1,217	3	1	2	69, 71	200
Children's Hospital [1-3]	Pittsburgh	*J. Donaldson-* A. Ferguson, Jr.	C	603	..	3	5	6, 30	125
Presbyterian Hospital	Pittsburgh	A. B. Ferguson	AF	551	2	..	3	30	125
St. Francis General Hospital and Rehabilitation Institute [1]	Pittsburgh	C. C. Yount	A	388	2	..	1	69	200
Reading Hospital [1-3]	Reading, Pa.	E. J. Morrissey	AF	778	5	1	1	72	25
Robert Packer Hospital [1-3]	Sayre, Pa.	D. Baker	ACF	1,031	4	1	3	..	20
Rhode Island Hospital [1-3]	Providence, R. I.	K. G. Burton	ACF	1,731	12	1	4	..	10
Roper Hospital [1-3]	Charleston, S. C.	J. A. Siegling	ACF	684	1	1	3	45	15
Columbia Hospital of Richland County	Columbia, S. C.	W. A. Boyd	ACF	1,738	2	1	3	..	165
Greenville *General Hospital* [1-3]	Greenville, S. C.	F. H. Stelling	AF	824	3	..	3	19	20
Shriners Hospital For Crippled Children [1-3]	Greenville, S. C.	F. H. Stelling	C	396	..	..	3	19, 48	100
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	J. J. Killeffer	ACF	676	1	1	3	..	150
Campbell Clinic Hospital [3-388]	Memphis, Tenn.	J. S. Speed	ACF	2,222	3	4	12	..	50
Vanderbilt University Hospital [1 3]	Nashville, Tenn.	E. M. Regen	ACF	926	1	1	3	..	50
Baylor University Hospital [1-3]	Dallas, Texas	F. L. Butte	A	2,110	3	1	2	32	100
Parkland Memorial Hospital [1 3]	Dallas, Texas	C. F. Gregory	F	626	3	..	..	32	75
Texas Scottish Rite Hospital for Crippled Children [1-3]	Dallas, Tex.	B. Carrell	C	644	..	2	3	32	125
Baylor University College of Medicine Affiliated Hospitals									
Jefferson Davis Hospital [1-3]	Houston, Texas	F. A. Bloom	ACF	803	7	2	6	49	100
Veterans Admin. Hospital [1 3]	Houston, Texas	B. F. Boylston	.....	1,866	4	2	6	49	...
Hermann Hospital [1-3]	Houston, Texas	E. T. Smith	ACF	1,613	4	1	4	..	100
Scott and White *Memorial Hospitals* [1-3]	*Temple, Texas*	R. A. Murray	ACF	2,323	..	1	3	..	250
Dr. W. H. Groves *Latter-Day* Saints Hospital [3]	Salt Lake City	P. R. Milligan	AF	910	5	1	3	63	200
Primary Childrens Hospital [1-3]	Salt Lake City	P. R. Milligan	C	323	..	..	1	63	200
Salt Lake County General Hospital	Salt Lake City	R. Richards	F	....	..	..	1	31	...
Shriners Hospital for Crippled Children [1-3]	Salt Lake City	P. A. Pemberton	C	267	1	2	2	31	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	J. H. Allan	ACF	820	1	3	6	14	50
Crippled Children's *Hospital* [1-3]	Richmond, Va.	J. T. Tucker	C	428	..	..	1	35	200
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	M. J. Hoover	AF	1,383	6	3	7	35	75
Children's Orthopedic Hospital [1]	Seattle	J. F. LeCoco	C	904	1	..	2	36	..
King County *Hospital Unit No. 1 (Harborview)* [1]	Seattle	R. D. Ray	AF	889	28	1	2	36	12
Providence Hospital [1-3]	Seattle	B. E. McConville	A	2,245	2	1	1	36	20
University Hospitals [1-3]	Madison, Wis.	R. E. Burns	ACF	1,381	4	3	7	..	17
Columbia Hospital [1-3-434]	Milwaukee	A. C. Schmidt	AF	865	12	2	8	37	19
Milwaukee Children's Hospital [1-3]	Milwaukee	W. P. Blount	C	477	..	..	..	37, 40	..
Shriners Hospital for Crippled Children [1]	Honolulu, T. H.	J. W. White	C	158	..	1	1	50	1

Residency programs in the following hospitals have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in adult orthopedics and fractures. *Training in the basic sciences* is given as an integral part of these services or as a separate course. Services collaborating in an integral plan of training are designated *by a* program number, a *list of which* is found on pages 349 and 350.

Residents completing their training in these hospitals are eligible for limited certification *by the American Board of Orthopedic Surgery*, not to include children's orthopedic surgery.

Hospitals, 36; Assistant Residences and Residencies, 112

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend Offered
Letterman Army Hospital [1]	San Francisco	J. D. Blair	AF	1,149	1	3	9	..	...
Fitzsimons Army Hospital [1]	Denver	R. D. Anderson	AF	997	5	1	3	..	...

Numerical and other references will be found on pages 387 through 390.

15. ORTHOPEDIC SURGERY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend Offered*
UNITED STATES AIR FORCE									
U. S. Air Force Hospital [1-3]	San Antonio, Texas	E. W. Brannon	AF	1,054	..	2	4	..	...
UNITED STATES NAVY									
U. S. Naval Hospital [1-3]	Oakland, Calif	H. R. Ennis	AF	1,137	..	2	4	..	...
U. S. Naval Hospital	Bethesda, Md.	T. M. Foley	AF	1,193	..	1	2	..	...
U. S. Naval Hospital [1-3]	Chelsea, Mass.	W. C. Cantrell	AF	649	..	1	2	..	...
U. S. Naval Hospital [1-3]	Philadelphia	W. D. Bundens	AF	825	1	1	2	..	...
U. S. Naval Hospital [1-3]	*Portsmouth, Va.*	*C. A. Stevenson*	AF	1,083	2	2	3	..	...
VETERANS ADMINISTRATION									
Veterans Admin. Hospital [1-3-34]	Los Angeles	R. Mazet, Jr.	AF	903	10	3	7	..	...
Veterans Admin. Hospital [1-3-36]	Denver	M. E. Gibbens	AF	1,031	4	1	2	..	...
Veterans Admin. Hospital [1-3]	St. Louis	O. P. Hampton, Jr.	AF	244	3	1	3	..	...
Veterans Admin. Hospital [1-3]	*New York City (Manhattan)*	W. A. L. Thompson	AF	221	..	2	6	..	...
Veterans Admin. Hospital [1-3]	Portland, Ore.	R. C. Merrifield	AF	669	..	1	3	..	...
Veterans Admin. Hospital [1-3-376]	Philadelphia	A. F. DePalma	AF	448	..	1	3	..	...
Veterans Admin. Hospital [1-3-106]	McKinney, Texas	V. M. *Bryant*	AF	732	1	2	6	..	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend Offered*
White Memorial Hospital [1-3-28]	*Los Angeles*	T. G. *Reynolds*	AF	367	..	1	3	..	151
San Diego County General Hospital [1-3]	San Diego, Calif.	F. E. West	AF	362	2	1	2	..	150
St. Joseph's Hospital [1-3]	San Francisco	R. Soto Hall	AF	966	4	1	3	..	200
St. Mary's Hospital [1-3]	San Francisco	J. J. Loutzenheiser	AF	1,412	..	1	2	..	...
Methodist Hospital [1-3]	Indianapolis	G. Batman	AF	1,750	9	1	2	..	278
Mercy Hospital [1-3]	Iowa City	A. Steindler	AF	649	..	2	2	..	150
Massachusetts Memorial Hospitals [1-3]	Boston	K. Christophe	A	238	..	1	3	62	50
Lynn Hospital [1-3]	Lynn, Mass.	D. M. Killoran	F	960	2	1	1	62	150
Worcester City Hospital [3]	Worcester, Mass.	C. V. King	AF	775	8	1	3	..	215
Albany Hospital [1-3]	Albany, N. Y.	C. Campbell	AF	715	4	1	3	..	160
Jewish Hospital [1-3]	*Brooklyn, N. Y.*	S. A. Bernstein-A. Kenin	AF	633	1	1	3	..	100
Methodist Hospital [1-3]	Brooklyn, N. Y.	H. P. Lange	AF	527	2	1	1	..	175
Edward J. Meyer Memorial Hospital [1]	Buffalo	J. P. Cole	AF	262	5	1	2	..	248
Queens Hospital Center [1-3]	Jamaica, N. Y.	F. C. Courten	AF	104	1	1	3	..	105
Lenox Hill Hospital [1-3]	New York City	H. Jordan	AF	711	..	1	1	..	180
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	R. B. Raney	AF	387	1	..	3	..	156
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	F. Forsyth	AF	739	..	2	4	..	125
Mount Sinai Hospital [1-3]	Cleveland	A. Miller	AF	883	1	1	2	..	215
Hahnemann Medical College and Hospital [3]	Philadelphia	E. O. Geckeler	AF	878	2	2	5	..	75
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	G. W. N. Eggers	AF	755	7	2	4	..	160
St. Joseph's Hospital [3]	Houston, Texas	F. F. Parrish	AF	948	2	1	1	..	225

Residency programs in the following hospitals have been approved by the Council and the American Board of Orthopedic Surgery, through the Residency Review Committee for Orthopedic Surgery, as offering acceptable training in children's orthopedic surgery as an independent program. Some of these services also participate *in an integrated program offering full* training in all categories of Orthopedic Surgery and are also listed on pages 346 through 348.

Hospitals, 8; Assistant Residencies and Residencies, 9

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend Offered*
Children's Hospital	Los Angeles	S. S. Matthews	C	625	..	..	2	..	150
Shriners Hospital fo	Los Angeles	G. W. Westin	C	291	..	2	2	..	150
Children's Hospital c	*akland, Calif*	E. N. Ewer	C	.....	..	..	..	..	...
Hope Haven Hospital	Jacksonville, Fla.	F. L. Fort	C	359	..	..	1	..	225
Scottish Rite Hospital for *Crippled Children*	*Decatur, Ga*	J. H. Kite	C	322	..	1	1	..	200
Children's Memorial Hospital [1-3]	Chicago	C. N Pease	C	164	..	..	1	..	125
Primary Children's Hospital	Salt Lake City	P. R. Milligan	C	323	..	..	1	..	200
Shriners Hospital for Crippled Children [1]	*Spokane, Wash*	N. R. Brown	C	242	..	..	1	..	...

ORTHOPEDIC SURGERY—PROGRAM IDENTIFICATION

Program Number	Hospital	Location
1.	*Arkansas Children's Home and Hospital*	*Little Rock, Ark*
	Veterans Admin. Hospital	Memphis, Tenn
2.	Children's Hospital of the East Bay	Oakland, Calif.
	Samuel Merritt *Hospital*	Oakland, Calif.
	Veterans Admin. Hospital	San Francisco
	Children's Hospital	San Francisco
	Franklin Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Shriners Hospital for [illegible]	San Francisco
	University of Californ [illegible]	San Francisco
3.	*Highland-Alameda Co* [illegible]	Oakland, Calif.
	Veterans Admin. Hospital	San Francisco
	San Francisco Hospital	San Francisco
	Stanford University *Hospital*	San Francisco
4.	Children's Hospital	Denver
	Colorado General Hospital	Denver
	Denver General Hospital	Denver
5.	Hartford Hospital	Hartford, Conn.
	Grace-New Haven Community Hospital	New Haven, Conn.
	Newington Home and Hospital for *Crippled Children*	Newington, Conn.
6	George F. Geisinger Memorial Hospital	Danville, Pa.
	Children's Hospital	Pittsburgh
7	American Legion *Hospital for* Crippled Children	
	Chicago Wesley	urg, Fla.
	Passavant Memo	Chicago
	Veterans Admin.	Chicago
	Evanston Hospital	Chicago
	St. Francis Hospital	Evanston, Ill.
8.	Veterans Admin. Hospital	Evanston, Ill.

Program Number	Hospital	Location
9	Veterans Admin. [illegible]	Louisville, Ky.
	Kosair Crippled	Louisville, Ky.
	Louisville Genera	Louisville, Ky.
10.	Veterans Admin.	New Orleans
	Charity Hospital	
	Tulane Univers [illegible]	New Orleans
	Touro Infirmary	New Orleans
11.	*Children's Hospital*	Boston
	Massachusetts General Hospital	Boston
	Peter Bent Brigham Hospital	Boston
12.	Children's Hospital	Detroit
	Harper Hospital	Detroit
	Receiving Hospital	Detroit
13	Veterans Adn	Boston
	Boston City	Boston
	Massachusetts	n, Mass.
14.	Rehabilitation	n, N. Y.
	University of Virginia Hospital	Charlottesville, Va.
15.	Mary Day Nursery and Children's *Hospital*	*Akron, Ohio*
	Akron City Hospital	Akron, Ohio
16.	Veterans Admin.	inneapolis
	Shriners Hospital	inneapolis
	University of Mini	inneapolis
	Gillette State Hos	St. Paul
17.	Children's Hospital	Cincinnati
	Cincinnati *General Hospital*	Cincinnati
	Jewish Hospital	Cincinnati
18.	Veterans Admin. Hospital	Wadsworth, Kan.
	Children's Mercy Hospital	Kansas City, Mo.
	Kansas City General Hospital No. 1	[illegible]

Nur [illegible]

Program Number	Hospital	Location
	Duke Hospital	Durham, N. C.
	Veterans Admin. Hospital	Durham, N. C.
	North Carolina Orthopaedic Hospital	Gastonia, N. C.
	Greenville General Hospital	Greenville, S. C.
	Shriners Hospital for Crippled Children	Greenville, S. C.
20.	Alfred I. du Pont Institute of the *Nemours Foundation*	*Wilmington, Del.*
	Hospital of the University of *Pennsylvania*	Philadelphia
21.	State Hospital for *Crippled Children*	*Elizabethtown, Pa.*
	Jefferson Medical College *Hospital*	Philadelphia
22.	Veterans Admin. *Hospital*	New York City
	Hospital for Special *Surgery*	New York City
23.	Children's Hospital	Philadelphia
	Graduate Hospital of the University *of Pennsylvania*	Philadelphia
	Pennsylvania Hospital	Philadelphia
	Lankenau Hospital	Philadelphia
24.	Veterans Admin Hospital	Buffalo
	Buffalo *General Hospital*	Buffalo
	Children's Hospital	Buffalo
25	Children's Hospital	Columbus, Ohio
	Mount Carmel *Hospital*	Columbus, Ohio
	Ohio State University Hospitals University Hospital	Columbus, Ohio
	White *Cross* Hospital	Columbus, Ohio
26	House of St. Giles the *Cripple*	Brooklyn
	New York Polyclinic Medical School and Hospital	New York City
	St. Vincent's Hospital	Staten Island, N Y.
	Seaview Hospital	Staten Island N Y.
27.	University Hospital	Cleveland
	Veterans Admin. Hospital	Cleveland
	Elyria Memorial *Hospital*	Elyria Ohio
28	*Emanuel Hospital*	Portland, Ore
	Shriners Hospital for Crippled Children	Portland, Ore
	University of Oregon Medical School Hospitals and Clinics	Portland Ore
29.	*Shriners Hospital for Crippled Children*	Philadelphia
	Temple University Hospital	Philadelphia
30.	Children's Hospital	Pittsburgh
	Presbyterian Hospital	Pittsburgh
31.	Rochester General Hospital.	Rochester, N Y
	Strong *Memorial-Rochester Municipal Hospitals*	Rochester, N Y
32.	Baylor University Hospital.	*Dallas, Texas*
	Parkland Hospital	Dallas Texas
	Texas Scottish Rite Hospital for Crippled Children	Dallas Texas
33.	Nebraska Orthopedic *Hospital*	Lincoln, Neb
	Veterans Admin. Hospital	Lincoln, Neb
34	Veterans Admin. Hospital	Salt Lake City
	Salt Lake County General Hospital	Salt Lake City
	Shriners Hospital for Crippled Children	Salt Lake City
35.	Veterans Admin Hospital	Richmond, Va
	Crippled Children's Hospital	Richmond, Va
	Medical College of Virginia *Hospital Division*	*Richmond, Va*
36	Children's Orthopedic Hospital	Seattle
	King County Hospital, Unit No 1 *(Harborview)*	Seattle
	Providence Hospital	Seattle
	Veterans Admin Hospital	Seattle
37	Columbia Hospital	Milwaukee
	Milwaukee Children's Hospital	Milwaukee
38	*Meadowbrook Hospital*	*Hempstead, N Y*
	Nassau Hospital	Mineola, N Y
	St. Charles *Hospital*	Port Jefferson, N Y
39	Grady *Memorial Hospital*	*Atlanta, Ga.*
	Emory University Hospital	Emory University, Ga
40.	Veterans Admin. *Hospital*	*Milwaukee*
	Milwaukee Children's Hospital	Milwaukee
41	House of St Giles the Cripple	Brooklyn
	St Luke's Hospital	New York City
42	*Michael Reese Hospital*	Chicago
	St Elizabeth's Hospital	Chicago
43.	Hospital of St. Raphael	New Haven, Conn
	St. Charles Hospital	Port Jefferson, N Y
44.	Veterans Admin. [illegible]	Birmingham, Ala
	Crippled Children [illegible]	Birmingham, Ala
	University Hospit[illegible]	Birmingham, Ala
45.	Veterans Admin. Hospital	Columbia, S C
	Roper Hospital	Charleston, S C
46.	St. Louis City Hospital	St Louis
	St. Mary's Group of Hospitals	St Louis
47.	St. Luke's Hospital	Chicago
	University of Illinois Research and Educational Hospital	Chicago
48.	Charlotte Memorial Hospital	Charlotte, N C
	Shriners Hospital for Crippled Children	Greenville, S C
49.	Veterans Admin. Hospital	Houston, Tex
	Jefferson Davis *Hospital*	Houston, Tex
50.	Veterans Admin. [illegible]	[illegible] Ill
	Shriners *Hospita*[illegible]	[illegible]ago
	Shriners Hospita[illegible]	[illegible] Ill
	West Suburban [illegible]	[illegible] Ill
51.	*Bellevue Hospital Center, Division* [illegible] University *Postgraduate* Med. School	New York City
	Rehabilitation Hospital	West *Haverstraw*, N Y
52.	Veterans Admin. [illegible]	B[illegible]oklyn
	St. Charles Hospi[illegible]	[illegible]oklyn
53.	Veterans Admin[illegible]	[illegible] City
	Bone and Joint Hospital	Oklahoma City
	St. Anthony Hospital	Oklahoma City
	University Hospitals	Oklahoma City
54.	Central Dispensary a[illegible] *District of Columbia*	[illegible]
55.	Veterans Admin. Hosp[illegible]	[illegible]
	University Hospitals	Iowa City
56	Ochsner Foundation Hospital	New Orleans
	Touro Infirmary	New Orleans
57	*Children's Hospital School*	Baltimore
	Johns Hopkins Hospital	Baltimore
58	Baltimore City *Hospital*	Baltimore
	James Lawrence Kernan Hospital *for Crippled Children*	Baltimore
59.	*Good Samaritan* Hospital	Lexington, Ky
	St. Joseph's Hospital	Lexington Ky
60.	*Barnes Hospital*	St Louis
	St. Louis City Hospital	St Louis
	Shriners Hospital for *Crippled Children*	St Louis
61	Nebraska Orthopedic Hospital	Lincoln, Neb
	University of Nebraska Hospital	Omaha
62	Massachusetts Memorial Hospital	Boston
	Lynn Hospital	Lynn, Mass
	Newington Home and Hospital for Crippled Children	Newington, Conn
63	Dr W H. Groves *Latter-Day Saints* Hospital	Salt Lake City
	Primary Children's Hospital	Salt Lake City
64	Veterans Admin Hospital	*Long Beach*, Calif
	Children's *Hospital Center*	Los Angeles, Calif
65	Harbor General Hospital	Torrance, Calif
	Orthopedic Hospital	Los Angeles, Calif
66	Boston City Hospital	Bost[illegible]
	Lahey Clinic	Bost[illegible]
	Massachusetts [illegible]	Canton, Mass
	Shriners Hospi[illegible]ren	Springfield, Mass
67	Hospital for C[illegible]	Newark N J
	Metropolit[illegible]	New York City
68.	Crippled C[illegible]	Birmingham [illegible]
	Lloyd Nol[illegible]	Fairfi[illegible]
69	*Allegheny* [illegible]	Pittsburgh Pa
	St. Francis [illegible] Institute	Pittsburgh Pa
70	*Confederate* Memorial Hospital	Shreveport La
	Shriners Hospital for Crippled Children	Shreveport La
71	Allegheny *General* Hospital	Pittsburgh Pa
	Youngstown Hospital	*Youngstown* O[illegible]
72	Children's Hospital	Philadelphia
	Reading Hospital	Reading Pa

16. OTOLARYNGOLOGY

Residency programs in the following hospitals have been *approved by the Council and the American Board of Otolaryngology through the Residency Review* Committee for Otolaryngology, as offering acceptable training *in the specialty.*

Hospitals, 112; Assistant Residencies and Residencies, 428

FEDERAL

Name of Hospital	*Location*	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered⁸	Total Residencies Offered⁸	Beginning Stipend (Monthly)
UNITED STATES ARMY							
Letterman Army Hospital ^{3}	San Francisco	F J Shaffer	718	2	2	6	...
Army Medical Center $^{1-3}$	Washington, D C	H S Murphy	846	12,393	2	6	...
Brooke Army Hospital $^{1-3}$	*San Antonio, Texas*	T L Hartridge	556	9,637	2	6	...
UNITED STATES NAVY							
U. S. Naval Hospital $^{1-3}$	Oakland, Calif	M Schiff	1,026	5,626	1	2	...
U. S Naval Hospital ^{3}	San Diego, Calif	L E Wible	1,845	10,238	1	3	...
U. S. Naval Hospital	Bethesda, Md	J Davis	....	5,291	1	3	...
U S Naval Hospital $^{1-3}$	Philadelphia	W C Livingood	730	13,063	1	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital $^{1-3}$	Washington, D C	U. L. Houston	....	.....	..	..	...
VETERANS ADMINISTRATION							
Veterans Admin Hospital $^{1-3}$	Los Angeles	C. S. Mumma	654	4,123	..	2	...
Veterans Admin. Hospital $^{1-10}$	*San Francisco*	W P Work	296	2,627	1	3	...
Veterans Admin. Hospital ^{1}	Hines, Ill	F. L. Lederer	449	.....	1	5	...
Veterans Admin. Hospital $^{1-3}$	Wadsworth, Kan.	N. E. Lacy	62	1,685	1	1	...
Veterans Admin. Hospital $^{1-3}$	Louisville, Ky.	(See University of Louisville Medical Center)					
Veterans Admin. Hospital $^{1-3}$	Boston (Jamaica Plain)	E. Tomb	541	.....	1	1	...
Veterans Admin. Hospital $^{1-3}$	Minneapolis	H. V. Hanson	165	114	1	2	...

Numerical *and other references* will be found on pages 387 through 390.

16. OTOLARYNGOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3-291]	East Orange, N. J.	J. R. Bickle	223	1,541	1	3	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	F. Altmann	707	.....	1	3	...
Veterans Admin. Hospital [1-3]	Cleveland	V. M. Jordan	298	583	1	2	...
Veterans Admin. Hospital [1-3]	Pittsburgh	S. L. Kyler	420	10	1	3	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	T. C. Maguda	Incl. in Ophth.		1	1	...
Veterans Admin. Hospital [1-3-395]	Dallas, Texas	D. A. Corgill	322	.....	2	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	R. H. Lenman	362	3,362	2	3	...
NONFEDERAL							
Los Angeles County Hospital [1]	Los Angeles	A. H. Miller	1,911	25,466	2	5	246
Los Angeles Eye and Ear Hospital [1-3-27]	Los Angeles	A. H. Miller	1,621	3,290	2	6	150
White Memorial Hospital [1-3]	Los Angeles	L. R. House	859	5,599	1	2	151
San Diego County General Hospital [1-3]	San Diego, Calif.	B. Sanderson	318	2,364	1	1	...
Stanford University Hospitals [1-3]	San Francisco	R. C. McNaught	446	6,140	1	3	80
University of California Hospital [1-3]	San Francisco	L. F. Morrison	327	.....	1	3	200
University of Colorado Medical Center [403]							
Colorado General Hospital [1-3]	Denver	H. I. Laff	141	3,464	1	2	160
Denver General Hospital [1-3]	Denver	H. I. Laff	176	1	..	..	157
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	J. A. Kirchner	665	4,340	1	3	50
Episcopal Eye, Ear and Throat Hospital [3-79-402]	Washington, D. C.	A. D. Fischer	4,075	16,910	2	6	150
Tampa Municipal Hospital [1-3]	Tampa, Fla.	J. B. Farrior	605	.....	1	3	250
Grady Memorial Hospital [1]	Atlanta, Ga.	W. C. Warren	14	.....	1	3	20
Cook County Hospital [1-3]	Chicago	S. J. Pearlman	1,249	21,966	2	5	75
Illinois Eye and Ear Infirmary [1-3]	Chicago	F. L. Lederer	1,229	30,357	6	14	123
Northwestern University Medical Center [1-3-106]	Chicago	G. E. Shambaugh, Jr.	3,111	7,031	3	9	75
Chicago Wesley Memorial Hospital [1-3]	Chicago	G. E. Shambaugh, Jr.	.....	.....	1	1	75
Cook County Hospital [1-3]	Chicago	S. J. Pearlman	.....	.....	..	..	...
Michael Reese Hospital	Chicago		.....	.....	..	..	...
St. Luke's Hospital	Chicago		.....	.....	..	..	...
University of Chicago Clinics [1-3]	Chicago	J. R. Lindsay	474	8,520	1	4	200
University of Illinois Research and Educational Hospitals [1-3-114]	Chicago	F. L. Lederer	377	10,140	1	3	125
Indiana University Medical Center							
Indianapolis General Hospital [1-3]	Indianapolis	D. Brown	626	5,770	..	..	205
Indiana University Medical Center Hospital [1]	Indianapolis	M. Manion	327	3,734	1	4	165
State University of Iowa Hospital [1-3]	Iowa City	D. M. Lierle	2,291	4,870	4	12	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	G. O. Proud	578	9,397	1	4	125
University of Louisville Medical Center							
Louisville General Hospital [1-3]	Louisville, Ky.	W. C. Wolfe	39	3,347	..	2	157
Veterans Admin. Hospital [1-3]	Louisville, Ky.	H. Oppenheim	350	511	1	1	...
Charity Hospital of Louisiana							
Louisiana State University Unit [1]	New Orleans	V. H. Fuchs	778	7,643	1	3	100
Tulane University Unit [1]	New Orleans	J. W. McLaurin	838	6,313	2	4	100
Eye, Ear, Nose and Throat Hospital	New Orleans	L. W. Alexander	4,511	11,433	6	10	100
Baltimore Eye, Ear, Nose and Throat Hospital	Baltimore	A. T. Lieberman	3,245	9,194	1	3	150
Johns Hopkins Hospital [1-3]	Baltimore	J. E. Bordley	1,182	8,669	4	5	25
Mercy Hospital [1-3]	Baltimore	T. A. Schwartz	1,233	2,068	..	1	275
South Baltimore General Hospital [1-3]	Baltimore	S. L. Fox	691	.....	1	3	175
University Hospital [1-3]	Baltimore	T. R. O'Rourk	251	1,395	..	2	75
Boston City Hospital [1-3]	Boston	A. J. Gorney	1,691	14,406	3	7	112
Massachusetts Eye and Ear Infirmary [1-3]	Boston	L. A. Schall	3,135	22,964	4	11	42
Massachusetts Memorial Hospitals [1-3-175]	Boston	N. Fineberg	360	1,051	1	1	50
University Hospital [1-3]	Ann Arbor, Mich.	A. C. Furstenberg	699	8,946	2	8	154
Harper Hospital [1-3-196]	Detroit	W. Warren	3,326	.....	1	3	225
Henry Ford Hospital [1-3]	Detroit	J. L. Dill	1,053	19,998	1	4	225
Receiving Hospital [1-3]	Detroit	J. E. Croushore	655	.....	1	2	260
University of Minnesota Hospitals [1-3-216]	Minneapolis	L. R. Boies	407	3,953	2	6	185
Mayo Foundation [1]	Rochester	H. L. Williams	1,368	22,321	2	5	150
Homer G. Phillips Hospital [1-3]	St. Louis	A. J. Cone	197	.....	2	6	190
St. Mary's Group of Hospitals [1-3-224]	St. Louis	B. J. McMahon	510	2,652	1	3	100
Washington University Hospitals	St. Louis	T. E. Walsh	2,681	11,791	3	9	50
Barnes Hospital [1-3]	St. Louis						
McMillan Hospital	St. Louis						
Newark Eye and Ear Infirmary—Martland Medical Center [1-3]	Newark, N. J.	E. P. Cardwell	3,596	1,113	2	6	162
Albany Hospital [1-3]	Albany, N. Y.	B. Volk	702	827	1	3	160
Brooklyn Eye and Ear Hospital [1-3]	Brooklyn, N. Y.	J. P. Baker	5,378	33,487	2	6	100
Kings County Hospital							
County Service [1]	Brooklyn, N. Y.	L. A. Mazzarella	529	4,937	1	2	104
University Service [1]	Brooklyn, N. Y.	I. J. Polisar	263	3,370	1	2	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	C. R. Weeth	612	2,432	1	2	150
Buffalo General Hospital [1-3-256]	Buffalo	H. E. Bozer	766	1,030	1	3	175
Elmhurst General Hospital [1-3-455]	Elmhurst, N. Y.	C. A. Seelig	327	3,462	1	3	105
Bellevue Hospital Center							
Div. IV—New York University							
Post Graduate Medical School [1-3-275]	New York City	J. F. Daly	2,236	19,366	4	11	105
Harlem Eye and Ear Hospital [1-3]	New York City	E. Grabscheid	2,346	26,241	1	3	75
Manhattan Eye, Ear and Throat Hospital [1-3]	New York City	W. B. Allan	7,259	47,914	4	12	50
Mount Sinai Hospital [1-3]	New York City	J. L. Goldman	1,020	5,443	1	3	50
New York Eye and Ear Infirmary [1-3]	New York City	J. S. Hanley	.....	33,531	4	12	50
New York Hospital [1-3]	New York City	J. A. Moore	1,551	10,781	1	4	116.67
New York Polyclinic Medical School and Hospital [1-3]	New York City	W. W. Morrison	772	1	1	1	...
Presbyterian Hospital [1]	New York City	E. P. Fowler, Jr.	1,739	17,162	4	8	250
[illegible] Hospital [1-3]	New York City	R. C. Grove	662	5,249	1	3	133
[illegible]	New York City	V. C. McCuaig	783	9,245	1	3	100
[illegible]r Municipal Hospital [1-3]	Rochester, N. Y.	C. A. Heatly	906	1,580	1	2	92
[illegible] York Hospital [1-3]	Syracuse, N. Y.	A. Doust	834	2,891	1	3	192
[illegible] [1-3-323]	Durham, N. C.	W. W. Eagle	631	2,900	3	6	127
McPherson Hospital [1-4]	Durham, N. C.	G. B. Ferguson	1,198	16,350	1	3	150
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	J. A. Harrill	450	1,922	1	3	125
Cincinnati General Hospital [1-3-329]	Cincinnati	H. A. Goodyear	634	4,498	2	6	75
Cleveland Clinic Hospital [2-3]	Cleveland	H. E. Harris	756	15,455	2	6	175
St. Luke's Hospital [1-3]	Cleveland	H. C. Rosenberger	2,843	1,045	1	3	120
Ohio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	E. W. Harris	458	3,530	..	6	177
Children's Hospital [1-3]	Columbus, Ohio		1,044	.....	..	..	...
University of Oregon Medical School Hospitals and Clinics [360]	Portland, Ore.	G. L. Boyden	449	3,254	1	3	100
Geo. F. Geisinger Memorial Hospital and Foss Clinic [1-3]	Danville, Pa.	F. W. Davison	1,053	9,752	1	3	175
Graduate Hospital of the University of Pennsylvania [1-2-368]	Philadelphia	L. E. Silcox	1,183	2,041	2	4	100

Numerical and other references will be found on pages 387 through 390.

16. OTOLARYNGOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [x]	Total Residencies Offered [x]	Beginning Stipend (Month)
Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. Schenck	1,325	3,613	2	6	...
Jefferson Medical College Hospital [1-3]	Philadelphia	F. Harbert	1,558	5,861	1	3	50
Temple University Hospital [1-3]	Philadelphia	D. Myers	1,198	2,286	..	..	...
Mercy Hospital [1-3]	Pittsburgh	J. A. Perrone	1,599	1,272	1	3	175
Pittsburgh Medical Center Eye and Ear Hospital [1-3]	Pittsburgh	T. B. McCollough	4,695	5,501	2	4	125
Rhode Island Hospital [1-3]	Providence, R. I.	R. W. Pearson	1,574	2,905	1	2	100
Roper Hospital [1-3]	Charleston, S. C.	R. M. Hope	565	.....	1	3	138
City of Memphis Hospitals [1-3]	Memphis, Tenn.	S. Sanders	322	3,687	1	2	100
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	J. Robison	282	5,399	2	4	100
Baylor University College of Medicine Affiliated Hospitals Jefferson Davis Hospital [1-3]	Houston, Texas	H. H. Harris	250	7,033	1	2	75
Veterans Admin. Hospital	Houston, Texas	.....	390	.....	1	3	...
University of Virginia Hospital [1-3]	Charlottesville, Va.	G. S. Fitz Hugh	1,175	5,034	2	4	50
Medical College of Virginia— Hospital Division [1-3]	Richmond, Va.	P. N. Pastore	934	4,230	2	4	50
*Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va.	E. G. Gill	Included in Ophthalmology				300

*Combined 4-year program Ophthalmology-Otolaryngology

Residency programs in the following hospitals approved by the Council and the American Board of Otolaryngology, through the Residency Review Committee for Otolaryngology, offer training in otolaryngology of less than three years' duration, which is integrated with or contributory to a fully approved program.

Hospitals, 15; Assistant Residencies and Residencies, 20.

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [x]	Total Residencies Offered [x]	Beginning Stipend (Month)
Veterans Admin. Research Hospital [1]	Chicago	J. Waller	40	.....	1	1	..
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	E. Tomb	541	.....	1	1	..
Veterans Admin. Hospital [1]	Kansas City, Mo.	H. A. Knauff	205	.....	..	..	..
Veterans Admin. Hospital [1-3-302]	Portland, Ore	G. L. Boyden	163	953	..	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Outpatient Visits	First Year Residencies Offered [x]	Total Residencies Offered [x]	Beginning Stipend (Month)
Children's Hospital [1-3]	San Francisco	R. C. Martin	831	1,100	1	1	12
San Francisco Hospital Stanford University Service [1-3]	San Francisco	S. Von Christierson	151	.....	..	1	19
University of California Service [1-3]	San Francisco	L. F. Morrison	185	.....	..	1	19
District of Columbia General Hospital [1-3]	Washington, D. C.	V. Alfaro-D. Moffett	269	2,306	..	1	15
Presbyterian Hospital [1]	Chicago	S. A. Friedberg	593	2,180	1	2	12
Beth Israel Hospital [1-3]	Boston	B. Zonderman	773	1,546	1	1	10
Minneapolis General Hospital [1-3]	Minneapolis	B. Bofenkamp	211	2,423	..	1	15
Ancker Hospital [1-3]	St Paul	D. Kusske	278	2,399	1	1	18
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo	I. M. Birenboim	288	3,924	1	2	13
St. Louis City Hospital [1-3]	St. Louis	J. West	148	4,395	2	3	190
Philadelphia General Hospital [1-3]	Philadelphia	L. K. Elfman	171	.....	1	3	112

17. PATHOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Pathology. Services which have been evaluated on the basis of training in the two categories, pathologic anatomy and clinical pathology, are designated as follows: a—pathologic anatomy only; c—clinical pathology only; p—pathologic anatomy and clinical pathology. Training in hospitals which are not so designated in this list will be evaluated by the Board on an individual basis at the time of application for certification.

Hospitals, 605; Assistant Residencies and Residencies, 2,109

FEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residences Offered [x]	Total Residences Offered [x]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY										
Letterman Army Hospital [1]	San Francisco	N. S. Irey	258	6,982	6,790	562,636	2	8	4^p	...
Fitzsimons Army Hospital [1]	Denver	H. A. VanAuken	275	4,855	4,855	571,062	2	8	4^p	...
Armed Forces Institute of Pathology [1-3]	Washington, D. C.	E. W. Goodpasture	16,593	27,704	28,455	....	..	20	1^a	...
Army Medical Center [1-3]	Washington, D. C.	C. J. Lind-H. Sprinz	235	6,527	6,527	835,378	3	12	4^c	...
Brooke Army Hospital [1-3]	San Antonio, Texas	G. J. Matt	401	6,349	6,349	839,412	2	8	4^p	...
Tripler Army Hospital [1]	Honolulu, T. H.	H. E. Shuey	193	6,201	6,201	491,403	1	4	4^p	...
UNITED STATES NAVY										
U. S. Naval Hospital [1-3]	Oakland, Calif.	H. V. O'Connell	165	5,971	5,371	142,022	1	2	4^p	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. S. Shaver	475	7,401	7,401	594,152	2	5	4^a	...
U. S. Naval Hospital	Bethesda, Md.	V. E. Martens	246	10,711	10,711	321,943	1	4	4^p	...
U. S. Naval Hospital	St. Albans, N. Y.	S. S. Sarkisian	140	7,177	20,800	262,019	1	3	3^p	...
U. S. Naval Hospital [1-3]	Philadelphia	B. H. Smith, Jr.	128	3,918	3,918	253,837	1	2	4^p	...
UNITED STATES PUBLIC HEALTH SERVICE										
U. S. Public Health Service Hospital [1-3]	New Orleans	W. M. Monroe	132	5,304	4,681	144,720	1	2	3^p	...
U. S. Public Health Service Hospital [1-3]	Baltimore	J. A. Smith	86	3,442	3,087	148,987	1	4	4^p	...
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	G. Z. Williams- H. Stewart	139	1,703	1,703	164,522	4	4	3^c	...
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y	T. L. Perrin	98	4,134	3,530	212,211	1	4	4^p	...
U. S. Public Health Service Hospital [1-414]	Seattle	C. S. Powell	130	3,752	3,396	103,289	..	2	3^p	...
VETERANS ADMINISTRATION										
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	(See University of Alabama Medical Center)								
Veterans Admin. Hospital [1-3]	Little Rock, Ark.	A. Nettleship	153	.....	.....	....	..	4	1^a	...
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	B. E. Konwaler	516	4,276	4,276	496,600	2	6	4^p	...
Veterans Admin. Hospital [1-3-33]	Los Angeles	B. Fishkin	1,092	6,958	6,958	696,918	4	12	3^p	...
Veterans Admin. Hospital	Oakland, Calif.	B. Gerstl	363	.....	.....	....	..	4	3^p	...
Veterans Admin. Hospital [1]	San Francisco	J. B. Frerichs- T. Feichtmeir	193	6,470	3,306	190,045	2	4	3^p	...
Veterans Admin. Hospital [1-3-58]	Denver	E. H. Valentine	209	1,829	1,649	167,155	2	4	4^p	...
Veterans Admin. Hospital—Newington Division [1-3]	West Haven, Conn.	R. G. Olivetti	81	.....	.....	125,294	1	1	2^p	...
Veterans Admin. Hospital— West Haven Division [1-3-75]	West Haven, Conn.	R. Yesner	102	1,432	1,157	173,815	1	2	2^p	...
Veterans Admin. Hospital [1-3-84]	Washington, D. C.	J. S. Howe	201	1,799	1,799	156,923	1	4	4^p	...
Veterans Admin. Hospital [1-88]	Coral Gables, Fla.	R. V. Thomson	292	2,223	2,223	119,137	1	4	4^p	...
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	J. Mendeloff	125	1,558	1,558	179,371	1	1	4^p	...
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)								
Veterans Admin. Hospital [1]	Hines, Ill.	K. Costich	550	4,708	4,708	632,400	..	2	4^p	...

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

FEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Veterans Admin. Hospital[1]	Indianapolis	(See Indiana University Medical Center)								
Veterans Admin. Hospital[1-130]	Des Moines, Iowa	T. E. Corcoran	135	2,272	2,272	158,219	1	4	4[p]	...
Veterans Admin. Hospital[1-3]	Iowa City	K. R. Cross	167	2,134	2,104	147,520	..	2	4[p]	...
Veterans Admin. Hospital[1-3]	Wadsworth, Kan.	P. E. Garber	227	1,514	1,360	112,577	2	4	4[p]	...
Veterans Admin. Hospital[1-3]	Louisville, Ky.	H. Gordon	166	2,164	2,153	121,773	1	3	3[p]	...
Veterans Admin. Hospital[1-3-146]	New Orleans	J. Ziskind	199	2,117	2,112	150,013	1	3	3[p]	...
Veterans Admin. Hospital[1-3]	Boston (Jamaica Plain)	J. D. Houghton	349	3,720	3,720	451,226	2	3	3[p]	...
Veterans Admin. Hospital[1-3]	West Roxbury, Mass.	I. Gore	73	1,178	1,113	112,853	1	1	2[p]	...
Veterans Admin. Hospital[1-3-193-198]	Dearborn, Mich.	(See Wayne University Affiliated Hospitals)								
Veterans Admin. Hospital[1-3-208]	Minneapolis	D. F. Gleason	356	6,548	6,221	325,267	4	4	4[p]	...
Veterans Admin. Hospital[1-219]	Kansas City, Mo.	J. A. Turner	187	2,930	2,903	269,484	2	4	4[p]	...
Veterans Admin. Hospital[1-3]	St. Louis	J. M. Burnett	217	6,349	6,349	152,354	2	4	1[a]	...
Veterans Admin. Hospital[1-3]	Omaha	T. R. Cajigas	132	.....	.....	......	..	4	3[a]	...
Veterans Admin. Hospital[1-3]	East Orange, N. J.	O. Auerbach	236	1,791	1,791	323,132	1	3	3[a]	...
Veterans Admin. Hospital[1-3]	Albuquerque, N. M	W. Hentel	117	1,642	1,594	205,475	1	1	1[a]	...
Veterans Admin. Hospital[1-3]	Albany, N. Y.	T. S. Beecher	243	2,014	2,014	202,351	2	2	3[p]	...
Veterans Admin. Hospital[1-3]	Buffalo	T. T. Bronk	184	2,251	2,100	268,550	1	2	3[p]	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	B. S. Gordon	364	4,137	4,137	153,535	3	7	3[p]	...
Veterans Admin. Hospital[1]	Syracuse, N. Y.	J. A. Schaefer	126	.....	.....	......	..	3	2[a]	...
Veterans Admin. Hospital[1-3]	Durham, N. C.	R. D. Baker	145	2,642	2,642	199,140	..	5	4[p]	...
Veterans Admin. Hospital[1]	Oteen, N. C.	O. Kanner	144	1,781	1,781	296,378	1	1	1[p]	...
Veterans Admin. Hospital[1-3]	Cleveland	J. R. Kuhn	246	4,000	3,300	280,219	1	4	1[a]	...
Veterans Admin. Hospital	Dayton, Ohio	G. W. Knabe	325	1,701	2,790	165,883	1	4	3[p]	...
Veterans Admin. Hospital[1-3]	Philadelphia	A. L. Pietroluongo	287	2,035	2,035	198,451	1	4	4[p]	...
Veterans Admin. Hospital[1]	Pittsburgh	E. R. Fisher	306	2,400	2,400	240,996	2	6	3[p]	...
Veterans Admin. Hospital[1-3]	Memphis, Tenn.	J. M. Young	291	4,415	3,790	377,190	1	1	3[p]	...
Veterans Admin. Hospital[1]	Nashville, Tenn.	S. H. Auerbach	112	1,626	1,471	183,417	1	1	2[p]	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)								
Veterans Admin. Hospital[1-3]	McKinney, Texas	B. E. McCain	146	3,075	3,187	177,517	2	2	4[p]	...
Veterans Admin. Hospital	Salt Lake City	O. N. Rambo, Jr.	83	991	783	75,268	2	2	1[a]	...
Veterans Admin. Hospital[1-3]	White River Jct., Vt.	R. E. Miller	67	901	744	72,333	1	1	1[p]	...
Veterans Admin. Hospital[1-3]	Richmond, Va.	J. R. Kriz	177	2,391	2,133	225,400	1	2	2[p]	...
Veterans Admin. Hospital[1-3]	Seattle	D. V. Brown	184	1,539	4,781	83,302	1	3	3[p]	...
Veterans Admin. Hospital[1-3]	Martinsburg, W. Va.	R. G. Gottschalk	128	1,349	1,051	198,444	1	2	2[p]	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	J. Lubitz	431	2,486	2,363	262,919	4	6	4[p]	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Birmingham Baptist Hospital[1-3]	Birmingham, Ala.	A. E. Casey	183	8,435	8,435	352,535	1	4	4[p]	300
Carraway Methodist Hospital[1-3]	Birmingham, Ala.	J. Cunningham-B. Bishop	55	4,967	4,967	126,994	1	4	4[p]	250
University of Alabama Medical Center										
University Hospital and Hillman Clinic[1-3-11]	Birmingham, Ala.	J. F. A. McManus	334	6,194	6,194	272,150	2	8	4[a]	108
Veterans Admin. Hospital[1-3]	Birmingham, Ala.	B. M. Hathaway	138	1,494	2,403	171,674	..	2	3[a]	...
Lloyd Noland Hospital[1-3]	Fairfield, Ala.	W. F. Scott, Jr.	70	1,972	1,971	167,187	1	1	1[a]	225
Mobile City Hospital[1-3]	Mobile, Ala.	E. B. Wert	176	1,205	2,410	93,470	1	1	3[a]	300
Good Samaritan Hospital[1]	Phoenix, Ariz.	J. D. Barger	131	.....	.....	......	..	2	2[p]	250
Maricopa County General Hospital[1-3]	Phoenix, Ariz.	M. Rosenthal	190	1,549	1,472	117,977	1	1	2[a]	300
Arkansas Baptist Hospital	Little Rock, Ark.	E. L. Wilbur	106	6,253	4,606	102,002	..	..	2[a]	250
University Hospital[1]	Little Rock, Ark.	A. Nettleship	398	7,922	6,642	......	2	7	3[a]	145
Kern General Hospital[1]	Bakersfield, Calif.	R. W. Huntington, Jr.	250	2,901	2,791	172,637	1	3	4[p]	325
Herrick Memorial Hospital[1-3]	Berkeley, Calif.	H. R. Fishback	199	3,706	3,246	88,287	1	3	4[p]	175
St. Joseph Hospital[1-3]	Burbank, Calif.	R. Straus	130	5,663	3,586	133,384	1	2	2[a]	200
City of Hope Medical Center	Duarte, Calif.	F. S. Preuss	189	3,550	3,525	85,646	1	2	1[a]	300
San Joaquin General Hospital	French Camp, Calif.	H. J. Schneider	342	2,542	2,114	145,155	2	2	3[a]	260
Glendale Sanitarium and Hospital[1]	Glendale, Calif.	A. F. Brown	177	4,030	3,225	92,775	1	4	4[p]	200
Loma Linda Sanitarium and Hospital	Loma Linda, Calif.	O. B. Pratt	192	3,255	3,200	85,000	3	9	4[p]	221
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	J. A. Tuta	128	6,298	5,065	164,778	1	3	2[p]	150
California Hospital[1-3]	Los Angeles	A. Wright	210	5,895	4,695	150,594	1	2	4[p]	150
Cedars of Lebanon Hospital[1-3]	Los Angeles, Calif	N. B. Friedman	302	7,225	7,094	162,390	2	5	4[p]	175
Children's Hospital	Los Angeles	R. S. Cleland	240	817	805	135,422	..	2	1[a]	100
Hospital of the Good Samaritan[1-3]	Los Angeles	L. J. Tragerman	184	6,090	4,529	159,051	2	2	4[p]	200
Los Angeles County Hospital[1]	Los Angeles	E. M. Butt	2,100	17,895	15,316	716,126	2	6	4[p]	240
Queen of Angels Hospital[1-3]	Los Angeles	A. R. Camero	285	5,620	4,792	173,964	1	4	4[p]	175
St. Vincent's Hospital[3]	Los Angeles	J. E. Kahler	84	3,990	3,080	47,595	1	2	2[p]	225
University of California Medical Center[1-3]	Los Angeles	S. C. Madden	110	1,476	1,472	......	..	4	4[p]	259
White Memorial Hospital[1-3]	Los Angeles	O. B. Pratt	213	5,558	5,558	237,487	2	4	4[p]	151
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	R. J. Parsons	285	4,486	3,660	145,996	1	4	3[a]	195
Kaiser Foundation Hospital[1-3]	Oakland, Calif.	M. Friedman	383	13,407	11,036	286,147	2	5	4[p]	245
Samuel Merritt Hospital[1]	Oakland, Calif.	C. P. Baker	139	.....	.....	......	..	..	4[p]	187.50
Collis P. and Howard Huntington Memorial Hospital[1-3]	Pasadena, Calif.	D. S. Shillam	242	9,809	8,575	217,113	1	4	4[p]	240
Sacramento County Hospital[1-3]	Sacramento, Calif.	F. S. Preuss	532	2,322	1,852	292,025	2	2	4[p]	300
San Bernardino County Charity Hospital	San Bernardino, Calif.	J. D. Kirshbaum	318	2,200	1,738	111,254	2	2	2[a]	190
Mercy Hospital[1]	San Diego, Calif.	D. A. DeSanto	215	6,925	6,282	177,067	1	4	4[p]	200
San Diego County General Hospital[1-3]	San Diego, Calif.	L. Palmer	269	2,064	1,628	114,693	1	4	4[p]	150
Franklin Hospital[1-3]	San Francisco	J. L. Carr	78	5,681	2,925	39,784	1	1	2[p]	200
French Hospital[1-3]	San Francisco	G. A. Watson	88	2,860	2,200	76,828	1	2	1[a]	150
Kaiser Foundation Hospital[1-3]	San Francisco	M. Friedman	97	.....	.....	......	1	1	2[a]	175
Mount Zion Hospital[1-3]	San Francisco	G. R. Biskind	202	.....	4,117	138,436	1	4	4[p]	150
St. Francis Memorial Hospital[1-3]	San Francisco	J. L. Zundell	125	6,378	4,025	76,172	1	1	4[p]	300
St. Luke's Hospital[1-3]	San Francisco	M. B. Black	122	4,727	2,891	110,650	2	2	2[p]	200
St. Mary's Hospital[1-3]	San Francisco	A. Moody	131	6,139	4,466	131,024	..	..	4[p]	...
San Francisco Hospital										
Stanford University Service[1-3]	San Francisco	A. J. Cox, Jr.	277	1,333	1,333	1,333	2	4	3[a]	195
University of California Service[1-3]	San Francisco	J. S. Wellington	317	1,689	1,689	1,689	2	4	3[a]	195
Stanford University Hospitals[1-3]	San Francisco	A. J. Cox, Jr.	176	3,257	3,257	84,548	1	4	4[p]	80
University of California Hospital[1-3]	San Francisco	H. D. Moon	197	4,354	4,354	67,025	2	5	4[p]	200
O'Connor Hospital[1-3]	San Jose, Calif.	L. R. Grams	145	4,805	3,491	126,699	..	2	2[p]	300
Santa Clara County Hospital[1]	San Jose, Calif.	D. L. Alcot	333	2,409	2,409	243,631	4	4	4[p]	260
Community Hospital of San Mateo County	San Mateo, Calif.	R. Holmes	560	1,127	987	77,363	..	..	2[a]	500
Santa Barbara Cottage Hospital[1-3]	Santa Barbara, Calif.	E. L. Benjamin	120	3,023	2,702	48,014	1	3	2[a]	200
St. John's Hospital	Santa Monica, Calif.	G. J. Hummer	168	4,752	3,836	138,495	4	4	2[a]	200
Harbor General Hospital[1-3]	Torrance, Calif.	S. Madden	526	3,646	3,589	252,343	2	8	4[p]	246
Glockner-Penrose Hospital[1-3]	Colorado Springs, Colo.	M. Berthrong	161	2,923	2,876	71,283	1	2	2[a]	200
Children's Hospital[1-3]	Denver	E. C. Beatty, Jr.	185	576	573	123,933	1	4	4[p]	150
General Rose Memorial Hospital[1-3]	Denver	K. Neubuerger	155	5,155	4,015	97,813	1	2	3[a]	250
Mercy Hospital[1-3]	Denver	E. Hildebrand	101	4,193	3,904	50,045	1	1	2[p]	250
Porter Sanitarium and Hospital	Denver	W. T. Wikle	93	3,067	2,534	65,750	..	2	1[a]	150
Presbyterian Hospital[1-3]	Denver	A. E. Lubchenco	137	3,598	2,839	66,553	1	2	2[a]	225
St. Joseph's Hospital[1-3]	Denver	S. M. Ashe	194	6,230	6,230	60,203	1	3	4[p]	200
St. Luke's Hospital[1-3-54]	Denver	W. C. Black	232	10,290	6,822	150,955	1	4	4[p]	175

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered[8]	Total Residencies Offered[8]	Length of Approved Program (Years)	Beginning Stipend (Month)
University of Colorado Medical Center[165]										
Colorado General Hospital[1-3]	*Denver*	*J. B. McNaught-* J. H. Holmes	347	3,633	3,631	209,217	3	7	4^P	100
Denver General Hospital[1-3]	Denver	W. White	756	3,141	3,141	301,401	..	..	4^P	240
Colorado State Hospital[1-3-60]	Pueblo, Colo.	M. Gallavan	206	746	746	73,913	1	4	4^P	[illegible]
Bridgeport Hospital[1-3]	Bridgeport, Conn.	I. B. Akerson	211	4,124	4,007	168,909	1	2	2^a	250
St. Vincent's Hospital	Bridgeport, Conn.	*A. M. Ginzler*	228	4,576	3,825	189,931	1	2	3^a	300
Danbury Hospital[1-3]	Danbury, Conn.	W. N. Whittlesey	88	3,569	1,370	73,603	1	1	1^P	200
Greenwich Hospital[1-3]	*Greenwich, Conn.*	J. S. Morris	144	3,429	3,000	67,395	1	2	2^P	170
Hartford Hospital[1-3-63]	Hartford, Conn.	R. E. Kendall	579	11,709	11,209	248,893	1	4	4^P	100
St. Francis Hospital[1-3]	Hartford, Conn.	L. P. Hastings	278	6,972	6,345	226,291	2	5	4^P	125
Meriden Hospital	Meriden, Conn.	*R. Katzenstein*	126	3,246	2,606	118,001	2	2	2^a	100
Middlesex Hospital[1-3]	Middletown, Conn.	C. E. McLeod	132	2,619	1,973	74,914	1	1	2^P	170
New Britain General Hospital[1-3]	New Britain, Conn.	P. D. Rosahn	195	5,316	3,996	141,136	1	4	4^P	240
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	A. A. Liebow	553	3,150	3,403	270,563	1	2	4^P	50
Hospital of St. Raphael[3]	New Haven, Conn.	R. Nesbit	197	5,142	4,452	117,719	1	4	4^P	125
Norwalk Hospital[1-3]	Norwalk, Conn.	*R. N. Barnett*	212	2,868	2,768	122,673	2	2	4^P	160
Stamford Hospital[1-3]	Stamford, Conn.	W. M. Layton, Jr.	119	3,537	3,154	144,872	4	4	4^P	1[illegible]
St. Mary's Hospital[1-3]	Waterbury, Conn.	M. E. Cox	149	4,731	3,071	172,895	1	3	3^P	225
Waterbury Hospital[1]	Waterbury, Conn.	J. O. Collins	238	4,356	7,663	152,971	1	4	4^P	225
Delaware Hospital[1-3]	Wilmington, Del.	J. W. Howard	304	5,409	5,219	226,002	1	4	4^P	180
Memorial Hospital[1-3]	Wilmington, Del.	J. W. Abbiss	179	3,920	3,920	92,427	1	2	4^P	185
Wilmington General Hospital[1-3]	Wilmington, Del.	J. V. Casella	76	2,012	2,012	110,067	1	1	1^P	200
Central Dispensary and Emergency Hospital[1-3-162]	Washington, D. C.	F. W. Konzelmann	141	5,231	5,231	120,707	1	4	4^P	225
Children's Hospital[1-3]	Washington, D. C.	E. C. Rice	107	1,480	1,480	154,778	2	3	2^P	100
District of Columbia General Hospital[1-3]	Washington, D. C.	D. Weiss	650	4,416	4,416	249,518	2	6	4^P	135
Doctors Hospital[1-3]	Washington, D. C.	O. B. Hunter, Jr.	168	7,209	6,571	220,312	1	3	4^P	150
Garfield Memorial Hospital[1-3-162]	Washington, D. C.	E. C. Rice	260	4,909	4,347	129,034	1	3	4^P	200
Georgetown University Hospital	Washington, D. C.	C. F. Geschickter	280	4,556	1,556	260,000	8	13	4^P	100
George Washington University Hospital[1-3]	Washington, D. C.	T. M. Peery	302	6,914	6,895	244,746	2	2	4^P	140
Providence Hospital[1-3]	Washington, D. C.	K. McCoy	197	5,398	5,368	142,714	1	4	4^P	300
Sibley Memorial Hospital[1-3]	Washington, D. C.	O. B. Hunter, Jr.	134	1,793	4,397	97,851	1	2	4^P	200
Duval Medical Center[1-3]	Jacksonville, Fla.	*J. W. Eversole*	205	3,702	3,462	157,427	1	2	2^a	100
St. Vincent's Hospital[1-3]	Jacksonville, Fla.	M. C. Wharton	161	4,582	3,151	111,049	1	4	4^P	225
Jackson Memorial Hospital[1-3]	Miami, Fla.	W. A. D. Anderson	479	15,096	7,767	380,252	5	15	4^P	75
Mount Sinai Hospital of Greater Miami[1-3]	*Miami Beach, Fla.*	M. Lev	194	2,721	2,420	141,811	2	5	4^P	200
St. Francis Hospital[1-3]	Miami Beach, Fla.	R. J. Poppiti	190	2,760	2,760	75,986	1	1	2^a	200
Orange Memorial Hospital[1-3]	Orlando, Fla.	W. A. Derrick	214	.....	.....	97,615	..	..	3^a	...
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	D. Ayer	247	6,445	5,786	108,276	2	5	4^P	100
Georgia Baptist Hospital[1]	Atlanta, Ga.	G. L. Forbes, Jr.	271	5,850	5,850	179,602	1	2	2^P	200
Grady Memorial Hospital[1]	*Atlanta, Ga.*	*R. Hausman*	562	7,115	7,115	253,408	5	10	4^P	30
Piedmont Hospital[1]	Atlanta, Ga.	R. Vincenzi	44	1,602	1,602	57,300	1	3	3^P	200
St. Joseph's Infirmary[1-3]	Atlanta, Ga.	J. T. Godwin	142	9,484	4,453	136,203	1	3	3^P	200
University Hospital[1]	Augusta, Ga.	M. Ihnen	142	4,842	4,358	160,000	1	2	3^a	200
Emory University Hospital	Emory University, Ga.	W. H. Sheldon	217	6,327	6,327	119,872	1	4	4^P	100
Alexian Brothers Hospital[3]	Chicago	J. P. Simonds	132	1,625	1,106	69,915	1	1	1^P	100
American Hospital[1-3]	Chicago	W. F. Eisenstaedt	95	1,901	1,809	64,759	2	2	1^P	60
Augustana Hospital[1-3]	Chicago	G. Milles	201	3,150	2,849	98,247	1	4	4^P	150
Children's Memorial Hospital[1-3]	Chicago	J. D. Boggs	117	1,115	1,115	88,815	2	2	1^P	75
Cook County Hospital[1-3]	Chicago	H. Popper	1,780	10,181	9,176	577,222	4	10	4^P	75
Englewood Hospital[3]	Chicago	G. T. Rich	91	3,462	1,709	68,906	1	1	1^a	200
Grant Hospital[1]	Chicago	J. C. Sherrick	131	685	2,563	95,000	1	1	3^P	25
Illinois Masonic Hospital[1-3]	Chicago	L. S. King	217	3,374	3,233	178,903	1	1	4^P	115
Mercy Hospital[1-3]	Chicago	J. H. Peers	162	4,692	3,795	111,280	1	3	4^P	1[illegible]
Michael Reese Hospital[1-3]	Chicago	O. Saphir	402	6,358	6,358	473,364	2	7	4^P	15
Mount Sinai Hospital[1-3]	Chicago	I. Davidsohn-H. Rappaport	291	8,387	7,619	350,708	1	9	4^P	100
Northwestern University Medical Center										
Chicago Wesley Memorial Hospital[1-3]	Chicago	T. C. Laipply	276	6,265	6,265	260,106	1	4	4^P	75
Passavant Memorial Hospital	Chicago	W. B. Wartman-M. Wheelock	109	3,300	3,300	136,466	1	3	4^P	50
Veterans Admin. Research Hospital[1]	Chicago	E. Cheatle	166	1,174	1,174	92,426	2	4	1^P	...
Evanston Hospital[1-3]	Evanston, Ill.	*H. A. Teloh*	262	3,818	3,818	182,145	1	3	4^P	225
Norwegian American Hospital[1-3]	Chicago	A. Learner	84	3,192	2,118	81,474	1	1	1^P	225
Presbyterian Hospital[1]	Chicago	G. M. Hass	243	5,133	5,133	235,558	2	5	3^a	150
Ravenswood Hospital[1-3]	Chicago	*L. R. Ferraro*	169	2,609	2,550	106,102	2	2	2^P	100
St. Anne's Hospital	Chicago	J. B. Hartney	152	5,312	2,961	157,819	1	4	4^P	250
St. Joseph Hospital[1-3]	Chicago	*G. Stevenson*	106	3,011	2,787	82,541	1	4	2^P	200
St. Luke's Hospital[1-3]	Chicago	E. F. Hirsch	262	7,371	6,700	315,481	1	4	4^P	75
St. Mary of Nazareth Hospital[1-3]	Chicago	M. C. Godwin	134	3,358	2,473	167,851	1	1	1^a	175
University of Chicago Clinics[1-3]	Chicago	P. R. Cannon	374	6,068	5,797	384,727	1	4	4^P	200
University of Illinois Research and [illegible] Hospitals[1-3]	Chicago	*C. A. Krakower*	225	6,657	6,657	442 045	1	6	4^P	200
[illegible][1]	Evanston, Ill.	J. W. Henry	244	5,776	4,712	190,097	1	4	4^P	175
[illegible] of Central Illinois[3]	*Peoria, Ill.*	H. I. Brown	160	6,363	4,784	105,416	1	1	4^P	200
St. Francis Hospital[1-3]	Peoria, Ill.	J. R. Kraft-E. P. Elzi	266	5,285	3,993	112,981	1	4	4^P	225
Rockford Memorial Hospital[1-3]	Rockford, Ill.	M. O. Alexander	163	3,369	2,811	123,865	1	4	4^P	200
St. Anthony Hospital[1-3]	Rockford, Ill.	A. R. K. Matthews	115	4,063	3,812	86,118	1	2	4^P	200
St. Joseph's Hospital[1-3]	Fort Wayne, Ind.	L. A. Schneider	296	5,034	4,348	116,809	2	4	4^P	270
Methodist Hospital[1-3]	Gary, Ind.	R. A. Burger	190	3,393	3,198	112,619	1	3	3^a	200
[illegible] General Hospital[1-3]	*Indianapolis*	P. Evans	512	3,004	2,968	154,125	1	4	4^P	225
[illegible] Medical Center										
[illegible] Medical Center Hospital[1]	Indianapolis	E. Smith	421	8,238	8,225	264,272	4	10	4^P	175
Veterans Admin. *Hospital*[1]	Indianapolis	D. Rosenbaum	229	1,889	1,889	181,903	..	..	3^P	...
Methodist Hospital[1-3]	Indianapolis	H. M Banks	258	22,269	17,461	473,519	2	5	4^P	275
St. Vincent's Hospital[1-3-127]	*Indianapolis*	L. N. Foster	172	15,361	3,899	182,733	1	2	4^P	275
St. Elizabeth Hospital[1]	Lafayette, Ind.	W. L. Marsh	112	7,941	3,774	129,639	2	4	2^P	225
Ball Memo[illegible]	Muncie, Ind.	L. G. Montgomery	237	5,136	3,879	146,501	1	4	4^P	275
South Ben[illegible] Hospitals[1]	South Bend, Ind.	C. S. Culbertson	310	13,419	9,626	280,000	2	5	4^P	300
Elkhart [illegible]	Elkhart, Ind.									
St. Joseph Hospital	*Mishawaka, Ind.*									
Memorial Hospital	*South Bend, Ind.*									
St. Joseph's Hospital	South Bend, Ind.									
St. Luke's Methodist Hospital	Cedar Rapids, Iowa	F. C. Tucker	179	5,280	4,000	124,473	1	2	3^P	250
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	J. Green	196	4,565	3,748	167,702	1	3	2^a	175
Mercy Hospital[1-3]	Des Moines, Iowa	F. C. Coleman	187	3,958	3,958	130,352	1	4	4^P	200
State University of Iowa Hospitals[1-3]	Iowa City	E. D. Warner	514	5,935	5,935	129,037	2	4	3^a	260
University of Kansas Medical Center[1-3]	Kansas City, Kan.	*R. Stowell*	421	8,814	8,689	268,178	3	10	4^P	125
St. Francis Hospital[1-3]	Wichita, Kan.	W. P. Callahan, Jr.	268	9,540	9,540	314,489	1	4	4^P	275
Wesley Hospital[1-3]	Wichita, Kan.	B. E. Stofer	168	5,821	4,689	103,620	1	1	1^a	175
Wichita-St. Joseph Hospital[1]	Wichita, Kan.	W. J. Reals	127	.....	.....	......	..	2	2^P	200

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Children's Hospital $^{1-3}$	Louisville, Ky.	I. Diamond	150	1,050	776	76,129	1	3	1^{p}	83
Louisville General Hospital $^{1-3}$	Louisville, Ky.	W. M. Christopherson	377	2,845	2,820	190,985	1	3	4^{p}	153
Baton Rouge General Hospital ^{1}	Baton Rouge, La.	S. Colvin, Jr.-W. S. Randall, Jr.	109	4,434	4,434	143,506	1	1	1^{p}	300
Charity Hospital of Louisiana ^{1}	New Orleans	E. Moss	1,824	17,204	17,204	736,231	6	12	4^{p}	100
Hotel Dieu-Sisters Hospital ^{1}	New Orleans	R. M. Hartwell	103	7,638	7,635	175,450	1	4	3^{p}	225
Southern Baptist Hospital $^{1-3}$	New Orleans	E. H. Lawson	169	12,210	12,210	431,500	1	4	4^{p}	225
Touro Infirmary ^{1}	New Orleans	A. J. Hertzog	210	6,954	14,761	225,984	1	3	4^{p}	125
Confederate Memorial Medical Center ^{1}	Shreveport, La.	W. R. Mathews	274	6,088	6,088	284,157	1	3	4^{p}	125
Eastern Maine General Hospital $^{1-3}$	Bangor, Maine	R. C. Wadsworth	144	6,271	5,554	150,028	1	2	4^{p}	100
Central Maine General Hospital ^{1}	Lewiston, Maine	C. F. Branch	210	5,382	5,382	85,468	1	1	4^{p}	225
Maine General Hospital ^{1}	Portland, Maine	J. E. Porter	153	5,047	4,205	153,514	1	4	4^{p}	100
Baltimore City Hospitals $^{1-3}$	Baltimore	A. D. Pollack	355	2,034	2,634	129,861	4	6	2^{a}	50
Johns Hopkins Hospital $^{1-3}$	Baltimore	A. R. Rich	573	6,153	6,153	278,972	4	5	3^{a}	25
Lutheran Hospital $^{1-3}$	Baltimore	J. A. Wagner	110	3,630	3,630	104,169	..	1	1^{a}	230
Maryland General Hospital and Hospital for Women $^{1-3}$	Baltimore	R. S. Fisher-W. V. Lovitt, Jr.	195	5,122	5,122	140,509	1	2	1^{a}	225
Mercy Hospital $^{1-3}$	Baltimore	C. G. Warner	172	4,902	3,491	470,174	..	1	3^{a}	275
Sinai Hospital $^{1-3}$	Baltimore	T. Weinberg	180	9,367	9,367	222,519	2	5	4^{p}	110
Union Memorial Hospital $^{1-3}$	Baltimore	W. C. Merkel	174	5,468	5,468	130,086	1	2	4^{p}	215
University Hospital $^{1-3}$	Baltimore	H. R. Spencer	312	6,146	.....	337,830	1	3	3^{a}	75
Prince George's General	[illegible]	J. C. Burns	79	2,490	2,297	68,646	2	2	2^{p}	200
Beverly Hospital	[illegible]	D. E. Brown-R. Fienberg	127	1,771	1,771	88,360	2	2	3^{p}	100
Beth Israel Hospital $^{1-3}$	Boston	D. G. Freiman	200	4,802	4,363	186,599	1	4	3^{a}	42
Boston City Hospital $^{1-3}$	Boston	G. K. Mallory	1,109	6,242	6,242	51,671	3	12	4^{p}	112
Boston Lying-In Hospital ^{1}	Boston	D. McKay	102	2,174	2,174	75,954	1	2	1^{p}	75
Carney Hospital $^{1-3}$	Boston	M. W. Shapiro	111	3,780	3,780	130,551	1	4	2^{a}	150
Children's Medical Center $^{1-3}$	Boston	S. Farber	269	1,971	1,971	72,371	2	4	1^{a}	50
Faulkner Hospital $^{1-3}$	Boston	P. M. LeCompte	121	2,593	2,000	59,101	1	1	2^{p}	150
Lemuel Shattuck Hospital ^{1}	Boston	H. J. C. MacMillan	...	.....	.....	....	..	1	1^{p}	250
Massachusetts General Hospital $^{1-3}$	Boston	B. Castleman	676	11,609	11,609	12,515	3	9	4^{p}	67
Massachusetts Memorial Hospitals $^{1-3}$	Boston	S. Sommers	169	4,080	4,080	145,312	2	3	2^{p}	50
New England Center Hospital $^{1-3}$	Boston	H. E. MacMahon	148	3,235	3,200	156,837	..	4	2^{a}	100
New England Deaconess Hospital	Boston	S. Warren	255	7,599	7,599	176,629	10	10	4^{p}	135
Peter Bent Brigham Hospital $^{1-3-185}$	Boston	G. J. Dammin	337	3,123	3,123	155,854	..	5	4^{p}	25
St. Elizabeth's Hospital $^{1-3}$	Boston	J. H. Graham	165	6,851	6,251	132,821	1	2	3^{a}	125
Cambridge City Hospital ^{1}	Cambridge, Mass.	C. W. Jones	145	2,131	.....	49,100	1	2	2^{a}	125
Mount Auburn Hospital $^{1-3}$	Cambridge, Mass.	H. E. MacMahon	140	2,582	3,504	102,002	1	1	2^{a}	125
Truesdale Hospital $^{1-3-190}$	Fall River, Mass.	W. Freeman	180	5,075	4,391	222,402	1	1	1^{a}	150
Burbank Hospital ^{1}	Fitchburg, Mass.	H. J. Sparling, Jr.	91	3,174	3,174	78,868	1	1	1^{p}	200
Lawrence General Hospital $^{1-3}$	Lawrence, Mass.	L. S. Jolliffe	160	1,469	1,469	96,400	1	4	3^{p}	175
Lowell General Hospital $^{1-3}$	Lowell, Mass.	J. Y. Rodger	90	1,590	1,576	81,552	1	1	1^{a}	...
Lynn Hospital $^{1-3}$	Lynn, Mass.	H. G. Olken	119	4,138	4,138	120,676	1	1	1^{p}	150
Malden Hospital $^{1-3}$	Malden, Mass.	M. V. MacKenzie	111	2,490	2,490	172,882	1	1	2^{p}	175
St. Luke's Hospital $^{1-3}$	New Bedford, Mass.	V. Kiarsis	121	4,479	3,275	210,182	1	3	2^{a}	200
Newton-Wellesley Hospital $^{1-3}$	Newton, Mass.	D. Skinner	116	5,252	3,318	117,623	1	4	2^{p}	170
Quincy City Hospital $^{1-3}$	Quincy, Mass.	R. B. Street, Jr.	153	2,322	2,297	103,310	2	5	4^{p}	163
Salem Hospital $^{1-3}$	Salem, Mass.	D. A. Nickerson	293	8,098	8,098	115,691	1	4	4^{p}	125
Springfield Hospital $^{1-3}$	Springfield, Mass.	W. Kaufmann	263	5,447	5,447	144,201	1	3	2^{a}	175
Pondville Hospital ^{1}	Walpole, Mass.	S. Warren	121	1,614	1,614	38,112	..	2	1^{p}	490
Worcester City Hospital ^{3}	Worcester, Mass.	W. F. MacGillivray	227	2,681	2,500	115,895	..	2	3^{p}	215
University Hospital $^{1-3}$	Ann Arbor, Mich.	C. V. Weller	481	10,013	.....	277,756	4	16	4^{p}	154
Leila Y. Post Montgomery Hospital $^{1-3}$	Battle Creek, Mich.	A. A. Humphrey	130	9,894	9,300	65,146	1	1	1^{a}	275
Grace Hospital $^{1-3}$	Detroit	C. I. Owen	331	12,384	12,384	298,005	1	4	4^{p}	275
Harper Hospital $^{1-3}$	Detroit	P. F. Morse	305	6,781	6,781	26,149	1	4	4^{p}	225
Henry Ford Hospital $^{1-3}$	Detroit	R. C. Horn, Jr.	444	11,258	11,258	521,813	3	12	4^{p}	225
Mount Carmel Mercy Hospital $^{1-3}$	Detroit	L. W. Gardner	313	7,681	7,010	240,869	1	4	4^{p}	225
Providence Hospital ^{1}	Detroit	D. H. Kaump	274	4,655	4,655	126,790	1	4	4^{p}	275
Wayne University Affiliated Hospitals										
Veterans Admin. Hospital $^{1-3-193-198}$	Dearborn, Mich	M. W. Wilson	306	2,786	2,786	381,017	1	4	4^{p}	...
Detroit Memorial Hospital $^{1-199}$	Detroit	J. D. Langston	158	3,407	3,401	85,507	1	3	4^{p}	275
Herman Kiefer Hospital $^{1-3}$	Detroit	A. DeGroat	221	1,746	1,746	783,479	2	2	1^{p}	279
Receiving Hospital $^{1-3-206}$	Detroit	O. A Brines	708	7,924	7,924	556,743	5	8	4^{p}	260
Sinai Hospital $^{1-3}$	Detroit	S. D. Kobernick	173	5,011	3,696	133,091	1	3	2^{p}	275
Woman's Hospital $^{1-3}$	Detroit	E. Jennings	146	4,245	4,053	120,690	1	1	1^{a}	275
Wayne County General Hospital and Infirmary $^{1-3}$	Eloise, Mich.	S. E. Gould	451	5,066	5,066	310,644	2	7	4^{p}	306
Hurley Hospital $^{1-3}$	Flint, Mich	E. G. Murphy	457	7,983	3,445	140,927	1	1	1^{a}	325
McLaren General Hospital ^{1}	Flint, Mich.	E. G. Murphy	113	3,559	3,579	3,559	1	1	1^{a}	325
St. Joseph Hospital	Flint, Mich.	W. Wyatt	191	7,167	3,130	120,782	1	1	1^{a}	400
Blodgett Memorial Hospital $^{1-3}$	Grand Rapids, Mich.	C. A. Payne	276	7,538	7,538	127,379	1	4	4^{p}	250
Butterworth Hospital $^{1-3}$	Grand Rapids, Mich.	J. D. Mann	251	7,126	4,911	150,171	1	2	4^{p}	225
St. Mary's Hospital $^{1-3}$	Grand Rapids, Mich	H. Bowman	170	4,205	2,621	132,336	1	1	1^{a}	...
Edward W. Sparrow Hospital $^{1-3}$	Lansing, Mich.	C. E. Black	192	8,803	8,803	112,664	1	4	3^{a}	400
Pontiac General Hospital $^{1-3}$	Pontiac, Mich.	J. J. Marra	183	4,529	2,943	134,171	1	1	1^{p}	300
St. Joseph Mercy Hospital $^{1-3}$	Pontiac, Mich.	R. E. Olsen	172	4,195	4,693	88,316	1	3	2^{p}	325
Saginaw General Hospital $^{1-3}$	Saginaw, Mich	R. V. Bucklin	182	3,966	3,073	101,473	1	4	4^{p}	325
St. Luke's Hospital $^{1-3}$	Duluth, Minn.	A. H. Wells	374	8,709	8,200	251,507	1	4	4^{p}	200
St. Mary's Hospital ^{1}	Duluth, Minn.	A. C. Aufderheide	283	3,820	3,760	237,300	1	4	4^{p}	175
Minneapolis General Hospital $^{1-3}$	Minneapolis	J. I. Coe	299	3,185	2,627	433,765	1	3	3^{a}	185
Northwestern Hospital $^{1-3}$	Minneapolis	F. H. Lott	167	4,874	4,152	122,788	1	1	2^{a}	200
St. Barnabas Hospital $^{1-3}$	Minneapolis	N. H. Lufkin	194	5,127	4,205	141,018	1	1	2^{a}	235
Swedish Hospital $^{1-3}$	Minneapolis	A. R. Jay	277	6,284	4,730	132,194	1	1	2^{a}	200
University of Minnesota Hospitals $^{1-3}$	Minneapolis	J. Dawson	443	5,356	4,887	570,475	2	6	4^{p}	185
Mayo Foundation ^{1}	Rochester, Minn.	T. B. Magath-J. W. Kernohan	604	27,257	27,257	1,000,000	8	18	4^{p}	150
Ancker Hospital $^{1-3}$	St. Paul	J. F. Noble	409	1,699	1,699	202,624	1	1	2^{a}	185
Charles T. Miller Hospital $^{1-3}$	St. Paul	K. Ikeda	137	5,667	5,163	200,426	1	1	4^{p}	185
St. Joseph's Hospital $^{1-3}$	St. Paul	E. M. James	135	4,467	4,377	109,110	1	2	2^{a}	185
University Hospital ^{1}	Jackson, Miss.	W. V. Hare	180	.....	.....	......	..	5	3^{a}	250
St. Louis County Hospital $^{1-3}$	Clayton, Mo.	J. Wyatt	197	1,140	1,020	116,843	1	2	2^{a}	225
Kansas City General Hospital No. 1 $^{1-3}$	Kansas City, Mo.	V. B. Buhler	669	2,247	1,955	7,281	1	4	4^{p}	150
Menorah Medical Center $^{1-3}$	Kansas City, Mo.	H. Cohen	160	5,350	3,403	133,326	2	4	3^{p}	300
Research Hospital $^{1-3}$	Kansas City, Mo.	H. K. B. Allebach	148	4,017	3,202	239,394	1	3	4^{p}	175
St. Joseph Hospital $^{1-3}$	Kansas City, Mo.	R. W. Kerr	153	6,720	5,547	277,592	1	4	3^{a}	250
St. Luke's Hospital $^{1-3}$	Kansas City, Mo.	F. C. Helwig	293	12,358	11,122	226,117	2	5	4^{p}	175
St. Mary's Hospital $^{1-3}$	Kansas City, Mo.	A. Lapi	177	5,940	4,917	137,737	1	4	4^{p}	275
Barnes Hospital $^{1-3}$	St. Louis	W. S. Hartroft	662	8,018	8,018	456,064	8	10	4^{p}	50
De Paul Hospital $^{1-3}$	St. Louis	J. D. Bauer	150	5,608	2,581	179,940	1	2	4^{p}	200
Homer G. Phillips Hospital $^{1-3}$	St. Louis	J. O. Blache	301	.....	.....	193,784	2	4	2^{a}	190
Jewish Hospital $^{1-3}$	St. Louis	H. T. Blumenthal	194	4,448	4,204	144,533	1	4	4^{p}	100
Missouri Baptist Hospital $^{1-3}$	St. Louis	W. R. Platt	159	4,213	3,641	109,135	1	1	4^{p}	175

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered ^{8}	Total Residencies Offered ^{8}	*Length of Approved Program (Years)*	Beginning Stipend (Month)
St. John's Hospital $^{1-3}$	St. Louis	H. N. Allen	161	4,320	3,278	31,220	1	1	2^p	200
St. Louis City Hospital $^{1-3}$	St. Louis	......	576	4,202	3,506	252,462	3	6	3^a	190
St. Mary's Group of Hospitals $^{1-3}$	St. Louis	H. Pikerton	315	8,888	6,206	390,487	2	8	4^p	200
Montana Deaconess Hospital $^{1-3}$	Great Falls, Mont.	E. J. Eichwald	95	1,961	1,586	41,355	1	1	1^p	200
Lincoln General Hospital $^{1-3}$	Lincoln, Neb.	H. B. Miller	67	3,745	3,532	74,287	1	1	1^a	250
Bishop Clarkson Memorial Hospital $^{1-3}$	Omaha	M. E. Foster	121	4,491	4,303	98,880	1	3	3^p	300
Creighton Memorial-St. *Joseph's Hospital* ^{1}	Omaha	V. Moragues	223	16,854	16,122	176,036	2	6	4^p	175
Nebraska Methodist Hospital $^{1-3}$	Omaha	J. R. Schenken	153	7,496	7,496	74,489	1	4	4^p	300
University of Nebraska Hospital $^{1-3}$	Omaha	J. R. Schenken	134	2,029	2,014	122,944	1	4	4^p	175
Mary Hitchcock Memorial Hospital $^{1-3}$	Hanover, N. H.	R. E. Miller	338	6,871	6,472	158,628	1	4	4^p	188
Elliot Hospital	Manchester, N. H.	S. M. Brooks	113	2,208	1,684	62,149	1	1	1^p	100
Atlantic City Hospital $^{1-3}$	Atlantic City, N. J.	M. Ackerman	144	2,066	2,066	78,203	1	1	2^a	260
Cooper Hospital $^{1-3}$	Camden, N. J.	W. T. Read, Jr.	333	4,709	4,461	201,226	1	1	1^p	200
Our Lady of Lourdes Hospital	*Camden, N. J.*	R. L. Breckenridge	136	.....	.....	....	1	1	2^p	250
West Jersey Hospital $^{1-3}$	Camden, N. J.	E. E. Ziegler	168	2,302	2,252	123,436	1	2	3^a	200
Englewood Hospital $^{1-3}$	Englewood, N. J.	I. A. Gaspar	84	3,744	2,877	139,597	1	1	1^a	170
Hunterdon Medical Center ^{1}	*Flemington, N. J.*	*E. V. Olmstead*	99	.....	.....	....	..	2	1^a	200
Christ Hospital	Jersey City, N. J.	A. Gitlitz	139	3,916	3,477	81,171	2	3	2^p	150
Jersey City Hospital $^{1-3}$	Jersey City, N. J.	A. M. Gnassl	299	11,079	11,079	220,854	2	3	4^p	125
Monmouth Memorial Hospital $^{1-3}$	*Long Branch, N. J.*	*M. R. Rush*	127	3,146	2,864	110,465	1	2	2^a	200
Mountainside Hospital $^{1-3}$	Montclair, N. J.	J. L. Work	177	4,785	4,565	161,174	1	2	3^p	175
Morristown Memorial Hospital $^{1-3}$	Morristown, N. J.	H. F. Luddecke	133	3,658	3,240	94,438	1	3	3^a	165
Burlington County Hospital ^{1}	Mt. Holly, N. J.	J. T. Bauer	132	1,203	1,203	42,898	1	1	2^a	100
Harrison S. Martland Medical Center $^{1-3}$	Newark, N. J.	*E. Albano*	347	1,924	1,924	251,227	2	7	3^a	162
Hospital of Saint Barnabas and for Women and Children $^{1-3}$	Newark, N. J.	W. G. Bernhard	105	3,201	2,900	69,269	1	3	3^p	150
Newark Beth Israel Hospital $^{1-3}$	Newark, N. J.	*L. Goldman*	230	5,706	5,706	72,121	1	1	4^p	100
Presbyterian Hospital $^{1-3}$	Newark, N. J.	S. A. Goldberg	125	5,555	4,664	128,097	2	2	3^p	125
St. Michael's Hospital $^{1-3}$	Newark, N. J.	S. J. Rose	181	5,507	5,507	169,349	1	3	4^p	150
Orange Memorial Hospital $^{1-3}$	Orange, N. J.	A. R. Abel	156	3,313	3,313	73,988	1	4	4^p	150
Bergen Pines County Hospital ^{1}	Paramus, N. J.	V. H. Gillson	281	555	555	99,866	2	2	2^a	200
Passaic General Hospital ^{3}	Passaic, N. J.	J. R. Gannon	108	3,848	2,456	83,676	1	1	3^p	250
St. Mary's Hospital $^{1-3}$	Passaic, N. J.	R. Brill	103	2,474	2,474	61,914	1	2	2^p	150
Barnert Memorial Hospital $^{1-3}$	Paterson, N. J.	J. Churg	104	2,750	2,451	71,710	1	2	2^p	200
Paterson General Hospital $^{1-3}$	Paterson, N. J.	A. H. Davis	157	5,097	1,976	52,467	1	2	2^p	150
St. *Joseph Hospital* $^{1-3}$	Paterson, N. J.	G. B. Kim	170	4,896	4,896	85,595	2	3	4^p	150
Overlook Hospital ^{3}	Summit, N. J.	G. L. Erdman	134	4,716	3,357	105,781	1	2	2^p	150
Mercer Hospital $^{1-3}$	Trenton, N. J.	T. K. Rathmell	165	2,170	1,992	97,897	..	2	4^p	250
St. Francis Hospital $^{1-3}$	Trenton, N. J.	S. Weintraub	260	3,320	4,911	168,148	1	1	2^a	210
Bataan Memorial Methodist Hospital ^{1}	Albuquerque, N. M.	B. N. Carle	56	.....	.....	....	1	1	2^p	250
Albany Hospital $^{1-3}$	Albany, N. Y.	A. W. Wright	477	8,542	8,542	156,302	2	6	4^p	300
Bender Laboratory Hospitals $^{1-3}$	Albany, N. Y.	J. J. Clemmer	350	8,659	8,659	305,326	2	5	4^p	250
Anthony N. Brady Maternity Home	Albany, N. Y.									
Memorial Hospital	Albany, N. Y.									
St. Peter's Hospital	Albany, N. Y.									
Binghamton City Hospital $^{1-3}$	Binghamton, N. Y.	F. Becker	198	2,768	2,400	119,571	2	2	4^p	170
Lawrence Hospital	Bronxville, N. Y.	A. A. Eggston	78	1,903	1,404	65,472	2	2	3^p	200
Beth El Hospital $^{1-3}$	Brooklyn, N. Y.	D. M. Spain	86	5,322	5,296	280,404	1	1	1^p	125
Brooklyn Hospital $^{1-3}$	Brooklyn, N. Y.	J. A. DeVeer	137	4,725	4,700	143,980	1	4	4^p	165
Coney Island Hospital $^{1-3}$	Brooklyn, N. Y.	H. Fink	161	1,172	1,172	150,861	..	..	4^p	165
Cumberland Hospital $^{1-3}$	Brooklyn, N. Y.	S. H. Polayes	165	1,960	1,752	166,083	1	4	4^p	155
Greenpoint Hospital $^{1-3}$	Brooklyn, N. Y.	R. Aronoff	122	6,893	6,893	296,006	2	3	3^p	155
Jewish Chronic Disease Hospital $^{1-3}$	Brooklyn, N. Y.	B. W. Volk	79	376	376	241,637	1	1	1^c	175
Jewish Hospital $^{1-3}$	Brooklyn, N. Y.	D. Grayzel	197	6,832	5,639	110,789	2	5	4^p	[illegible]
Kings County Hospital	Brooklyn, N. Y.	P. J. Fitzgerald	1,169	9,196	9,196	657,000	6	8	4^p	[illegible]
Long Island College Hospital $^{1-3}$	Brooklyn, N. Y.	T. G. Morrione	180	4,537	4,237	145,238	1	4	4^p	[illegible]
Maimonides Hospital $^{1-3}$	Brooklyn, N. Y.	A. R. Kantrowitz	179	5,093	5,093	300,153	2	5	4^p	[illegible]
Methodist Hospital $^{1-3}$	Brooklyn, N. Y.	B. S. Herr, Jr.	114	3,502	3,490	106,593	1	3	3^p	175
Norwegian Lutheran Deaconesses' Home and Hospital $^{1-3}$	Brooklyn, N. Y.	E. S. Wedding	114	2,195	2,195	109,181	2	2	1^p	185
St. Catherine's Hospital $^{1-3}$	Brooklyn, N. Y.	M. Wachstein	91	1,615	1,615	104,580	1	2	2^p	170
St. Mary's Hospital ^{1}	Brooklyn, N. Y.	W. Moltrier, Jr.	85	4,144	4,144	122,174	1	1	2^p	200
Buffalo General Hospital $^{1-3}$	Buffalo	K. L. Terplan	283	7,938	7,938	7,938	1	4	3^p	175
Deaconess Hospital $^{1-3}$	Buffalo	S. Tannhauser	120	5,478	5,412	20,447	1	1	3^p	300
Edward J. Meyer Memorial Hospital ^{1}	Buffalo	S. Sanes	441	4,152	4,152	354,064	2	3	2^a	216
Millard Fillmore Hospital	Buffalo	A. V. Postoloff	280	6,534	6,531	239,160	1	2	4^p	[illegible]
Roswell Park Memorial Institute $^{1-3}$	Buffalo	J. W. Pickren	212	11,595	11,595	11,233	1	2	2^a	275
Elmhurst General Hospital $^{1-3-15a}$	Elmhurst, N. Y.	A. Blaustein	211	4,264	4,150	172,669	1	2	4^p	105
Arnot-Ogden Memorial Hospital ^{1}	Elmira, N. Y.	B. Juviller	77	2,206	2,206	54,320	1	1	1^a	270
St. Joseph's Hospital	Elmira, N. Y.	J. A. Mitchell	116	3,012	2,174	134,631	1	2	2^a	...
Flushing Hospital and Dispensary $^{1-3}$	Flushing, N. Y.	I. Garrow	121	3,515	3,365	125,112	1	4	4^p	175
Glens Falls Hospital $^{1-3}$	Glens Falls, N. Y.	M. Maslon	93	5,055	5,055	103,820	..	1	2^p	270
Meadowbrook Hospital	Hempstead, N. Y.	T. J. Curphey	635	3,986	3,898	332,019	3	12	4^p	225
Mary Immaculate Hospital $^{1-3}$	Jamaica, N. Y.	M. Bevilacqua	93	7,861	8,847	97,117	2	4	2^p	100
Queens Hospital Center $^{1-3}$	Jamaica, N. Y.	G. Silverman	582	3,149	3,149	532,165	6	7	4^p	105
Charles S. Wilson Memorial Hospital $^{1-3}$	Johnson City, N. Y.	A. Kosinski	181	5,603	3,951	160,768	1	4	4^p	225
Kingston Laboratory Hospitals $^{1-3}$	Kingston, N. Y.	H. Derman	184	4,107	4,107	150,078	1	3	2^p	270
Benedictine Hospital	Kingston, N. Y.									
Kingston Hospital	Kingston, N. Y.									
Ulster County Tuberculosis Hospital	Kingston, N. Y.									
St. John's Long Island City Hospital	Long Island City, N. Y.	E. Santora	85	1,178	1,117	52,409	1	2	1^p	150
North Shore Hospital $^{1-3}$	Manhasset, N. Y.	F. G. Zak	69	2,472	2,100	80,754	..	..	1^p	...
Nassau Hospital ^{3}	Mineola, N. Y.	R. Durham	142	3,262	3,174	82,962	1	1	2^a	25
Mount Vernon Hospital $^{1-3}$	Mount Vernon, N. Y.	*J. G. Sharnoff*	137	3,964	3,966	84,579	1	2	3^p	200
Long Island Jewish Hospital	*New Hyde Park, N. Y.*	J. I. Berkman	143	4,544	3,250	160,554	1	3	3^p	75
New Rochelle Hospital $^{1-3}$	New Rochelle, N. Y.	W. C. Schraft	142	5,146	5,146	113,616	1	1	1^a	25
Bellevue Hospital Center Div. III—New York University College of Medicine $^{1-3}$	New York City	M. Kuschner	687	6,902	6,902	1,207,665	3	7	4^p	165
Beth Israel Hospital $^{1-3}$	New York City	W. Antopol	105	4,375	4,375	296,953	2	3	3^p	140
Bronx Hospital $^{1-3}$	New York City	L. Reiner	120	4,917	5,497	166,095	1	3	2^p	100
Bronx Municipal Hospital Center $^{1-3}$	New York City	A. A. Angrist	167	1,174	1,174	180,509	2	8	4^p	165
Doctors Hospital $^{1-3}$	New York City	J. R. Lisa	60	2,809	2,784	67,743	1	1	1^a	200
Fordham Hospital $^{1-3}$	New York City	L. J. Millman	223	4,602	4,602	204,474	1	2	2^a	165
Francis Delafield Hospital $^{1-3}$	New York City	H. P. Smith	226	2,838	2,838	124,988	6	6	3^a	165
Goldwater Memorial Hospital $^{1-3}$	New York City	J. Rosenthal	108	379	2,096	107,435	2	3	2^p	104
Harlem Hospital $^{1-3}$	New York City	V. Dolgopol	392	3,900	3,900	280,409	1	3	4^p	165
Hospital for Joint Diseases $^{1-3}$	New York City	H. L. Jaffe	33	2,424	2,424	80,953	2	2	1^a	80
Jewish Memorial Hospital $^{1-3}$	New York City	A. Schwarz	87	2,546	4,984	91,686	1	1	1^p	130
Knickerbocker Hospital $^{1-3}$	New York City	W. Finkelstein	78	1,562	1,324	68,157	1	1	1^a	110
Lebanon Hospital $^{1-3}$	New York City	J. C. Ehrlich	112	3,950	3,950	125,155	2	4	3^p	100
Lenox Hill Hospital $^{1-3}$	New York City	P. J. Manheims	139	4,840	4,840	10,814	1	1	4^p	180
Lincoln Hospital $^{1-3}$	New York City	H. Lepow	219	2,678	2,678	197,115	1	2	4^p	165

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Memorial Center for Cancer and Allied Diseases		....	...	.....	.....	......	..	..	3[a]	...
James Ewing Hospital [1-3]	New York City	F. W. Stewart	247	2,349	2,349	170,860	..	..	..	300
Memorial Hospital [1-3]	New York City	F. W. Stewart	180	17,247	17,247	235,727	..	8	..	300
Misericordia Hospital [1-3]	New York City	G. G. A. Hatzel	55	1,430	1,430	58,276	1	2	1[a]	125
Montefiore Hospital [1-3]	New York City	H. Zimmerman	301	4,162	4,162	160,034	2	7	3[p]	75
Morrisania City Hospital [1-3]	New York City	M. R. Dacso	301	2,377	2,354	217,688	1	3	4[p]	105
Mount Sinai Hospital [1-3]	New York City	S. Otani-S. S. Schneierson	482	9,677	9,677	350,920	10	16	4[p]	50
New York Hospital [1-3]	New York City	J. G. Kidd-J. Pearce	347	8,448	7,587	415,077	2	5	4[p]	116.67
New York Medical College-Metropolitan Medical Center										
Flower and Fifth Avenue Hospitals [1-3]	New York City	F. D. Speer	119	5,503	5,282	188,407	1	4	4[p]	...
Metropolitan Hospital [1-3]	New York City	F. Speer	321	2,258	2,145	265,343	2	3	2[a]	105
New York Polyclinic Medical	New York City	D. J. DiMaio	93	5,456	5,456	90,273	..	1	2[p]	100
New York University-Bellevu										
University Hospital	New York City	M. Richter	86	5,676	4,769	1,212,955	2	4	2[p]	85
Presbyterian Hospital [1]	New York City	H. P. Smith-R. Lattes	595	9,170	9,170	578,828	2	7	3[a]	298
Roosevelt Hospital [1-3]	New York City	W. W. Brandes	136	4,110	4,246	157,583	1	2	2[a]	133
St. Barnabas Hospital for Chronic Diseases [1-3-156]	New York City	H. K. Russell	133	1,158	1,158	92,645	1	2	2[p]	75
St. Clare's Hospital [1-3]	New York City	J. M. Ravid	135	2,515	2,490	164,877	1	2	1[p]	200
St. Francis Hospital [1-3]	New York City	F. Summerill	94	.....	.....	......	1	1	1[p]	100
St. Luke's Hospital [1-3]	New York City	C. F Begg	240	3,876	3,876	183,598	1	4	4[p]	100
St. Vincent's Hospital [1-3]	New York City	A. Rottino	381	4,030	4,020	183,452	1	2	2[a]	125
United Hospital [1-3]	Port Chester, N. Y.	M. Loder	102	2,590	2,437	94,525	1	1	1[p]	200
Vassar Brothers Hospital	Poughkeepsie, N. Y.	M. L. Dreyfuss	123	3,920	3,600	97,242	1	2	2[p]	250
Genesee Hospital [1-3]	Rochester, N. Y.	J. Abbott	203	4,424	4,422	160,005	1	2	2[a]	150
Rochester General Hospital [1-3]	Rochester, N. Y	M. G. Bobrod	389	9,058	6,794	145,681	2	8	4[p]	125
St. Mary's Hospital [1-3]	Rochester, N. Y.	J. Adler	265	3,954	3,854	161,055	1	4	4[p]	200
Strong Memorial-Rochester Municipal Hospital [1-3]	Rochester, N. Y.	J. L. Orbison	733	4,878	.....	......	4	8	3[a]	92
Ellis Hospital [1-3]	Schenectady, N. Y.	E. Kellert	249	5,194	5,194	245,009	1	4	3[p]	150
St. Vincent's Hospital [1-3]	Staten Island, N. Y.	V. Kogan	85	.....	.....	......	1	1	1[a]	225
Staten Island Hospital [1-3]	Staten Island, N. Y.	V. Altmann	104	1,523	1,533	61,212	1	1	1[a]	200
St. Joseph's Hospital [1-3]	Syracuse, N. Y.	H. J. Dick	118	4,445	4,445	132,444	1	1	2[p]	191
State University of New York										
Upstate Medical Center Hospital [1-3]	Syracuse, N. Y.	J. H. Ferguson	503	8,262	8,262	8,262	6	6	3[a]	192
Samaritan Hospital [1-3]	Troy, N. Y.	C. G. Burn	95	2,867	2,667	83,924	1	1	1[p]	250
Utica State Hospital [1-3]	Utica, N. Y.	N. M. Levine	54	76	76	23,359	1	5	4[p]	...
Grasslands Hospital [1-3]	Valhalla, N. Y.	V. A. Bradess	585	1,821	1,821	270,809	1	3	4[p]	175
St. John's Riverside Hospital [1-3]	Yonkers, N. Y.	C. DeAngelis	72	1,632	1,439	62,200	1	2	1[p]	250
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	K. M. Brinkhous	176	10,908	10,908	5,031	2	7	4[p]	156
Charlotte Memorial Hospital [1]	Charlotte, N. C.	P. Kimmelstiel	223	7,665	7,449	199,495	1	4	4[p]	250
Duke University Hospital [1-3-324]	Durham, N. C.	W. D. Forbus	334	8,690	8,690	518,742	3	12	3[a]	110
Watts Hospital [1-3]	Durham, N. C.	J. C. Gunter	79	.....	.....	156,577	..	1	1[p]	175
Moses H. Cone Memorial Hospital [1]	Greensboro, N. C.	H. Z. Lund	157	.....	.....	......	..	2	4[p]	400
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	R. P. Morehead	234	31,217	31,217	305,128	2	7	4[p]	125
Akron City Hospital [1-3]	Akron, Ohio	L. Catron	299	.....	7,932	263,173	2	4	2[a]	250
Akron General Hospital [1]	Akron, Ohio	G. R. Dochat	174	5,492	4,450	215,293	1	1	4[p]	250
Aultman Hospital [1-3]	Canton, Ohio	D. G. Henderson	327	4,248	4,248	284,491	2	6	4[p]	275
Bethesda Hospital [1-3]	Cincinnati	J. B. Hamblet	103	3,878	2,896	51,501	1	3	3[p]	200
Christ Hospital [1]	Cincinnati	P. N. Jolly	203	5,235	4,132	150,806	1	1	1[a]	200
Cincinnati General Hospital [1-3-329]	Cincinnati	E. A. Gall	766	4,179	4,179	139,656	4	7	4[p]	84
Good Samaritan Hospital [1-3]	Cincinnati	E. Woll	227	11,055	4,881	......	1	3	3[a]	250
Jewish Hospital [1-3]	Cincinnati	P. Wasserman	263	6,537	6,083	246,257	1	4	4[p]	145
City Hospital [1-3]	Cleveland	T. D. Kinney	382	2,405	2,405	314,285	6	10	4[p]	150
Cleveland Clinic Hospital [1-3]	Cleveland	J. B. Hazard	222	7,370	7,370	488,240	2	8	4[p]	175
Huron Road Hospital [1-3]	Cleveland	E. Goodsitt	182	5,813	5,813	129,459	1	2	4[p]	210
Lutheran Hospital [1-3]	Cleveland	W. Sinclair, Jr.	109	2,674	2,674	75,902	1	1	2[p]	250
Mount Sinai Hospital [1-3]	Cleveland	H. Goldblatt	296	5,915	5,915	389,033	1	4	4[p]	215
St. Luke's Hospital [1-3]	Cleveland	R. Dominguez	288	5,908	5,512	312,491	1	4	4[p]	120
St. Vincent Charity Hospital [1-3]	Cleveland	J. S. Mackrell, Jr.	179	3,635	3,254	154,355	1	2	2[a]	210
University Hospitals [1-3]	Cleveland	A. R. Moritz	436	8,267	8,267	146,784	3	8	4[p]	125
Children's Hospital [1-3]	Columbus	W. Newton	181	1,153	1,153	78,084	2	3	2[p]	...
Grant Hospital [3]	Columbus	B. H. Hurd	104	4,204	3,460	114,448	1	2	1[a]	200
Ohio State University Hospitals										
University Hospitals [1-3]	Columbus	E. Von Haam	500	12,118	12,118	598,553	2	8	4[p]	152
White Cross Hospital [1-3]	Columbus	R. J. Johansmann	200	13,715	13,715	203,633	1	4	2[a]	275
Miami Valley Hospital [1-3]	Dayton, Ohio	M. Oosting	658	10,833	10,833	286,110	2	6	4[p]	250
Mercy Hospital [1-3]	Hamilton, Ohio	K. E. Lande	148	1,770	1,770	106,449	1	3	1[a]	250
St. Rita's Hospital [1-3]	Lima, Ohio	C. L. Blunstein	192	3,912	3,341	135,544	1	4	4[p]	275
Springfield City Hospital [1]	Springfield, Ohio	R. Wybel	180	.....	.....	......	..	2	2[p]	225
Mercy Hospital [1-3]	Toledo, Ohio	E. L. Burns	218	6,047	4,195	136,791	1	4	4[p]	275
St. Vincent's Hospital [1-3]	Toledo, Ohio	M. F. Vidoli	218	6,292	6,292	174,117	1	2	2[a]	275
Toledo Hospital [1-3]	Toledo, Ohio	B. Steinberg	244	5,304	4,867	140,848	1	4	4[p]	200
St. Elizabeth Hospital [1]	Youngstown, Ohio	J. LoCricchio	150	6,619	5,561	124,738	1	1	4[p]	300
Youngstown Hospital [1-3]	Youngstown, Ohio	A. E. Rappoport	519	6,620	6,620	273,754	2	8	4[p]	175
St. Anthony's Hospital	Oklahoma City	W. T. Snoddy	141	5,695	4,255	110,531	1	4	4[p]	150
University of Oklahoma Hospitals [1-3]	Oklahoma City	H. C. Hopps	221	4,189	6,855	227,184	2	5	4[p]	...
Hillcrest Medical Center [1]	Tulsa, Okla	L. Lowbeer	164	5,928	4,600	142,372	1	3	4[p]	150
St. John's Hospital [1-3]	Tulsa, Okla	E. Palik	169	6,163	5,654	203,821	1	4	4[p]	175
Emanuel Hospital [1-3]	Portland, Ore	V. D. Sneeden	257	8,505	6,378	198,456	1	1	1[a]	275
Good Samaritan Hospital [1-3]	Portland, Ore	W. L. Lehman	453	6,585	5,648	232,946	1	4	4[p]	275
Providence Hospital [1-3]	Portland, Ore.	J. Minckler	292	6,956	5,774	241,044	1	4	4[p]	275
St. Vincent's Hospital [1-3]	Portland, Ore	J. E. Nohlgren	218	9,774	8,840	219,554	1	4	4[p]	275
University of Oregon Medical School										
Hospitals and Clinics	Portland, Ore	W. C. Hunter-R. Grondahl	492	3,320	3,320	225,824	4	8	4[p]	100
Abington Memorial Hospital [1-3]	Abington, Pa.	J Eiman	138	3,874	3,834	241,118	2	4	4[p]	150
Allentown Hospital [1-3]	Allentown, Pa.	R Bovard	339	4,296	3,926	212,985	1	2	4[p]	225
Sacred Heart Hospital [1-3]	Allentown, Pa.	D. E. Stader	131	6,410	5,422	151,475	1	2	2[a]	225
St. Luke's Hospital [1]	Bethlehem, Pa.	E. J. Benz	232	3,551	4,527	127,713	1	2	4[p]	275
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa.	M. M. Strumia	217	5,000	4,503	224,814	1	4	4[p]	200
Chester Hospital [1-3]	Chester, Pa.	G. B. Sickel	187	2,769	2,768	140,737	1	4	2[a]	250
Geo. F. Geisinger ''	Danville, Pa.	T. K. Hepler	145	3,148	3,092	222,649	1	2	4[p]	175
Thomas M. Fitzge ''	Darby, Pa.	M. M. Porter-W. H. Miller	122	2,663	2,663	106,274	1	2	4[p]	200
Hamot Hospital [1-3]	Erie, Pa.	E. L. Armstrong	194	5,985	5,618	247,544	1	4	4[p]	200
St. Vincent's Hospital	Erie, Pa	R. B. Eisenberg	143	3,802	3,760	173,278	1	4	4[p]	100
Harrisburg Polyclinic Hospital [1]	Harrisburg, Pa.	J. S. Forrester	201	4,503	4,503	200,671	1	1	2[a]	300
Lancaster General Hospital [1]	Lancaster, Pa.	W. M. O'Donnell	188	3,735	3,735	160,371	2	4	2[a]	200
St. Joseph's Hospital [1]	Lancaster, Pa.	H. G. Shaub	128	4,478	12,928	93,628	1	2	2[a]	300
Albert Einstein Medical Center										
Northern Division [1-3]	Philadelphia	H. Brody	277	4,839	4,839	211,523	2	4	4[p]	150
Southern Division [1]	Philadelphia	D. Meranze	181	4,206	4,206	173,092	1	4	4[p]	150

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Episcopal Hospital [1-3]	Philadelphia	W. P. Belk	162	20,315	16,164	172,175	1	1	4^p	150
Frankford Hospital [1-3]	Philadelphia	L. Rauer	144	1,926	1,926	78,060	1	2	3^p	250
Germantown Dispensary and Hospital [1-3]	Philadelphia	F. Fite	107	3,259	3,259	109,028	1	4	4^p	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	A. Valdes Dapena	160	3,286	3,286	189,704	2	3	3^a	100
Hahnemann Medical College and Hospital [3]	Philadelphia	J. E. Imbriglia	317	6,467	6,467	253,836	2	8	4^p	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. T. Enterline-R. Norris	291	9,241	9,241	435,286	3	12	4^p	150
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	I. N. Dubin	114	1,961	1,914	1,961	1	4	4^p	110
Jefferson Medical College Hospital [1-3]	Philadelphia	P. A. Herbut	291	7,543	7,543	296,299	2	5	4^p	150
Lankenau Hospital [1-3]	Philadelphia	C. E. Brown	153	14,996	14,996	143,709	1	4	4^p	100
Misericordia Hospital	Philadelphia	H. E. Marx	106	3,128	4,627	135,588	1	1	2^p	250
Pennsylvania Hospital [1-3]	Philadelphia	A. R Crane	206	6,251	6,251	340,915	4	4	4^p	100
Philadelphia General Hospital [1-3]	Philadelphia	J. Clark	901	5,043	5,013	519,421	5	5	4^p	114
Presbyterian Hospital [1-3-371]	Philadelphia	R. P. Custer	193	4,464	4,204	149,640	2	7	4^p	150
Temple University Hospital [1-3]	Philadelphia	E. E. Aegerter	248	7,387	7,387	490,334	..	..	4^p	
Allegheny General Hospital [1]	Pittsburgh	R. C. Grauer	258	4,901	4,901	175,831	1	4	4^p	300
Children's Hospital [1-3]	Pittsburgh	G. H. Fetterman	165	876	872	113,522	2	3	1^p	125
Elizabeth Steel Magee Hospital [1-3]	Pittsburgh	J. C. Henthorne	135	.....	.....	....	..	2	2^p	125
Mercy Hospital [1-3]	Pittsburgh	M. M. Bracken	191	5,445	4,831	328,277	2	8	4^p	175
Montefiore Hospital [1-3]	Pittsburgh	K. Yardumian	142	5,980	4,466	156,189	3	3	3^p	225
Presbyterian Hospital	Pittsburgh	T. J. Moran	285	5,258	5,233	199,613	3	12	4^p	125
St. Francis General Hospital and Rehabilitation Institute [1]	Pittsburgh	R. C. Hamilton	182	3,416	3,383	202,235	1	4	4^p	200
St. Margaret Memorial Hospital [1-3]	Pittsburgh	J. E. Kurtz	70	1,706	1,701	57,515	1	1	1^p	300
Shadyside Hospital [1-3]	Pittsburgh	E. L. Heller	166	3,126	2,084	70,602	1	2	2^a	400
South Side Hospital	Pittsburgh	L. Goodman	100	1,773	1,762	111,646	1	2	2^a	300
Western Pennsylvania Hospital [1-3]	Pittsburgh	R. G. McManus	299	6,641	5,762	146,844	3	6	3^p	225
Community General Hospital [1-3]	Reading, Pa.	H. S. Cook	91	4,777	4,711	68,615	1	1	1^a	300
Reading Hospital [1-3]	Reading, Pa.	W. P. Jennings	221	10,415	10,415	156,903	2	8	4^p	225
St. Joseph's Hospital [1-3]	Reading, Pa.	G. Des Jardins	192	2,860	2,111	115,410	1	4	4^p	250
Robert Packer Hospital [1-3]	Sayre, Pa.	C. De Wan	161	3,912	4,433	224,694	1	3	4^p	200
Scranton State Hospital [1]	Scranton, Pa.	G. A Clark	103	2,700	1,941	106,422	1	1	2^p	266
Wilkes-Barre General Hospital [1-3]	Wilkes-Barre, Pa	C. E. Rodriguez	82	3,041	2,851	123,985	1	1	2^a	225
Williamsport Hospital [1-3]	Williamsport, Pa	M. G. Colvin	132	7,114	6,710	145,922	1	1	3^p	225
York Hospital	York, Pa.	J. M. Smith-L. C. Pusch	170	3,420	3,420	136,412	1	2	4^p	225
Rhode Island Hospital [1-3]	Providence, R. I.	H. Fanger	382	6,532	6,532	267,783	3	8	4^p	100
Roper Hospital [1-3]	Charleston, S. C.	K. M. Lynch	268	4,581	3,484	148,143	1	4	4^p	135
Greenville General Hospital [1-3]	Greenville, S. C.	E. A. Dreskin	218	7,273	6,374	180,231	1	3	3^p	200
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	J. W. Adams	210	12,228	12,228	254,607	2	3	2^c	175
East Tennessee Baptist Hospital [1-3]	Knoxville, Tenn.	R. J. Leffler	106	5,287	5,026	98,940	1	2	2^p	300
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	G. S. Mahon	92	4,422	4,418	89,703	1	2	2^p	250
Baptist Memorial Hospital [1-3]	Memphis, Tenn.	M. L. Trumbull	273	10,363	8,615	200,087	1	4	4^p	200
City of Memphis Hospitals [1-3]	Memphis, Tenn.	D. H. Sprunt	633	5,137	5,137	25,371	5	12	4^p	100
Methodist Hospital	Memphis, Tenn.	W. W. Tribby	135	7,855	6,901	150,352	1	2	2^p	200
St. Joseph Hospital [1-3]	Memphis, Tenn	W. W. Hurteau	184	4,879	4,659	146,384	1	2	2^a	200
Baptist Hospital [1-3]	Nashville, Tenn.	F Womack	133	5,297	3,833	152,999	1	2	2^a	175
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	J. R. Cuff	156	1,802	1,802	1,802	..	..	2^a	...
Nashville General Hospital [1-3]	Nashville, Tenn.	W. A. DeMonbreun	42	1,011	900	86,526	1	2	2^p	150
Vanderbilt University Hospital [1-3]	Nashville, Tenn	J. L Shapiro	211	2,751	2,696	266,000	2	5	3^a	[illegible]
Brackenridge Hospital [1-3]	Austin, Texas	J. R. Rainey, Jr.	139	2,360	2,058	54,628	1	1	2^a	200
Baylor University Hospital [1-3]	Dallas, Texas	J. M. Hill	285	38,107	25,366	301,860	2	7	4^p	[illegible]
Methodist Hospital [1-3]	Dallas, Texas	A. B. Cairns	109	5,687	4,193	94,268	1	1	1^p	[illegible]
Parkland Memorial Hospital [1-3]	Dallas, Texas	E. E. Muirhead	452	3,110	3,410	540,515	1	6	4^p	[illegible]
St. Paul's Hospital [1-3]	Dallas, Texas	J. L. Gotorth	241	11,140	8,330	203,072	2	8	4^p	[illegible]
Harris Hospital [1-3]	Fort Worth, Texas	C. Ashworth-C. Fitzwilliam	147	18,967	11,380	196,114	1	2	4^p	300
St. Joseph's Hospital [1-3]	Fort Worth, Texas	O. J. Wollenman, Jr.	155	4,189	3,489	190,487	1	4	4^p	300
University of Texas [illegible]	Galveston, Texas	E. E. Baird	387	6,278	6,203	232,863	2	8	4^p	100
Baylor University ([illegible]spitals										
Jefferson Davis Hospital [1-3]	Houston, Texas	S. A. Wallace	427	4,307	4,290	318,444	2	4	4^p	75
Methodist Hospital [1-3]	Houston, Texas	S. A. Wallace	178	7,359	6,530	192,572	2	4	4^p	250
Veterans Admin. Hospital [1-3]	Houston, Texas	R. Halpert	307	2,411	2,371	409,536	2	1	4^p	..
Hermann Hospital [1-3]	Houston, Texas	W. G. Brown	225	10,507	7,876	379,890	1	4	4^p	100
St. Joseph's Hospital [3]	Houston, Texas	P. M. Marcuse	158	6,241	5,275	194,348	1	2	4^p	225
University of Texas M. D. Anderson Hospital and Tumor Institute [1-3]	Houston, Texas	W. O. Russell	163	5,713	5,713	153,762	2	14	4^p	150
Baptist Memorial Hospital [1-3]	San Antonio, Texas	A. O. Severance	160	5,001	4,713	180,976	1	4	4^p	150
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	L. Manhoff, Jr.	246	2,386	2,364	136,090	1	3	3^p	150
Santa Rosa Hospital [1-3]	San Antonio, Texas	N. H. Jacob	238	9,118	4,094	179,207	1	3	4^p	250
Scott and White Memorial Hospitals [1-3]	Temple, Texas	W. N. Powell-J. C. Stinson	101	5,065	4,477	192,434	1	2	3^p	250
St. Benedict's Hospital [1-3]	Ogden, Utah	R. C. Ellis	79	2,993	1,745	56,142	1	1	1^p	250
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	H. G. Hicks	163	5,494	4,872	96,281	2	4	2^p	275
Dr. W. H. Groves Latter-Day Saints Hospital [3]	Salt Lake City	J. H. Carlquist	192	6,394	4,737	51,595	1	3	4^p	200
Holy Cross Hospital [1-3-408]	Salt Lake City	C. McNeil	98	7,284	3,117	27,696	1	2	1^p	175
Salt Lake County General Hospital	Salt Lake City	R. Jones	197	1,811	1,791	163,841	2	4	3^a	150
University of Vermont Affiliated Hospitals		....	...	.....	.....	....	..	..	4^p	...
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	E. Stark	95	1,778	1,771	48,219	1	2	..	100
Mary Fletcher Hospital [1-3]	Burlington, Vt.	R. Coon	133	1,584	4,584	71,068	2	8	..	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	O. B. Bobbitt-J. R Cash	247	10,573	10,573	313,199	3	6	4^p	...
Memorial Hospital [1-3]	Danville, Va.	J. W. Hooker	104	4,255	4,255	96,527	1	3	4^p	...
Lynchburg General Hospital [1-3]	Lynchburg, Va.	S. M. Bouton, Jr.	113	1,948	.....	51,839	1	1	3^p	200
Riverside Hospital [1-3]	Newport News, Va.	M. F. Sherrill	104	2,906	2,906	71,512	1	1	1^a	250
De Paul Hospital [1-3]	Norfolk, Va.	A. F. Strauss	142	6,058	7,952	209,688	1	4	4^p	200
Norfolk General Hospital [1-3]	Norfolk, Va.	A. J. Rawson-E. Levy	293	21,587	11,128	180,835	..	2	4^p	200
Johnston-Willis Hospital [1-3]	Richmond, Va.	G. R. Hennigar	99	2,155	2,155	63,737	1	1	1^a	250
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	F. L. Apperly-H. G. Kupfer	536	9,506	9,006	544,405	..	9	3^c	75
Doctors Hospital [1-3]	Seattle	G. E. Tooley	183	6,307	4,621	84,821	1	3	2^a	250
King County Hospital Unit No. 1 (Harborview) [1]	Seattle	C. R. Jensen	768	3,511	3,185	218,389	1	1	4^p	125
Providence Hospital [1-3]	Seattle	D. G. Mason	223	5,995	3,794	134,885	1	1	2^a	200
Swedish Hospital [1-3]	Seattle	P. Lund	193	6,841	6,624	151,998	1	4	4^p	150
Deaconess Hospital	Spokane, Wash.	T. E. Ludden	172	4,046	2,859	105,878	1	1	3^a	300
Sacred Heart Hospital [1]	Spokane, Wash.	J. E. Hill	265	.....	.....	....	..	2	3^a	200
St. Luke's Hospital [1-3]	Spokane, Wash.	O. O. Christianson	113	935	4,174	125,585	1	1	2^p	225

Numerical and other references will be found on pages 387 through 390.

17. PATHOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Number of Autopsies	Number of Surgical Specimens	Number Examined Microscopically	Total Number of Laboratory Examinations	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Joseph Hospital[1]	Tacoma, Wash	C. R. McColl- R. T. Vimont	98	4,146	3,914	82,635	2	4	2[a]	300
Tacoma General Hospital[1-3]	Tacoma, Wash.	C. P. Larson	345	9,687	8,635	84,860	2	4	3[p]	200
Charleston General Hospital[1-3]	Charleston, W. Va.	W. Putschar	124	2,568	2,496	73,322	1	1	4[p]	225
St. Mary's Hospital[1-3]	Clarksburg, W. Va.	H. Fischer	85	2,000	2,000	120,000	1	2	2[p]	200
St. Mary's Hospital[1-3]	Huntington, W. Va.	S. Werthammer	139	6,411	6,373	276,340	1	2	2[a]	200
Ohio Valley General Hospital[1-3]	Wheeling, W. Va.	H. G Little	161	6,257	5,583	88,734	1	3	3[p]	300
Madison General Hospital[1-3]	Madison, Wis.	L. E. McGary	165	5,834	5,534	117,254	1	2	4[p]	150
University Hospitals[1-3]	Madison, Wis.	W. D. Stovall- D. M. Angevine	362	5,040	4,994	226,507	1	3	4[p]	175
Columbia Hospital[1-3-135]	Milwaukee	G. Ritchie	173	3,293	2,267	73,711	1	4	4[p]	195
Milwaukee County Hospital[1-3]	Milwaukee	J. Lunseth	620	4,153	4,088	322,027	2	8	4[p]	267
Milwaukee Hospital[1-3]	Milwaukee	E. A. Birge	114	4,777	4,269	117,044	1	1	2[p]	195
St. Joseph's Hospital[1-3]	Milwaukee	C. H. Altshuler	229	5,868	4,214	154,871	1	4	4[p]	300
St. Luke's Hospital[1-3]	Milwaukee	B. E. Clarke	116	3,606	2,916	103,563	1	4	4[p]	275
St. Mary's Hospital[130]	Milwaukee	S. B. Pessin	142	4,255	2,732	92,162	..	2	4[p]	225
Gorgas Hospital[1]	Ancon, Canal Zone	G. E. Cosgrove, Jr.	277	2,352	2,352	359,972	1	4	4[p]	315
Queen's Hospital[1]	Honolulu, T. H.	W. H. Civin	189	5,876	5,551	152,901	1	4	4[p]	150
St. Francis Hospital[3]	Honolulu, T. H.	R. Chappell	182	5,615	3,465	90,337	1	2	2[a]	160
Bayamon District Hospital[1-3]	Bayamon, P. R.	R. R. Weiser	375	2,404	2,404	170,276	2	3	4[p]	150
San Juan City Hospital[1-3]	San Juan, P. R.	E. Koppisch	165	1,726	1,726	265,898	2	4	3[a]	150

18. PEDIATRICS

Residency programs in the following hospitals have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as offering full training in the specialty; (i. e., TWO or more years).

Hospitals, 225; Assistant Residencies and Residencies, 1,467

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital[1]	San Francisco	W. M. Edwards	432	34	3	6	...
Fitzsimons Army Hospital[1]	Denver	M. E. Steinheimer	1,006	27	2	4	...
Army Medical Center[1-3]	Washington, D. C.	L. J. Geppert	171	3	3	6	...
Brooke Army Hospital[1-3]	San Antonio, Texas	J. P. Fairchild	894	32	3	6	...
UNITED STATES NAVY							
U. S. Naval Hospital[1-3]	Oakland, Calif.	M. Kurzrok	1,254	21	1	2	...
U. S. Naval Hospital	Bethesda, Md.	T. E. Cone, Jr.	459	13	2	4	...
U. S. Naval Hospital[1-3]	Chelsea, Mass.	D. W. Sherwood	683	51	1	2	...
U. S. Naval Hospital[1-3]	Philadelphia	C. Stilson	264	4	1	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital[1-3]	Washington, D. C.	R. B. Scott	598	11	2	5	218

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
University of Alabama Medical Center							
Children's Hospital[1-3]	Birmingham, Ala.	C. L. Lamar	2,616	32	2	3	143
University Hospital an	Birmingham, Ala.	K. Hare	2,662	27	5	10	168
Maricopa County Genera	Phoenix, Ariz.	C. A. Holmes	737	30	1	1	300
St. Joseph's Hospital[1-3]	Phoenix, Ariz.	R. Creasman	1,182	23	1	2	200
University Hospital[1]	Little Rock, Ark.	K. Dodd	565	105	3	5	145
Kern General Hospital[1]	Bakersfield, Calif.	R. Cohn	1,368	26	2	4	325
San Joaquin General Hospital	French Camp, Calif.	W. T. Auld	797	18	1	1	260
General Hospital of Fresno County[1-3-19]	Fresno, Calif.	M. [illegible]	1,170	55	2	4	300
California Babies' and Children's Hospital[1-3]	Los Angeles	T.	403	3	1	2	150
Cedars of Lebanon Hospital	Los Angeles	B. ''	1,347	10	1	3	175
Children's Hospital	Los Angeles	M. [illegible] Carson	8,779	..	9	20	75
Los Angeles County Hospital[1]	Los Angeles	R. F. Chinnock	5,278	72	5	11	246
Queen of Angels Hospital[1-3]	Los Angeles	J. T. Ragan	1,742	11	1	2	175
University of California Medical Center[1-3]	Los Angeles	J. M. Adams	....	..	2	8	259
White Memorial Hospital[1-3-21-30]	Los Angeles	R. F. Chinnock	600	7	2	3	151
Children's Hospital of the East Bay[1-3]	Oakland, Calif.	H. E. Long	7,557	77	6	12	175
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	A. Hatoff	3,032	35	3	4	195
Children's Hospital[2-3]	San Francisco	H. E. Thelander	644	5	3	5	125
Department of Contagious Diseases		E. B. Shaw	453	10	1	2	125
St. Mary's Hospital[1-3]	San Francisco	R. Flood	1,950	9	1	2	...
Stanford University Hospitals							
San Francisco Hospital[1-3]	San Francisco	E. H. Senz	368	7	3	3	195
University Hospital[1-3]	San Francisco	R. H. Alway	544	12	3	6	80
University of California Hospitals							
San Francisco Hospital[1-3]	San Francisco	M. B Olney	367	6	3	3	195
University Hospital[1-5]	San Francisco	W. C. Deamer	675	41	3	7	200
Santa Clara County Hospital[1]	San Jose, Calif.	R. D. Cutter	445	19	2	2	200
St. John's Hospital	Santa Monica, Calif.	A. B. Polson	1,777	42	1	1	200
Harbor General Hospital[1-3-21]	Torrance, Calif.	A. J. Moss	1,450	27	3	6	246
Children's Hospital	Denver	R. H. Verploeg	4,283	73	6	10	150
University of Colorado Medical Center[162]							
Colorado General Hospital[1-3]	Denver	J. H. Githens	418	16	5	12	160
Denver General Hospital[1-3]	Denver	E. Plattner	1,186	25	..	..	157
Hartford Hospital[1-3-66]	Hartford, Conn.	J. B. Griggs	1,114	22	1	2	160
St. Francis Hospital[1-3]	Hartford, Conn.	T. F. Murphy	1,030	8	1	3	125
Grace-New Haven Community Hospital[1-3-69]	New Haven, Conn.	W. R. Wilson	5,341	83	6	10	50
Hospital of St. Raphael[3]	New Haven, Conn.	P. McAlenney	1,785	22	2	3	125
Delaware Hospital[1-3]	Wilmington, Del.	R. O. Y. Warren	1,138	51	2	4	180
Children's Hospital[1-3]	Washington, D. C.	W. F. Burdick	2,948	41	13	21	160
District of Columbia General Hospital[1-3]	Washington, D. C.	L. Hoeck	1,989	41	5	10	153
Georgetown University Hospital	Washington, D. C.	F. G. Burke	1,037	15	2	6	160
Duval Medical Center-St. Vincent's Hospital[1-3]	Jacksonville, Fla.	J. K. David, Jr.-H. Carithers	3,240	46	3	4	150
Jackson Memorial Hospital[1-3]	Miami, Fla.	R. B. Lawson	1,068	49	4	7	75
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	J. H. Patterson	1,118	20	5	6	110
Georgia Baptist Hospital[1]	Atlanta, Ga.	J. Yampolsky	3,128	14	2	4	250
Grady Memorial Hospital[1]	Atlanta, Ga.	R. W. Blumberg	1,663	51	4	10	20

18. PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Henrietta Egleston Hospital for Children [1-3]	Atlanta, Ga.	M. H. Roberts	1,097	14	..	3	150
St. Joseph's Infirmary	Atlanta, Ga.	D. Fowler	1,235	6	1	2	165
University Hospital [1]	Augusta, Ga.	J. W. Bennett	1,364	14	4	9	200
Children's Memorial Hospital [1-3]	Chicago	J. A. Bigler	6,106	87	12	16	75
Cook County Hospital [1-3]	Chicago	S. J. Hoffman	7,817	328	8	15	75
Department of Contagious Diseases		A. Hoyne	1,043	23	1	2	75
Loyola University (Stritch School of Medicine) Affiliated Hospitals							
Mercy Hospital [1-3-97]	Chicago	H. W. Elghammer	1,471	22	4	9	125
Michael Reese Hospital [1-3]	Chicago	J. Metcoff	6,885	154	5	10	100
Mount Sinai Hospital [1-3]	Chicago	P. L. Aries	717	20	1	2	100
Presbyterian Hospital [1]	Chicago	B. M. Gasul	1,167	50	2	2	125
Provident Hospital [1-3]	Chicago	C. Runner	821	7	1	2	200
St. Luke's Hospital [1-3]	Chicago	A. D. Biggs	1,318	11	1	2	75
University of Chicago Clinics [1-3]	Chicago	F. H. Wright	1,036	35	6	13	200
University of Illinois Research and Educational Hospitals [1-3-111]	Chicago	H. N. Sanford	774	48	4	8	125
St. Francis Hospital [1]	Evanston, Ill.	N. G. Shaw	2,669	13	1	2	175
Little Company of Mary Hospital [1-3]	Evergreen Park, Ill.	E. G. Lawler	3,055	12	4	8	175
Indiana University Medical Center							
Indianapolis General Hospital [1-3]	Indianapolis	I. Rosenbaum	677	12	..	..	205
Indiana University Medical Center Hospital [1]	Indianapolis	L. T. Meiks	1,906	95	5	11	165
Riley Hospital	Indianapolis	....	....	..	..	..	...
Methodist Hospital [1-3]	Indianapolis	W. M. Browning	2,195	7	1	2	...
Raymond Blank Memorial Hospital for Children [1-3-128-129]	Des Moines, Iowa	L. F. Hill	4,783	45	4	8	175
State University of Iowa Hospitals [1-3]	Iowa City	C. D. May	1,659	62	4	8	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	H. Miller	1,175	45	4	8	125
St. Joseph Infirmary [1-3]	Louisville, Ky.	J. Larson	2,668	19	2	4	210
University of Louisville Hospitals							
Children's Hospital [1-3]	Louisville, Ky.	A. J. Steigman	3,493	118	4	13	83
Louisville General Hospital [1-3-134]	Louisville, Ky.	A. J. Steigman	627	22	4	9	83
Charity Hospital of Louisiana							
Louisiana State University Unit [1]	New Orleans	R. L. Fowler	1,879	35	7	14	100
Tulane University Unit [1-145-146]	New Orleans	R. V. Platou	1,554	25	7	14	100
Confederate Memorial Medical Center [1]	Shreveport, La.	C. H. Webb	2,931	31	2	4	125
Baltimore City Hospitals [1-3]	Baltimore	H. E. Harrison	1,325	118	4	6	50
Johns Hopkins Hospital [1-3]	Baltimore	R. E. Cooke	1,861	116	10	11	25
Sinai Hospital [1-3-155]	Baltimore	H. H. Gordon	424	15	3	7	110
Union Memorial Hospital [1-3]	Baltimore	C. O'Donovan, Jr.	610	9	1	2	215
University Hospital [1-3]	Baltimore	J. E. Bradley	883	33	2	9	75
Boston City Hospital [1-3]	Boston	C. V. Pryles	4,338	69	10	12	112
Boston Floating Hospital [1-3]	Boston	J. M. Baty	2,229	58	4	8	50
Children's Medical Center [1-3]	Boston	C. A. Janeway	2,272	157	4	34	50
Massachusetts General Hospital [1-3-172]	Boston	A. M. Butler	1,034	..	5	6	67
Worcester City Hospital [3]	Worcester, Mass.	J. J. Cohen	852	13	2	2	215
University Hospital [1-3]	Ann Arbor, Mich.	J. L. Wilson	1,544	50	10	20	150
Children's Hospital [1]	Detroit	P. V. Woolley, Jr.	6,909	245	12	27	150
Harper Hospital [1-3-197]	Detroit	E. C. Martmer	1,712	8	2	4	225
Henry Ford Hospital [1-3]	Detroit	J. A. Johnston	1,676	14	4	8	225
Hurley Hospital [1-3]	Flint, Mich.	E. M. Eichhorn	6,100	73	1	2	325
Butterworth Hospital [1-3]	Grand Rapids, Mich.	M. W. Dick	225	41	..	..	225
St. Joseph Mercy Hospital	Pontiac, Mich.	H. R. Roehm	3,470	10	1	2	325
Saginaw General Hospital [1-3]	Saginaw, Mich.	R. M. Heavenrich	1,810	10	1	2	325
Minneapolis General Hospital [1-3]	Minneapolis	R. B. Ralle	1,110	33	3	4	185
University of Minnesota Hospitals [1-3-211]	Minneapolis	J. Anderson	2,111	116	7	17	185
Mayo Foundation [1]	Rochester, Minn.	R. L. J. Kennedy	3,595	99	7	19	150
University Hospital [1]	Jackson, Miss.	B. E. Batson	271	6	2	2	25
Children's Mercy Hospital [3]	Kansas City, Mo.	W. Hart	1,942	67	3	7	125
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	G. E. Hughes	610	13	1	2	150
Homer G. Phillips Hospital [1-3]	St. Louis	P. J. White	2,592	44	6	14	190
St. Louis Children's Hospital [1-3]	St. Louis	A. F. Hartmann	3,943	136	16	32	25
St. Louis City Hospital [1-3]	St. Louis	V. Peden	2,207	40	4	8	190
St. Mary's Group of Hospitals [1-3-224]	St. Louis	P. G. Danis	2,262	37	4	8	100
Children's Memorial Hospital	Omaha	....	....	..	..	..	...
Creighton Memorial—St. Joseph's Hospital [1]	Omaha	J. H. Murphy	2,630	11	2	4	175
Contagious Division of County Hospital							
Omaha Children's Hospital							
Riverview Home							
St. Joseph Orphanage							
University of Nebraska Hospital [1-3-238]	Omaha	G. Gibbs	553	9	3	5	175
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	C. C. Stewart	882	19	1	2	185
Jersey City Medical Center [1-3]	Jersey City, N. J.	B. P. Abrams	730	22	3	6	92
Fitkin Memorial Hospital [1-3]	Neptune, N. J.	J. F. Raffetto	1,329	6	1	1	200
Babies Hospital—Coit Memorial [1-3]	Newark, N. J.	M. Gregory	3,320	23	2	4	150
Newark Beth Israel Hospital [1-3]	Newark, N. J.	A. Heyman	447	5	1	1	100
St. Michael's Hospital [1-3]	Newark, N. J.	H. A. Murray	3,021	22	5	7	150
St. Francis Hospital [1-3]	Trenton, N. J.	H. Davis	1,960	8	1	1	210
Albany Hospital [1-3]	Albany, N. Y.	P. Patterson	3,924	61	3	5	100
Beth El Hospital [1-3]	Brooklyn, N. Y.	B. Schick	274	38	3	4	125
Brooklyn Hospital [1-3]	Brooklyn, N. Y.	T. M. Lamb	691	5	3	4	165
Coney Island Hospital [1-3]	Brooklyn, N. Y.	S. Nussbaum	648	10	..	..	165
Cumberland Hospital [1-3-218]	Brooklyn, N. Y.	J. A. Monfort	884	15	2	4	165
Jewish Hospital [1-3]	Brooklyn, N. Y.	J. Pincus	520	..	5	10	100
Kings County Hospital Center [1]	Brooklyn, N. Y.	R. L. Day	2,332	46	3	6	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	C. A. Weymuller	567	16	2	3	170
Maimonides Hospital [1-3]	Brooklyn, N. Y.	B. Kramer	453	10	1	4	75
Norwegian Lutheran Deaconesses' Home and Hospital [1-3]	Brooklyn, N. Y.	J. A. Monfort	732	14	1	2	185
S[illegible] Hospital [1-3]	Brooklyn, N. Y.	P. Lombard	565	11	2	3	150
[illegible] Hospital [1-3]	Brooklyn, N. Y.	B. H. Shulman	948	27	1	1	175
[illegible] [1-3]	Buffalo	M. I. Rubin	3,226	103	6	21	125
Edward J. Meyer Memorial Hospital [1]	Buffalo	T. S. Bumbalo	772	8	1	3	208
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	T. C. Goodwin	282	5	1	1	145
Elmhurst General Hospital [1-3-158]	Elmhurst, N. Y.	E. E. Amerman	1,685	13	2	3	105
Meadowbrook Hospital	Hempstead, N. Y.	E. A. Stanchi	2,627	68	3	6	225
Queens General Hospital [1-3]	Jamaica, N. Y.	M. Coe	825	32	3	6	105
Chas. S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	J. H. Ford	2,439	14	1	2	175
Long Island Jewish Hospital [1-3]	New Hyde Park, N. Y.	S. Karelitz	652	35	2	3	75
North Shore Hospital [1-3]	Manhasset, N. Y.	A. L. Florman	390	3	1	3	200
Bellevue Hospital Center							
Div. III—New York University College of Medicine [1-3]	New York City	L. E. Holt, Jr.	1,684	78	10	17	105
Bronx Hospital [1-3]	New York City	J. H. Lapin	722	5	2	3	75
Bronx Municipal Hospital Center	New York City	H. L. Barnett	....	...	10	20	105
Fordham Hospital [1-3]	New York City	J. Golomb	769	20	2	3	105
Harlem Hospital [1-3]	New York City	H. J. Cohen	985	37	2	4	105

Numerical and other references will be found on pages 387 through 390.

18. PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Lenox Hill Hospital [1-3]	New York City	A. F. Anderson	609	12	1	2	180
Lincoln Hospital [1-3]	New York City	H. S. Altman	1,293	23	2	5	105
Morrisania City Hospital [1-3]	New York City	H. D. Pasachoff	738	54	2	4	105
Mount Sinai Hospital [1-3]	New York City	H. L. Hodes	2,715	96	5	10	50
New York Hospital [1-3-293]	New York City	S. Z. Levine	1,553	107	10	18	116.67
New York Infirmary [2-3]	New York City	B. Worcester	170	2	1	2	150
New York Medical College—Metropolitan Medical Center							
Flower and Fifth Avenue Hospitals [1-3]	New York City	L. B. Slobody	1,168	16	2	3	...
Metropolitan Hospitals [2-3]	New York City	L. B. Slobody	1,271	16	5	9	105
New York Polyclinic Medical School and Hospital [1-3]	New York City	S. V. Haas	159	4	1	2	...
New York University—Bellevue Medical Center							
University Hospital [209]	New York City	A. De Sanctis	1,292	86	3	7	85
Presbyterian Hospital [1]	New York City	R. McIntosh	4,186	205	7	18	250
Roosevelt Hospital [1-3-286]	New York City	E. N. Joyner, III	555	4	2	4	125
St. Clare's Hospital [1-3-295]	New York City	C. H. O'Regan	122	28	2	3	200
St. Luke's Hospital [1-3]	New York City	J. F. Eagle	650	5	2	4	100
St. Vincent's Hospital [1-3]	New York City	A. J. Vignec	3,005	43	2	5	125
Genesee Hospital [1-3]	Rochester, N. Y.	J. Glaser	1,589	26	1	2	150
St. Mary's Hospital [1-3]	Rochester, N. Y.	H. Waffle	1,218	9	1	2	200
Strong Memorial—Rochester Municipal Hospital [1-3-312]	Rochester, N. Y.	W. L. Bradford	1,737	50	4	12	92
State University of New York							
Upstate Medical Center Hospital [1-3]	Syracuse, N. Y.	J. B. Richmond	7,598	58	5	11	192
Grasslands Hospital [1-3]	Valhalla, N. Y.	D. A. Wilcox	543	6	1	3	175
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	E. C. Curnen	1,503	35	5	10	175
Charlotte Memorial Hospital [1]	Charlotte, N. C.	C. Adams	509	8	1	2	250
Duke University Hospital [1-3-321-323]	Durham, N. C.	J. Harris	2,120	58	..	8	102
Watts Hospital [1-3]	Durham, N. C.	A. H. London	655	9	..	1	175
Babies Hospital [2-3]	Wilmington, N. C.	J. B. Sidbury, Sr.	1,081	10	2	2	200
City Memorial Hospital [1]	Winston-Salem, N. C.	F. A. Blount	1,102	7	1	1	200
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	W. M. Kelsey	1,531	39	2	8	125
Mary Day Nursery and Children's Hospital [1-3]	Akron, Ohio	N. Miller	3,112	49	9	11	250
University of Cincinnati Hospitals							
Children's Hospital [1]	Cincinnati	A. A. Weech	3,031	61	15	24	45
Cincinnati General Hospital [1-3]	Cincinnati	A. A. Weech	690	38	..	..	...
Good Samaritan Hospital [1-3-334]	Cincinnati	C. F. Wagner	2,385	11	1	2	250
City Hospital [1-3]	Cleveland	F. C. Robbins	1,645	56	5	12	150
Dept. of Contagious Diseases		F. C. Robbins	.....	..	4	10	150
Cleveland Clinic Hospital [1-3]	Cleveland	R. D. Mercer	1,680	24	2	4	175
St. Luke's Hospital [1-3]	Cleveland	R. G. Hodges	1,215	22	1	2	120
University Hospitals [1-3-340]	Cleveland	W. Wallace	2,685	93	4	10	125
Children's Hospital [1-3]	Columbus, Ohio	E. H. Baxter	3,162	111	8	16	...
University of Oklahoma Hospitals [1-3]	Oklahoma City	H. B. Strenge	1,583	61	3	6	85
Hillcrest Medical Center [1]	Tulsa, Okla.	R. M. Wadsworth	5,701	10	1	2	150
University of Oregon Medical School							
Hospitals and Clinics [361]	Portland, Ore.	A. J. Hill, Jr.	3,214	99	4	8	100
Geo. F. Geisinger Memorial Hospital and Foss Clinic [1-3]	Danville, Pa.	E. F. Rabe	812	12	1	2	175
Harrisburg Polyclinic Hospital [1]	Harrisburg, Pa.	M. Ames	2,111	24	1	2	300
Albert Einstein Medical Center							
Northern Division [1-3]	Philadelphia	A. Capper	1,146	4	1	3	150
Southern Division [1]	Philadelphia	M. Malen-J. Morris	831	3	..	1	150
Children's Hospital [1-3]	Philadelphia	J. Stokes, Jr.	5,957	67	8	21	20
Hahnemann Medical College and Hospital [3]	Philadelphia	C. C. Fischer	1,535	36	4	8	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	P. György	545	40	3	7	...
Hospital of the Woman's							
Medical College of Pennsylvania [1-3]	Philadelphia	J. Crump	756	8	1	3	110
Jefferson Medical College Hospital [1-3]	Philadelphia	E. L. Bauer	578	40	2	4	...
Philadelphia General Hospital [1-3]	Philadelphia	P. György	1,890	94	6	6	114
Temple University Hospitals							
St. Christopher's Hospital for Children [1-3]	Philadelphia	W. E. Nelson	3,632	69	10	26	50
Temple University Hospital [1-3]	Philadelphia	W. E. Nelson	....	..	..	..	...
Allegheny General Hospital [1]	Pittsburgh	T. O. Elterich	480	9	1	2	200
Children's Hospital [1-3]	Pittsburgh	E. R. McCluskey	2,039	73	10	22	125
Robert Packer Hospital [1-3]	Sayre, Pa.	D. Motsay	2,578	27	1	2	200
Rhode Island Hospital [1-3-381]	Providence, R. I.	B. Feinberg	1,246	19	2	4	100
Roper Hospital [1-3]	Charleston, S. C.	M. W. Beach	1,319	31	3	7	138
Columbia Hospital of Richland County	Columbia, S. C.	J. R. Harvin	4,507	56	1	2	175
City of Memphis Hospitals [1-3]	Memphis, Tenn.	F. T. Mitchell	2,178	62	4	9	100
Le Bonheur Children's Hospital [1-3-359]	Memphis, Tenn.	C. B. Etter	3,777	29	2	3	100
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	E. P. Crump	799	10	3	6	125
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	A. Christie	1,098	33	4	6	50
Driscoll Foundation Children's Hospital.	Corpus Christi, Texas						
Children's Medical Center [1-3]	Dallas, Texas	E. L. Pratt	2,116	28	6	14	150
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	A. E. Hansen	951	78	6	14	160
Baylor University College of Medicine Affiliated Hospitals							
Hermann Hospital [1-3]	Houston, Texas	R. J. Blattner	565	14	2	6	100
Jefferson Davis Hospital [1-3]	Houston, Texas	R. J. Blattner	1,387	63	5	11	75
Methodist Hospital [1-3]	Houston, Texas	E. B. Brandes	143	3	1	2	220
St. Joseph's Hospital [1-3]	Houston, Texas	R. D. Lomas	3,985	23	1	2	200
Robert B. Green Memorial Hospital [1-3]	San Antonio, Texas	C. B. Alexander	1,572	25	1	2	150
Salt Lake County General Hospital	Salt Lake City	J. F. Bosma	425	9	4	12	150
University of Vermont Medical Center							
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	R. Corley	676	6	1	2	100
Mary Fletcher Hospital [1-3-412]	, Vt.	R. J. McKay, Jr.	512	13	1	3	100
University of Virginia Hospital	Va.	W. W. Waddell, Jr.	681	21	4	5	50
Medical College of Virginia—Hos	, Va.	L. E. Sutton, Jr.	2,201	82	8	14	50
University of Washington Affiliated Hospitals							
Children's Orthopedic Hospital [1]	Seattle	A. Rembe	2,388	61	2	5	160
King County Hospital Unit No. 1 (Harbor View) [1-423]	Seattle	W. B. Seelye	880	14	2	3	125
Memorial Hospital [1-3]	Charleston, W. Va.	J. Basman	1,083	8	1	2	225
University Hospitals [1-3]	Madison, Wis.	J. E. Gonce, Jr.	1,027	52	2	6	175
Milwaukee Children's Hospital [1-3]	Milwaukee	G. H. Wegmann	3,462	65	5	10	150
Milwaukee County Hospital [1-3]	Milwaukee	T. W. Kirmse	3,919	18	3	5	207
Gorgas Hospital [1]	Ancon, Canal Zone	D. Hirschl	933	30	1	2	345
Bayamon District Hospital [1-3]	Bayamon, P. R.	I. Ortiz de Freeman	1,348	78	1	2	150
San Juan City Hospital [1-3]	San Juan, P. R.	A. Ortiz	1,694	68	3	6	150

Residency programs in the following hospitals have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as offering training of ONE year's duration which is integrated with a fully approved training program.

Hospitals, 17; Assistant Residencies and Residencies, 40

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Seaside Memorial Hospital [1-3]	Long Beach, Calif.	W. Buerger	1,301	6	1	2	150
San Diego County General Hospital [1-3]	San Diego, Calif.	L. E. Beck	1,023	21	1	1	150

Numerical and other references will be found on pages 387 through 390.

18. PEDIATRICS—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Variety Children's Hospital	Miami, Fla.	......	.....	..	..	..	...
Illinois Masonic Hospital [1-3]	Chicago, Ill.	I. Richter	3,608	32	3	3	115
Evanston Hospital [1-3]	Evanston, Ill.	A. L. Newcomb	1,416	5	1	1	225
Mercy Hospital [1-3]	Baltimore	F. B. Smith	571	4	1	2	275
Herman Kiefer Hospital [1-3-461]	Detroit	D. C. Young	1,541	35	3	3	513
Essex County Hospital for Contagious Diseases [1-3-461]	Belleville, N. J.	E. L. Smith	1,357	12	2	2	250
Wyckoff Heights Hospital [1-3-248]	Brooklyn, N. Y.	V. Larkin	392	4	3	6	100
Flushing Hospital and Dispensary [1-3]	Flushing, N. Y.	H. T. Vogel	4,564	50	1	2	175
St. Francis Hospital [1-3]	New York City	D. J. Dolan	3,457	..	1	2	125
Mercy Hospital [1-3]	Toledo, Ohio	J. J. Tansey	762	15	1	2	275
St. John's Hospital [1-3]	Tulsa, Okla.	G. R. Russell	3,791	16	2	8	175
Greenville General Hospital [1-3]	Greenville, S. C.	......	1,852	20	1	1	125
St. Joseph Hospital [1-3-380]	Memphis, Tenn.	H. J. Jacobson	512	1	2	3	150
Baptist Hospital	Nashville, Tenn.	......	.....	..	..	..	...
De Paul Hospital [1-3]	Norfolk, Va.	H. W. Fink	1,569	10	1	2	200

Residency programs in the following hospitals have been approved by the Council and the American Board of Pediatrics, through the Residency Review Committee for Pediatrics, as *offering training of ONE year's duration. It should be noted that beginning July 1, 1957, only those hospitals which, either intramurally or through affiliation, are able to provide full training in the specialty, will continue to be approved. These residency programs will be reviewed prior to July 1, 1957 relative to their qualifying for continued approval.*

Hospitals, 29; Assistant Residencies and Residencies, 81

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	G. C. McCullough	1,387	2	2	4	225
Mobile County Hospital [1-3]	Mobile, Ala.	J. H. Baumhauer	1,224	33	1	1	250
Kaiser Foundation Hospital [1-3]	Oakland, Calif.	A. King	684	6	4	6	245
Mount Zion Hospital [1-3]	San Francisco	S. J. Robinson	1,159	2	..	1	150
Waterbury Hospital [1]	Waterbury, Conn.	J. L. Hetzel	2,286	8	1	2	225
Providence Hospital [1-3]	Washington, D. C.	G. Maksim	1,753	6	2	4	300
Hotel Dieu-Sisters Hospital [1]	New Orleans	E. A. Socola	2,077	12	2	3	225
Southern Baptist Hospital [1-3]	New Orleans	D. York	2,184	39	1	2	225
Central Maine General Hospital [1]	Lewiston, Maine	H. C. Thacher	1,001	10	1	1	225
Northwestern Hospital [1-3]	Minneapolis	R. Tudor	3,531	26	1	2	200
Cooper Hospital [1-3]	Camden, N. J.	V. Del Duca	901	12	1	1	83
St. Peter's Hospital [3]	Albany, N. Y.	H. F. Leahy	1,376	6	1	1	225
Greenpoint Hospital [1-3]	Brooklyn, N. Y.	I. Schiff	610	17	2	3	105
Methodist Hospital [1-3]	Brooklyn, N. Y.	W. R. Coles	1,001	24	1	2	175
Mary Immaculate Hospital [1-3]	Jamaica, N. Y.	A. Trivilino	1,688	12	1	1	160
Misericordia Hospital [1-3]	New York City	F. Castrovinci	508	2	1	2	125
Rochester General Hospital [1-3-256]	Rochester, N. Y.	E. H. Townsend, Jr.	643	8	3	3	125
Sea View Hospital [1-3-317]	Staten Island, N. Y.	B. Ratner	602	..	7	7	157
St. Joseph's Hospital [1-3]	Syracuse, N. Y.	G. Murdock	2,545	8	..	2	191
Rex Hospital [1]	Raleigh, N. C.	C. R. Bugg	1,292	9	1	2	200
Germantown Dispensary and Hospital [1-3]	Philadelphia	P. S. Barba	488	1	1	3	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	J. Ritter	416	3	1	1	...
St. Luke's and Children's Medical Center [1-3]	Philadelphia	H. A. Agerty	625	7	3	3	125
Western Pennsylvania Hospital [1-3]	Pittsburgh	F. A. Miller	532	3	2	2	225
Charles V. Chapin Hospital [1-3]	Providence, R. I.	M. Adelman	1,537	12	4	8	150
T. C. Thompson Children's Hospital [1-3]	Chattanooga, Tenn.	S. Smith	3,284	39	3	4	175
St. Paul's Hospital [1-3-398]	Dallas, Texas	D. Spegal	2,378	15	2	4	125
Santa Rosa Hospital [1-3]	San Antonio, Texas	M. L. Thornton	3,938	50	1	2	250
Kauikeolani Children's Hospital [1-3]	Honolulu, T. H.	J. H. Peyton	3,478	25	4	4	200

19. PHYSICAL MEDICINE AND REHABILITATION

Residency programs in the following hospitals have been approved by the Council and the American Board of Physical Medicine and Rehabilitation, through the Residency Review Committee for Physical Medicine and Rehabilitation, as offering acceptable training in the specialty.

Hospitals, 59; Assistant Residencies and Residencies, 197

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	W. H. Moore	1,937	97,982	1	3	3	...
Fitzsimons Army Hospital [1]	Denver	......	7,690	263,572	1	3	3	...
Army Medical Center [1-3]	Washington, D. C.	A. F. Mastellone	14,334	240,383	1	3	3	...
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Denver	C. C. Hoffman	3,323	338,086	..	..	3	...
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)						
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	F. Friedland	2,520	142,684	..	1	3	...
Veterans Admin. Hospital [1-3]	East Orange, N. J.	C. R. Brooke	1,968	33,456	1	3	1	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	A. Ebel	4,446	338,956	2	3	3	...
Veterans Admin. Hospital	New York City (Manhattan)	E. L. Kristeller	525	25,416	2	5	2	...
Veterans Admin. Hospital [1-3]	Cleveland	H. T. Zankel	1,597	91,831	1	2	1	...
Veterans Admin. Hospital	Dayton, Ohio	L. Rosenberg	......	....	..	..	1	...
Veterans Admin. Hospital [1]	Oklahoma City	E. M. George	3,224	31,352	2	2	3	...
Veterans Admin. Hospital [1-3]	Portland, Ore.	E. W. Fowlks	2,976	141,360	1	3	3	...
Veterans Admin. Hospital [1-3]	*Philadelphia*	R. A. Schlesinger	11,358	41,967	1	1	2	...
Veterans Admin. Hospital [1]	Pittsburgh	S. Machover	1,073	41,505	..	2	2	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	F. J. Schaffer	2,580	109,334	1	1	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Richmond, Va.	A. R. Dawson	4,198	221,516	1	3	3	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	R. Piaskoski	4,044	267,018	3	4	3	...
Veterans Admin. Hospital [1-3]	San Juan, P. R.	H. J. Flax	......	....	2	2	1	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
Los Angeles County Hospital [1]	Los Angeles	E. Austin	24,358	56,251	1	1	3	246
White Memorial Hospital [1-3-30]	Los Angeles	F. B. Moor	4,971	18,648	1	3	3	151
Kaiser Foundation Hospital California Rehabilitation Center	Vallejo, Calif.	S. Mead	......	....	1	1	1	...
University of Colorado Medical Center [-468] Colorado General Hospital [1-3]	Denver	J. W. Gersten	15,554	35,570	1	2	3	160
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	T. F. Hines	1,282	26,521	1	3	3	50
District of Columbia General Hospital [1-3]	Washington, D. C.	J. Buchanan	8,694	46,040	1	3	3	153

Numerical and other references will be found on pages 387 through 390.

19 PHYSICAL MEDICINE AND REHABILITATION—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Number of Treatments	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Georgetown University Hospital	Washington, D C		3,[illegible]	[illegible]			1	100
George Washington University Hospital [1,3]	Washington D C	C S Wise	2,[illegible]	16,140		2	3	1[illegible]
Georgia Warm Springs Foundation—Emory University [1,3]	Warm Springs Ga	R L Bennett	[illegible]	19,[illegible]	2	6	3	[illegible]
Northwestern University Medical Center [1,3,10]	Chicago	B Boynton	19,1[illegible]	10,[illegible]	1	3	3	
Veterans Admin Research Hospital [1]	Chicago	L B Newman	[illegible]	[illegible]	1	2	3	
University of Kansas Medical Center [1,3]	Kansas City, Kan	D L Rose	2,[illegible]3	[illegible]	1	3	3	12[illegible]
University of Louisville Affiliated Hospitals	Louisville Ky	R O McMorris	[illegible]31				3	
Massachusetts General Hospital [1,3]	Boston	A I Watkins	1,[illegible]		4	4	3	
University Hospital [1,3]	Ann Arbor Mich	J W Rae Jr		41,[illegible]19	2	6	3	1[illegible]
University of Minnesota Hospitals [1,3,18]	Minneapolis	F J Kottke	2,[illegible]	[illegible]	3	9	3	1[illegible]
Mayo Foundation [1]	Rochester Minn	F H Krusen	17[illegible]9	[illegible]	3	7	[illegible]	1[illegible]
Mary Hitchcock Memorial Hospital [1,3]	Hanover, N H	T P Anderson	1,9[illegible]	[illegible]	1	2	3	1[illegible]
Jewish Chronic Disease Hospital [1,3]	Brooklyn N Y	J B Rogoff	2,[illegible]	[illegible]	1	3	3	17[illegible]
Elmhurst General Hospital [1,3]	Elmhurst N Y	E Rogers	1,4[illegible]1	17,[illegible]	1	1	1	10[illegible]
Bellevue Hospital Center Div III—New York University College of Medicine [1,3]	New York City	H A Rusk	3,[illegible]	104,[illegible]03	[illegible]	1[illegible]	3	10[illegible]
Bronx Municipal Hospital Center [1,3]	New York City	A S Abramson			2	[illegible]	3	10[illegible]
Goldwater Memorial Hospital [1,3]	New York City	M Dacso	[illegible]	11,[illegible]	2	[illegible]	3	104
Hospital for Joint Diseases [1,3]	New York City	A S Russek	3,[illegible]	[illegible]	1	1	1	[illegible]
Hospital for Special Surgery [1,3]	New York City	O Austlid	[illegible]	31,57[illegible]	1	1	1	10[illegible]
Montefiore Hospital [1,3]	New York City	K Harpuder	1,[illegible]	3,1[illegible]	1	2	2	[illegible]
Mount Sinai Hospital [1,3]	New York City	W Bierman	10,310	63,16[illegible]	1	1	3	[illegible]
New York Medical College—Metropolitan Medical Center								
Bird S Coler Memorial Hospital and Home [1,3]	New York City	J S Tobis	40[illegible]	6[illegible]	[illegible]	1[illegible]	3	10[illegible]
Metropolitan Hospital [1]	New York City	J S Tobis	[illegible]	34,217	1	[illegible]	[illegible]	10[illegible]
Presbyterian Hospital [1]	New York City	R C Darling	[illegible]	22,272		3	3	2[illegible]
St Barnabas Hospital for Chronic Diseases [1,3]	New York City	R A Muller	16,[illegible]3	[illegible],177	1	3	1	[illegible]
St Luke's Hospital [1,3]	New York City	R Mueller	[illegible]	12,[illegible]42	1	1	1	1[illegible]
City Hospital [1,3]	Cleveland	N Coyne	1[illegible]	40,117	1	3	1	1[illegible]
Cleveland Clinic Hospital [1,3]	Cleveland	P A Nelson	4,7[illegible]1	2[illegible],114	1	3	[illegible]	17[illegible]
Highland View Hospital	Cleveland	M Peszczynski					2	
Ohio State University Hospitals—University Hospital [1,3]	Columbus Ohio	R E Worden	19,1[illegible]	37,616	[illegible]	6	[illegible]	1[illegible]
Hospital of the University of Pennsylvania [1,3]	Philadelphia	W Erdman	[illegible],16[illegible]	[illegible]49[illegible]	2	6	3	
Philadelphia General Hospital [1,3]	Philadelphia	A Martucci	11,[illegible]	14[illegible],294	1	1	[illegible]	114
Baylor University Hospital	Dallas Texas	F M Krusen	1,[illegible]	104,[illegible]	3	6	[illegible]	1[illegible]
Gonzales Warm Springs Foundation Hospital for Crippled Children	Gonzales Texas	O Von Werssowetz	1,[illegible]	[illegible]	2	4	1	[illegible]
Baylor University College of Medicine Affiliated Hospitals—Veterans Admin Hospital [1,3]	Houston Texas	L A Leavitt	[illegible]	17[illegible]	[illegible]	[illegible]	3	
Medical College of Virginia—Hospital Division [1,3]	Richmond Va	H W Park	4,[illegible]	[illegible]	[illegible]	6	3	[illegible]

20 PLASTIC SURGERY

Residency programs in the following hospitals have been approved by the Council and the American Board of Plastic Surgery, through the Residency Review Committee for Plastic Surgery, as offering acceptable training in the specialty

Hospitals, 41, Assistant Residencies and Residencies, 99

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Brooke Army Hospital [1,3]	San Antonio Texas	H B Jennings, Jr	434		1	3		
VETERANS ADMINISTRATION								
Veterans Admin Hospital [1,3,35]	Los Angeles	G Webster	311			1	1	
Veterans Admin Hospital [1]	Hines Ill	(See University of Illinois Affiliated Hospitals)						
Veterans Admin Hospital [1,3]	New York City (Bronx)	H Conway	2[illegible]		[illegible]	4	[illegible]	
Veterans Admin Hospital [1,3]	Durham N C	(See Duke University Affiliated Hospitals)						
Veterans Admin Hospital	Houston Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin Hospital [1,3]	White River Jct Vt	(See Dartmouth Medical School Affiliated Hospital)						

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered	Total Residencies Offered	Length of Approved Program (Years)	Beginning Stipend (Month)
Franklin Hospital [1,3]	San Francisco	H M Blackfield	[illegible]		1	2	[illegible]	[illegible]
St Francis Memorial Hospital [1,3]	San Francisco	G W Pierce	[illegible]		1	[illegible]	[illegible]	[illegible]
University of Illinois Affiliated Hospitals		P W Greeley					3	
Illinois Research and Educational Hospitals [1,3]	Chicago		3[illegible]			1		[illegible]
St Luke's Hospital [1,3]	Chicago		1[illegible]	3	1	1		7[illegible]
Veterans Admin Hospital [1]	Hines Ill		22[illegible]		1	1		
Indiana University Medical Center [1]	Indianapolis	H M Trusler	437			1	[illegible]	21[illegible]
University of Kansas Medical Center [1,3]	Kansas City Kan	D Robinson	[illegible]	3	1	3	[illegible]	12[illegible]
Johns Hopkins Hospital [1,3]	Baltimore	M T Edgerton	[illegible]	6	[illegible]	3	[illegible]	2[illegible]
Henry Ford Hospital [1,3]	Detroit	R H Clifford	[illegible]		1	2	2	[illegible]
Mayo Foundation [1]	Rochester Minn	F A Figi	3,[illegible]1	4	4	10	3	1[illegible]
Barnes Hospital [1,3]	St Louis	J B Brown	1,13[illegible]	6	4	[illegible]	2	[illegible]
St Mary's Group of Hospitals [1,3]	St Louis	F N Paletta	[illegible]14	6	1	2	2	1[illegible]
Dartmouth Medical School Affiliated Hospitals		R C Tanzer	[illegible]	2	1	2	2	[illegible]
Mary Hitchcock Memorial Hospital [1,3]	Hanover N H							
Veterans Admin Hospital [1,3]	White River Jct Vt							
Hospital of Saint Barnabas and for Women and Children [1,3]	Newark N J	I A Peer	7[illegible]7	2		2	[illegible]	[illegible]
Albany Hospital [1,3]	Albany N Y	B Macomber	[illegible]		[illegible]	4	2	1[illegible]
St Peters Hospital	Albany N Y							
Veterans Admin Hospital	Albany N Y							
Kings County Hospital County Service [1]	Brooklyn N Y	G O Brien	76[illegible]	4	1	2	2	104
Roswell Park Memorial Institute	Buffalo	F S Hoffmeister	4[illegible]	14		1	1	2[illegible]
Beth Israel Hospital [1,3]	New York City	A J Barsky	2[illegible]		1	1	2	140
Columbia Presbyterian Medical Center							3	
Francis Delafield Hospital	New York City							
Presbyterian Hospital [1]	New York City	T W Stevenson, Jr			2	4		[illegible]
New York Hospital [1,3]	New York City	H Conway	[illegible]		1	2	3	1[illegible]
Strong Memorial Rochester Municipal Hospital [1,3]	Rochester N Y	R McCormack	357		1	2	2	[illegible]
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N Y	L E Sutton	21[illegible]			1	2	1[illegible]

Numerical and other references will be found on pages 387 through 390

20. PLASTIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered 8	Total Residencies Offered 8	Length of Approved Program (Years)	Beginning Stipend (Month)
Duke University Affiliated Hospitals								
University Hospital 1-3	Durham, N. C.	K. L. Pickrell	1,198	1	2	6	3	127
Veterans Admin. Hospital 1-3	Durham, N. C.	K. Pickrell	206	1	..	2	2	...
Ohio State University Hospitals								
University Hospital 1-3	Columbus, Ohio	B. C. Martin	Incl. in Surgery		..	4	2	152
University of Oklahoma Hospitals 1-3	Oklahoma City	J. F. Burton	253	2	1	1	1	85
Allentown Hospital 1-3	Allentown, Pa.	K. M. Marcks	646	..	1	1	2	225
Graduate Hospital of the University of Pennsylvania 1-3	Philadelphia	A. Von Dellen-P. C. Iverson	160	..	1	1	2	100
Pittsburgh Medical Center	Pittsburgh	S. M. Dupertuis	513	..	..	4	2	125
Baylor University Hospital 1-3	Dallas, Texas	J. T. Mills	633	..	2	2	2	195
University of Texas Medical Branch Hospitals 1-3	Galveston, Texas	T. G. Blocker, Jr.	937	13	2	5	3	160
Baylor University College of Medicine Affiliated		....	....	..	..	..	2	...
Jefferson Davis Hospital 1-3		S. B. Hardy	206	..	2	4	..	125
Methodist Hospital		....	....	..	..	..	..	...
Texas Children's Hospital		....	....	..	..	..	..	...
Veterans Admin. Hospital	Houston, Texas	....	....	..	..	..	..	...
University Hospitals 1-3	Madison, Wis.	W. B. Slaughter	500	5	1	2	2	175

21. PREVENTIVE MEDICINE AND PUBLIC HEALTH

Residency programs in the following states have been approved for TWO years of training by the Council and the American Board of Preventive Medicine and Public Health, through the Residency Review Committee for Preventive Medicine and Public Health.

PRTVENTIVE MEDICINE AND PUBLIC HEALTH

Department of Health	Location	Director	Local Areas	Population	Stipend (Month)
State of California	Berkeley	M. H. Merrill	Alameda County (a)	244,700*	$458 max.
			Monterey County	164,400*	....
			Orange County	346,200*	....
State of Delaware	Dover	F. I. Hudson	Kent and New Castle Counties (b)	184,000*	$400-500
State of Florida	Jacksonville	W. T. Sowder	Alachua County	62,441*	$500 (c)
			Dade-Miami	691,244*	....
			Hillsborough-Tampa	323,023*	....
			Pinellas-St. Petersburg	207,066*	....
State of Illinois	Springfield	R. R. Cross	Cook County (d) (e)	743,988	$416-500
			Will County (e)	134,366	....
State of Kansas	Wichita	T. R. Hood	Kansas City-Wyandotte	189,000	(f) (g)
			Topeka-Shawnee	115,006	....
			Wichita-Sedgwick	297,388	....
State of Maryland	Baltimore	P. F. Prather	Anne Arundel County	143,126	(g)
			[illegible] County	330,358	....
			[illegible]ict		
			[illegible]	333,000*	....
			[illegible]	206,657	....
			[illegible]	84,161	....
State of Massachusetts	Boston	S. B. Kirkwood	(h)	(h)	
State of Michigan	Lansing	A. E. Heustis	Calhoun County	123,230	$400
			Detroit	1,966,270	....
			Kalamazoo City-County	136,460	....
			Michigan Dept. of Health	(m)	....
			Wayne County (j)	531,710	....
State of Minnesota	Minneapolis	A. J. Chesley, Secy. and Ex. Off.	Olmstead-Rochester	47,728*	75% of what job will pay (k)
New York City	New York City	H. P. Kandle, Dep. Com.	(n)	8,010,000*	$443
State of New York	Albany	H. E. Hilleboe	(l)	(l)	$475
State of North Carolina	Raleigh	J. W. R. Norton	Charlotte-Mecklenburg County.	211,754*	....
			Forsyth-Winston-Salem	152,524*	$500
			Halifax	58,981*	....
			Orange-Person-Chatham-Lee	112,955*	....
State of Oregon	Portland	H. M. Erickson	Multnomah County	119,810*	$500 (i)
State of Texas	Austin	F. C. Kluth	....	....	$700
State of Virginia	Richmond	R. G. Beu	[illegible] County	155,000*	$700
State of Washington	Seattle	B. Bucove	[illegible]	773,900*	$500
			[illegible]	90,600*	....
			Tacoma-Pierce	301,700*	....

---

* *Estimated.*

(a) Excludes Alameda, Berkeley, and Oakland cities with full-time health officers, and Albany with part-time officer.

(b) Excludes the city of Wilmington.

(c) To those planning to work in state; transportation costs only to others.

(d) Excludes Berwyn, Chicago, Evanston, Oak Park, Stickney Township, and Winnetka (including Glencoe, Kenilworth, Northbrook, and remainder of New Trier Township), all with full-time health officers.

(e) Assistance can be arranged for securing the MPH degree in the midst of, or after completion of, residency experience. Appointments normally are limited to those training for service in Illinois.

(f) Arrangements for remuneration made on an individual basis.

(g) *Arrangements for remuneration made upon determination of field of interest and location desired.*

(h) Training is given in a combination of one county, one union health, and seven municipal health departments and in the *divisions of the State* Department of Health.

(i) Assistance can be arranged for securing the MPH degree *after successful* completion of residency experience. Appointments will be limited to those training for service in Oregon.

(j) Excludes Detroit and Dearborn, each with full-time health officers.

(k) To those training for service in Minnesota only.

(l) *Training is given in any one* of 10 city health departments, 16 county health departments, or 15 district offices within the state.

(m) Training to be with Michigan Department of Health, with field experience in local health departments.

(n) Includes training at Montefiore Hospital.

Numerical and other references will be found on pages 387 through 390.

22. PROCTOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Proctology, through the Residency Review Committee for Proctology, as offering acceptable training in the specialty.

Hospitals, 13; Assistant Residencies and Residencies, 29

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered x	Total Residencies Offered x	Length of Approved Program (Years)	Beginning Stipend (Month)
White Memorial Hospital [1-3]	Los Angeles	H. M. Young	260	..	1	2	2	151
Ochsner Foundation Hospital [1]	New Orleans	M. O. Hines	629	1	1	2	2	225
Ferguson-Droste-Ferguson Hospital [1-3]	Grand Rapids, Mich.	J. A. Ferguson	2,100	20	2	4	2	275
University of Minnesota Hospitals [1-3]	Minneapolis	W. A. Fansler	.....	..	1	1	2	185
Mayo Foundation [1]	Rochester, Minn.	R. J. Jackman	.....	..	2	8	2	150
Buffalo General Hospital	Buffalo	L. S. Knapp	620	3	1	2	2	175
Millard Fillmore Hospital	Buffalo	W. H. Bernhoft	362	1	1	2	2	285
Youngstown Hospital [1-3]	Youngstown, Ohio	P. J. Fuzy, Sr.	679	7	1	2	2	175
Allentown Hospital [1-3]	Allentown, Pa.	M. S. Kleckner	700	4	1	1	2	225
Temple University Hospital [1-3]	Philadelphia	H. E. Bacon	838	8	..	..	2	...
Pittsburgh Medical Center	Pittsburgh	K. M. Zimmerman	442	..	1	2	2	125
Baylor University Hospital [1-3]	Dallas, Texas	C. Rosser	964	1	1	1	2	195
Milwaukee County Hospital [1-3]	Milwaukee	L. J. Schwade	376	8	1	2	2	207

23. PSYCHIATRY

Residency programs in the following hospitals have been approved for THREE years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc. should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level—see summary of requirements, American Board of Psychiatry and Neurology, Inc., page 410.)

Hospitals, 159; Assistant Residencies and Residencies, 2296

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered x	Total Residencies Offered x	Program Identification	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	O. M. Weaver	649	..	5	15	12	...
Fitzsimons Army Hospital [1]	Denver	P. B. Smith	523	..	2	6	..	...
Army Medical Center [1-3]	Washington, D. C.	H. C. Glass	951	..	6	16	..	...
UNITED STATES NAVY								
U. S. Naval Hospital	Bethesda, Md.	J. E. Nardini	592	..	3	7	..	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1]	Lexington, Ky.	R. W. Rasor-R. P. Cutler	3,645	6	5	13	30	...
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	E. Y. Williams	260	..	1	2	..	218
St. Elizabeth's Hospital [1-3]	Washington, D. C.	W. Overholser	8,634	245	12	24	20	298
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1]	No. Little Rock, Ark.	(See University of Arkansas Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	M. Feld	437	..	1	3	..	...
Veterans Admin. Hospital [1-3-37]	Los Angeles	J. T. Ferguson	3,219	132	18	54	11	...
Veterans Admin. Hospital [1-3-13]	Palo Alto, Calif.	H. D. Von Witzleben	2,000	31	11	33	14	...
Veterans Admin. Hospital	Sepulveda, Calif.	N. C. Mace	886	3	..	8	..	...
Veterans Admin. Hospital [1-3-56]	Denver	L. L. Woodfin	719	1	1	8	..	...
Veterans Admin. Hospital—West Haven Division [1-3-75]	West Haven, Conn.	E. B. Brody	306	..	10	21	18	...
Veterans Admin. Hospital [1-3-91]	Augusta, Ga.	M. Dunn	2,149	32	3	6	21	...
Veterans Admin. West Side Hospital [1-3]	Chicago	L. Halperin	300	11	3	6	..	...
Veterans Admin. Hospital [1-118]	Downey, Ill.	M. Klotz	4,096	82	20	38	..	...
Veterans Admin. Hospital [1]	Hines, Ill.	L. Jensen	702	3	5	14	25	...
Veterans Admin. Hospital [1]	Indianapolis	(See Indiana University Affiliated Hospitals)						
Veterans Admin. Hospital [1-3-131]	Topeka, Kan.	F. F. Merker	2,601	16	21	61	29	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	(See University of Louisville Hospitals)						
Veterans Admin. Hospital [1-3]	Perry Point, Md.	W. M. Harris	2,236	27	3	10	37	...
Veterans Admin. Hospitals of the Boston Area								
Veterans Admin. Hospital [1-3-162]	Bedford, Mass.	A. H. Braverman	2,362	39	2	5	39	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	W. Bloomberg	869	1	5	15	..	...
Veterans Admin. Hospital [1-3]	Brockton, Mass.	A. S. Mason	1,231	10	6	6	..	...
Veterans Admin. Hospital [1-3-193]	Dearborn, Mich.	J. L. Kubanek	431	2	2	5	45	...
Veterans Admin. Hospital [1-3]	Minneapolis	W. Simon	505	1	2	2	46	...
Veterans Admin. Hospital—(Gulfport Division) [1]	Biloxi, Miss.	E. R. Bennett	1,676	13	2	4	34	...
Veterans Admin. Hospital [1-3-232]	St. Louis	B. A. Cruvant	122	2	3	9	..	...
Veterans Admin. Hospital [1-3]	Omaha	F. A. Majka	458	6	4	5	53	...
Veterans Admin. Hospital [1-3-244]	Lyons, N. J.	M. P. Rosenblum	2,408	31	2	6	54	...
Veterans Admin. Hospital [1-3-267]	Albany, N. Y.	I. C. Funk	529	12	2	5	..	...
Veterans Admin. Hospital [1-3]	Brooklyn, N. Y.	J. Barasch	334	2	2	4	57	...
Veterans Admin. Hospital [1-3-272]	Montrose, N. Y.	G. Rosenberg	2,320	31	5	15	61	...
Veterans Admin. Hospital [1-3-301]	New York City (Bronx)	H. L. Flowers	1,264	..	9	26	60	...
Veterans Admin. Hospital [1-3-299]	New York City (Manhattan)	D. P. Morton	317	1	20	30	..	...
Veterans Admin. Hospital	Syracuse, N. Y.	(See State University of New York Upstate Medical Center)						
Veterans Admin. Hospital [1-3]	Durham, N. C.	J. B. Parker, Jr.	347	..	4	8	..	...
Veterans Admin. Hospital [1-3-311]	Cleveland	(See University Hospitals)						
Veterans Admin. Hospital [1-356]	Oklahoma City	H. B. Witten	288	..	6	6	..	...
Veterans Admin. Hospital [1-3-363]	Coatesville, Pa.	R. F. Ritchie	2,105	36	5	11	73	...
Veterans Admin. Hospital [1]	Nashville, Tenn.	B. T. Bennett	192	..	2	2	76	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-411]	Salt Lake City	(See University of Utah Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	Richmond, Va.	J. B. Funkhouser	674	..	1	3	82	...
Veterans Admin. Hospital [1-3]	Roanoke, Va.	(See University of Virginia Medical Center Hospitals, Charlottesville, Va.)						
Veterans Admin. Hospital [1-3]	Seattle	M. H. Johnson	323	2	2	8	83	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	B. S. Wells	1,656	13	..	2	..	...

Numerical and other references will be found on pages 387 through 390.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
University of Arkansas Affiliated Hospitals								
Arkansas State Hospital [1-18]	Little Rock, Ark.	W. P. Kolb	1,902	120	3	8	..	500
Veterans Admin. Hospital [1]	No. Little Rock, Ark.	E. S. Chappell	3,437	66	4	12	49	...
Los Angeles County Hospital [1]	Los Angeles	J. R. Peters	9,827	37	4	10	..	246
University of California Medical Center [1-3]	Los Angeles	N. Q. Brill	....	..	4	10	..	259
Metropolitan State Hospital [1-3-40]	Norwalk, Calif.	R. E. Wyers	3,687	47	6	18	15	584
Langley Porter Clinic Hospital [1-41]	San Francisco	K. M. Bowman	300	514	13	46	13	87
Stanford University Hospitals [1-3]	San Francisco	G. S. Johnson	255	1	2	6	..	89
University of Colorado Medical Center [-463]								
Colorado Psychopathic Hospital [1-3]	Denver	H. S. Gaskill	711	1	12	40	16	216
Institute of Living [1-3]	Hartford, Conn.	F. J. Braceland	969	..	8	16	..	333
Grace-New Haven Community Hospital [1-3]	*New Haven, Conn.*	T. Lidz	52	..	..	12	17	50
Norwich State Hospital [1-3-73]	Norwich, Conn.	R. H. Kettle	4,592	76	6	18	..	440
Delaware State Hospital	Farnhurst, Del.	M. A. Tarumianz	1,400	98	4	11	19	200
Jackson Memorial Hospital [1-3]	*Miami, Fla.*	M. H. Greenhill	996	1	5	17	..	167
University Hospital [1]	Augusta, Ga.	*H. M. Cleckley*	*671*	*1*	*3*	*5*	..	200
Chicago State Hospital [1-3-93]	Chicago	K. Gyarfas	6,506	91	9	25	23	280
Cook County Hospital [1-3]	Chicago	V. G. Urse	7,674	8	2	5	..	250
Michael Reese Hospital [1-3-101]	Chicago	R. R. Grinker	790	2	5	15	..	...
Northwestern University Medical Center [1-3-105]	Chicago	B. Boshes	4,690	84	8	38	..	...
Chicago Wesley Memorial Hospital [1-3]	Chicago	B. Boshes	561	..	..	1	..	75
Veterans Admin. Hospital	Downey, Ill.	M. Keotz	....	..	..	..	26	...
St. Luke's Hospital [1-3]	*Chicago*	*R. Mackay*	329	5	1	3	22	75
Stritch School of Medicine Affiliated Hospitals [-471]		J. J. Madden	....	..	..	..	..	...
Loretto Hospital [1-3]	Chicago	....	559	2	1	1	..	200
Mercy Hospital [1-3]	Chicago	....	344	1	1	1	..	100
University of Chicago Clinics [1-3]	Chicago	C. K. Aldrich	86	..	2	2	..	200
University of Illinois Neuropsychiatric Institute [1-3-110]	Chicago	F. J. Gerty	195	..	3	9	27	125
Indiana University Affiliated Hospitals								
Indianapolis General Hospital [1-3]	*Indianapolis*	D. Schuster	513	5	..	..	28	205
Indiana University Medical Center Hospital [1-121]	Indianapolis	J. I. Nurnberger	....	..	12	39	28	365
Veterans Admin. Hospital [1]	Indianapolis	E. J. Fogel	887	..	..	..	..	...
Iowa State Psychopathic Hospital [1-3]	Iowa City	P. E. Huston	341	1	4	12	..	200
University of Kansas Medical Center [1-3]	*Kansas City, Kan.*	W. *Roth, Jr.*	150	..	4	12	..	175
C. F. Menninger Memorial Hospital	Topeka, Kan.	K. A. Menninger	192	..	..	8	29	300
Topeka State Hospital [1-3]	Topeka, Kan.	W. S. Simpson	2,005	59	26	69	29	300
University of Louisville Hospitals		....	....	..	8	16	10	...
Central State Hospital [1-3]	Lakeland, Ky	W. Fox	3,138	5	..	..	..	300
Veterans Admin. Hospital [1-3]	Lexington, Ky.	(See Listing of Veterans Admin. Hospital, Lexington, Ky., in Following Section)						
Louisville General Hospital [1-3]	Louisville, Ky.	W. K. Keller	915	4	..	..	..	200
Norton Memorial Infirmary [1-3]	Louisville, Ky.	S. S. Ackerly	226	..	..	..	..	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	A. Guiglia	493	6	..	..	32	...
Charity Hospital of Louisiana								
Louisiana State University Unit [1]	New Orleans	R. A. Matthews	504	4	4	12	35	100
Tulane University Unit [1-440-448]	New Orleans	R. G. Heath	269	3	2	6	34	100
Johns Hopkins Hospital [1-3]	Baltimore	J. C. Whitehorn	254	..	17	18	36	25
University Hospital [1-3]	Baltimore	J. E. Finesinger	190	2	5	15	..	150
Spring Grove State Hospital [1-3]	Catonsville, Md.	I. Tuerk	4,675	95	6	17	..	300
Sheppard and Enoch Pratt Hospital [1-3]	Towson, Md.	H. M. Murdock	511	11	5	12	..	208
Boston State Hospital [3]	Boston	J. Mann	3,004	112	14	29	..	255
Massachusetts Memorial Hospitals [1-3]	Boston	W. Malamud	....	..	..	8	38	250
Massachusetts Mental Health Center [1]	Boston	H. C. Solomon	841	2	15	33	..	250
Worcester State Hospital [1-3]	Worcester, Mass.	D. Rothschild	3,504	79	9	18	..	255
University Hospital [1-3-469]	Ann Arbor, Mich.	R. W. Waggoner	604	..	9	40	..	321
Henry Ford Hospital [1-3]	Detroit	L. D. Proctor	407	2	1	3	41	225
Receiving Hospital [1-3]	*Detroit*	J. M. Dorsey	5,869	24	2	7	44	260
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	J. A. Belisle	4,998	79	5	11	10	518
Northville State Hospital [1-3]	Northville, Mich.	G. R. Forrer	1,820	38	5	15	..	541
Pontiac State Hospital [1-3-196]	Pontiac, Mich.	I. A. LaCore	3,580	57	8	20	10	510
Ypsilanti State Hospital [1-3]	Ypsilanti, Mich.	O. R. Yoder	4,100	101	6	18	..	539
University of Minnesota Hospitals [1-3-407]	Minneapolis	D. W. Hastings	392	1	2	8	..	185
Mayo Foundation [1-408]	Rochester, Minn.	H. P. Rome	1,123	..	3	12	47	150
Mississippi State Hospital [1]	Whitfield, Miss.	J. J. Head	7,714	76	6	6	..	300
Kansas City General *Hospital No. 1* [1-3]	Kansas City, Mo.	....	....	..	..	..	..	...
Barnes Hospital [1-3]	St. Louis	E. F. Gildea	522	..	10	15	10	30
St. Louis City Hospital [1-3]	St. Louis	G. A. Ulett	1,224	13	4	9	..	190
St. Louis State Hospital [1-3]	St. Louis	L. H. Kohler	3,330	52	7	21	..	300
Nebraska Psychiatric Institute [1-3-466]	Omaha	C. Wittson	198	..	8	25	51	275
Albany Hospital [1-3]	Albany, N. Y.	W. Holt	1,427	5	2	6	..	160
Brooklyn State Hospital [1-3]	Brooklyn, N. Y.	N. *Beckenstein*	5,269	17	6	17	..	450
Kings County Hospital								
University Service [1]	Brooklyn, N. Y.	H. W. Potter	9,150	31	10	30	..	136
Buffalo State Hospital [1-3]	Buffalo	D. Whitehead	4,925	92	4	8	..	450
Edward J. Meyer Memorial Hospital [1]	Buffalo	S. M. Small	2,621	25	1	3	..	323
Central Islip State Hospital [1-3-267]	Central Islip, N. Y.	F. J. O'Neill	11,238	273	8	24	..	425
Hillside Hospital [1-3]	Glen Oaks, N. Y.	J. S. A. Miller	575	..	9	19	10	200
Bellevue Hospital Center								
Div. III—New York University								
College of Medicine [1-3-270]	New York City	A. Zitron	17,694	113	28	85	58	105
Bronx Municipal Hospital Center	New York City	M. *Rosenbaum*	....	..	7	24	..	105
Columbia-Presbyterian Medical Center		L. C. Kolb	....	..	..	..	..	...
New York State Psychiatric Institute [1-3-316]	New York City	....	310	2	6	6	..	425
Presbyterian Hospital [1]	New York City	....	....	..	2	4	..	230
Manhattan State Hospital [1-3-287]	*New York City*	*J. H. Travis*	4,335	99	13	13	59	425
New York Hospital [1-3]	New York City	O. Diethelm	204	..	4	13	..	141
St. Luke's Hospital	New York City	J. M. Cotton	....	..	..	3	..	100
Rockland State Hospital [1-3-297]	Orangeburg, N. Y.	A. M. Stanley	9,906	126	12	12	10	431
Hudson River State Hospital [1-3-307]	Poughkeepsie, N. Y.	O. A. Kilpatrick	4,493	55	9	22	62	425
Creedmoor State Hospital [1-3-296]	Queens Village, N. Y.	H. A. LaBurt	8,328	137	9	35	..	425
Rochester State Hospital [1-3-313]	Rochester, N. Y.	C. F. Terrence	4,754	59	3	7	64	450
Strong Memorial-Rochester								
Municipal Hospital [1-3-314]	Rochester, N. Y.	J. Romano	1,298	2	5	15	63	92
Ellis Hospital [1-3]	Schenectady, N. Y.	E. Davidoff	1,508	3	1	3	..	150
State University of New York Upstate								
Medical Center Hospitals	*Syracuse, N. Y.*	R. H. Phillips	665	3	5	15	..	192
Veterans Admin. Hospital	*Syracuse, N. Y.*	E. Stainbrook	....	..	..	..	..	...
Syracuse Psychopathic Hospital [1-3]	*Syracuse, N. Y.*	R. F. Binzley	532	8	2	6	66	425
Grasslands Hospital [1-3]	Valhalla, N. Y.	F. V. Rockwell	1,304	6	2	7	..	225
Pilgrim State Hospital [1-3]	West Brentwood, N. Y.	H. J. Worthing	14,825	821	20	40	..	400

Numerical and other references will be found on pages 387 through 390.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend (Month)
New York Hospital—Westchester Division [1-3-308]	White Plains, N. Y.	J. H. Wall	742	5	6	12	..	150
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	G. C. Ham	550	..	12	34	..	270
Duke University Hospital [1-3-322-323]	Durham, N. C.	E. W. Busse	369	1	6	20	..	200
Graylyn—North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	L. J. Thompson	512	..	2	9	..	167
Cincinnati General Hospital [1-3-333]	Cincinnati	M. Levine	1,134	7	12	40	69	112
Cleveland Receiving Hospital [1-3]	Cleveland	E. N. Hinko	1,163	13	6	12	..	333
Western Reserve University Medical School Affiliated Hospitals								
University Hospitals [1-3-318]	Cleveland	D. D. Bond	307	..	3	10	71	125
Veterans Admin. Hospital [1-3]	Cleveland	L. Halle	213	..	2	5	71	...
Ohio State University Hospitals								
Columbus Receiving Hospital [1-3-346]	Columbus, Ohio	R. M. Patterson	485	..	6	21	10	333
University of Oklahoma Hospitals [1-3]	Oklahoma City	L. J. West	....	..	6	14	..	...
Danville State Hospital [1-3-366]	Danville, Pa.	R. L. Gatski	3,347	39	9	23	..	231
Norristown State Hospital [1]	Norristown, Pa.	A. P. Noyes	5,495	100	8	26	..	333
Pennsylvania Hospital—The Institute and the Department for Mental and Nervous Diseases [1-3]	Philadelphia	L. H. Smith	669	..	6	12	72	200
Philadelphia General Hospital [1-3]	Philadelphia	J. Stauffer	2,097	25	7	7	..	375
Philadelphia Psychiatric Hospital [1-3]	Philadelphia	S. Cohen	1,056	..	6	15	..	167
Temple University Hospital [1-3]	Philadelphia	O. S. English	135	..	..	..	74	...
Western Psychiatric Institute and Clinic [1-3]	Pittsburgh	H. W. Brosin	413	..	15	57	75	272
Warren State Hospital [1-3]	Warren, Pa	R. H. Israel	4,116	127	12	20	..	423
Gailor Psychiatric Hospital [1-3]	Memphis, Tenn.	T. S. Hill	333	..	4	11	..	250
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	W. F. Orr	123	..	2	6	76	50
Parkland Memorial Hospital [1-3]	Dallas, Texas	E. L. McCranie	158	2	3	8	10	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	F. Harris	2,098	17	10	30	77	160
Baylor University College of Medicine Affiliated Hospitals								
Jefferson Davis Hospital [1-3]	Houston, Texas	W. T. Lhamon	200	2	1	1	..	75
Methodist Hospital	Houston, Texas	....	.....	..	..	..	..	...
Veterans Admin. Hospital [1-3]	Houston, Texas	A. D. Pokorny	1,351	6	5	13	78	...
University of Utah Affiliated Hospitals								
Salt Lake County General Hospital	Salt Lake City	C. H. Hardin Branch	313	..	5	15	..	150
Veterans Admin. Hospital [1]	Salt Lake City	L. D. Clark	728	7	4	8	..	...
University of Virginia Medical Center Hospitals								
University of Virginia Hospital [1-3-417]	Charlottesville, Va.	R. W. Garnett, Jr.	748	..	8	20	80	...
Veterans Admin. Hospital [1-3]	Roanoke, Va.	R. R. Rudolph	2,292	2	1	3	68, 80	...
Medical College of Virginia-Hospital Division [1-3]	Richmond, Va.	R. F. Gayle, Jr.	715	2	1	3	..	50
University Hospitals [1-3]	Madison, Wis.	R. Roessler	1,142	6	3	9	..	175
Hospital Hato Tejas	Bayamon, P. R.	....	.....	..	..	..	..	...

Residency programs in the following hospitals have been approved for TWO years of training by the Council and the American Board of Psychiatry and Neurology, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc. should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level —see summary of requirements, American Board of Phychiatry and Neurology, Inc., page 410.)

Hospitals, 61; Assistant Residencies and Residencies, 459

FEDERAL

UNITED STATES NAVY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend (Month)
U. S. Naval Hospital [1-3]	Oakland, Calif.	M. E. Roudebush	1,117	2	1	2	..	...
U. S. Naval Hospital [1-3]	Philadelphia	J. F. McMullin	1,032	5	1	3	..	...

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3]	Tuskegee, Ala.	P. P. Barker	1,814	38	2	2	..	...
Veterans Admin. Hospital [1-3]	Lexington, Ky.	E. W. Straus	1,710	24	1	1	31	...
Veterans Admin. Hospital [1-3]	New Orleans	R. W. Buddington	252	...	1	2	34	...
Veterans Admin. Hospital [1-3]	Buffalo	B. G Schutkeker	332	1	1	2	56	...
Veterans Admin. Hospital [1-3-281]	Canandaigua, N. Y.	D. Davis	1,912	24	3	6	65	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Program Identification	Beginning Stipend (Month)
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	A. E. Bennett	471	1	1	3	..	175
Camarillo State Hospital [1-20]	Camarillo, Calif.	F. H. Garrett	10,180	150	2	6	..	378
Mount Zion Hospital [1-3]	San Francisco	N. Reider	112	...	..	6	..	150
Colorado State Hospital [1-3]	Pueblo, Colo.	F. L. Durrill	7,554	39	12	18	..	415
Connecticut State Hospital [1-3]	Middletown, Conn.	H. S. Whiting	4,450	70	8	17	..	410
Fairfield State Hospital [1-3]	Newtown, Conn.	J. E. Oltman	4,131	189	8	18	..	440
District of Columbia General Hospital [1-3]	Washington, D. C.	J. Schultz	3,891	6	3	3	..	178
Georgetown University Hospital	Washington, D. C.	G. N. Raines	......	...	6	14	..	100
Duval Medical Center [1-3]	Jacksonville, Fla.	S. G. Bedell	591	3	2	6	..	175
Mount Sinai Hospital [1-3]	Chicago	H. H. Garner	449	6	1	2	..	100
Norways Foundation Hospital [1-3]	Indianapolis	C. K. Hepburn	826	...	2	8	..	350
Seton Institute [1-3]	Baltimore	L. H. Bartemeier	652	...	3	12	..	250
Springfield State Hospital [1-3]	Sykesville, Md.	I. L. Hitchman	4,597	90	3	8	..	291
Beth Israel Hospital [1-3]	Boston	G. L. Bibring	.. . .	...	..	7	..	291
Massachusetts General Hospital [1-3]	Boston	E. Lindemann	386	...	2	3	40	67
Foxborough State Hospital [1-3]	Foxborough, Mass.	J. T. Shea	1,769	54	4	8	..	400
Metropolitan State Hospital [1]	Waltham, Mass.	M. Asekoff	2,919	85	2	4	..	255
McLean Hospital [1-3]	Waverley, Mass.	A. H. Stanton	507	6	2	10	40	...
Minneapolis General Hospital [1-3]	Minneapolis	R. W. Anderson	691	3	1	2	..	185
Homer G. Phillips Hospital [1-3]	St. Louis	E. F. Gildea	1,079	10	3	8	..	190
Hastings State Hospital [1-3]	Ingleside, Neb.	J. A. Wolford	1,962	50	6	12	52	400
Creighton Memorial-St. Joseph's Hospital [1]	Omaha	F. Barta	840	3	2	6	..	175
Essex County-Overbrook Hospital [1-3]	Cedar Grove, N. J.	J. G. Sutton	3,000	96	8	17	..	...
New Jersey State Hospital [1-3]	Greystone Park, N. J.	A. Crandell	9,885	210	4	8	..	300
New Jersey State Hospital [1-3-215]	Marlboro, N. J.	J. B. Gordon	4,977	151	1	2	..	495
New Jersey Neuropsychiatric Institute [1-3]	Skillman, N. J.	R. S. Garber	1,417	26	6	12	..	495
New Jersey State Hospital [1-3]	Trenton, N. J.	H. S. Magee	1,758	123	6	15	10	555
St. Vincent's Hospital	Harrison, N. Y.	R. D. Isernia	551	...	2	4	..	275
Gowanda State Homeopathic Hospital	Helmuth, N. Y.	I. M. Rossman	3,774	86	..	6	..	470
Kings Park State Hospital [1-3]	Kings Park, N. Y.	C. Buckman	11,188	127	4	7	..	600
Marcy State Hospital [1-3]	Marcy, N. Y.	N. Bigelow	3,067	16	5	5	..	213
Middletown State Homeopathic Hospital [1-3]	Middletown, N. Y.	H. Pleasure	4,133	92	4	8	..	450
Mount Sinai Hospital [1-3]	New York City	M. R. Kaufman	111	...	..	9	..	50
St. Laurence State Hospital [1-3]	Ogdensburg, N. Y.	H. B. Snow	3,180	47	8	16	..	425
High Point Hospital [1-3]	Port Chester, N. Y.	A. Gralnick	125	..	..	4	..	375
Utica State Hospital [1-3]	Utica, N. Y.	B. B. Young	2,807	54	3	5	..	425
Willard State Hospital [1-3]	Willard, N. Y.	K. Keill	3,655	87	4	8	..	470
Harlem Valley State Hospital [1-3]	Wingdale, N. Y.	L. P. O'Donnell	6,613	75	5	5	55	425

Numerical and other references will be found on pages 387 through 390.

23. PSYCHIATRY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Treated Inpatients	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Program Identification	Beginning Stipend (Month)
State Hospital [1-3]	Raleigh, N. C.	W. A. Sikes	3,524	36	4	8	..	336
Cleveland Clinic Hospital [1-3]	Cleveland	L. J. Karnosh	266	2	1	2	70	175
Columbus State Hospital	Columbus, Ohio	B. Kovitz	3,470	106	4	12	10	575
Harding Sanitarium [1]	Worthington, Ohio	H. S. Evans	676	1	2	4	..	...
Central State Griffin Memorial Hospital [1-3]	Norman, Okla.	H. G. Hightower	1,224	40	4	8	..	500
Oregon State Hospital [1]	Salem, Ore.	H. L. Nelson	6,259	149	3	6	..	570
Harrisburg State Hospital [1-3]	Harrisburg, Pa.	H. C. Eaton	2,750	60	4	8	..	433
Friends Hospital [1-3]	Philadelphia	T. L. Dehne	521	8	4	6	..	300
Hospital of the University of Pennsylvania [1-3]	Philadelphia	K. Appel	......	...	4	20	..	200
Philadelphia State Hospital [1-3]	Philadelphia	E. L. Sielke	7,307	33	6	12	..	516
St. Francis General Hospital and Rehabilitation Institute [1]	Pittsburgh	H. L. Mitchell	4,220	24	1	3	..	200
State Hospital for Mental Diseases [1-3]	Howard, R. I.	J. F. Regan	4,768	89	8	14	..	386
Timberlawn Sanitarium [1]	Dallas, Texas	G. F. Witt	586	...	3	6	..	350
Eastern State Hospital [1-3]	Williamsburg, Va.	G. L. Jones	3,335	76	7	14	81	640
Milwaukee Sanitarium	Wauwatosa, Wis.	J. A. Kindwall	444	10	1	2	..	350
Territorial Hospital [1-3]	Kaneohe, T. H.	R. A. Kimmich	1,781	10	2	4	..	633

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the *American Board of Psychiatry and Neurology*, through the Residency Review Committee for Psychiatry and Neurology. (Applicants intending to qualify for examination by the American Board of Psychiatry and Neurology, Inc., should refer to the Board requirements that the candidate have had at least two of the three years of his training in a program or programs approved at the two or three year level—see summary of requirements, American Board of Psychiatry and Neurology, Inc., page 410.)

Hospitals, 64; Assistant Residencies and Residencies, 228

FEDERAL

UNITED STATES PUBLIC HEALTH SERVICE

Name of Hospital	Location	Chief of Service	Treated Inpatients	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend (Month)
National Institutes of Health-Clinical Center [1-3]	Bethesda, Md.	R. Cohen	89	...	..	**10**	..	...
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	E. W. Green	525	...	..	**1**	..	...

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Treated Inpatients	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3]	Philadelphia	M. Cohen	356	...	**1**	**1**	..	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Treated Inpatients	Autopsies	First Year Residencies Offered	Total Residencies Offered	Program Identification	Beginning Stipend (Month)
University of Alabama Medical Center *University Hospital and Hillman Clinic* [1-3-12]	Birmingham, Ala.	E. L. Caveny	487	...	2	6	..	250
Agnews State Hospital [1]	Agnew, Calif.	H. Tucker	7,745	83	4	4	..	325
Compton Sanitarium [1-3]	Compton, Calif.	G. C. Burns	532	2	4	4	..	250
Napa State Hospital [1]	Imola, Calif.	W. A. Oliver	8,918	242	2	2	..	325
Patton State Hospital [1-3]	Patton Calif.	R. J. Lentz	7,428	146	2	2	..	376
Pacific State Hospital [1-3]	Pomona, Calif.	G. Tarjan	2,901	90	..	3	..	325
Kaiser Foundation Hospital [40]	San Francisco	B. I. Kahn	......	...	..	3	..	225
Silver Hill Foundation	New Canaan, Conn.	W. B. Terhune	315	...	1	2	..	800
George Washington University Hospital [1-3]	Washington, D. C.	W. Overholser	888	1	..	1	..	175
Grady Memorial Hospital [1]	Atlanta, Ga.	J. S. Skobba	286	...	1	1	..	250
Elgin State Hospital [1-3]	Elgin, Ill.	W. Tuteur	6,784	219	..	6	23	280
Galesburg State Research Hospital	Galesburg, Ill.	T. T. Tourlentes	......	...	..	..	..	...
North Shore Health Resort [1-3]	Winnetka, Ill.	S. [illegible]	350	3	..	3	..	...
Central State Hospital [1]	Indianapolis	C. [illegible]	2,682	29	4	8	..	355
Logansport State Hospital [1-3]	Logansport, Ind.	J. [illegible]	3,492	32	4	4	..	350
Dr. Norman M. Beatty Memorial Hospital [1]	Westville, Ind.	W. R. Van Den Bosch	2,295	6	4	4	..	[illegible]
Mental Health Institute [1-3]	Cherokee, Iowa	W. C. Brinegar	1,975	39	2	2	..	425
De Paul Hospital [1-3]	New Orleans	W. J. Otis	1,69[illegible]	12	1	2	..	[illegible]
Crownsville State Hospital [1-3]	Crownsville, Md.	R. H. Meng	3,398	42	5	5	..	[illegible]
Chestnut Lodge [1-3]	Rockville, Md.	D. M. Bullard	80	1	..	4	..	...
New England Center Hospital [1-3]	Boston	J. Hope	......	...	1	2	..	[illegible]
St. Elizabeth's Hospital [1-3]	Boston	N. Flanagan	614	...	1	1	..	125
Danvers State Hospital	Hathorne, Mass.	P. B. Hagopian	3,161	61	2	2	..	...
Medfield State Hospital [1-3]	Medfield, Mass.	R. H. Turcotte	2,039	25	2	6	..	400
Austen Riggs Foundation [1]	Stockbridge, Mass.	R. P. Knight	90	...	..	6	..	500
Taunton State Hospital	Taunton, Mass.	W. E. Glass	2,658	80	3	6	..	400
Westborough State Hospital	Westborough, Mass.	J. W. Dykens	2,606	34	2	2	..	255
Traverse City State Hospital [1]	Traverse City, Mich.	M. M. Nickels	5,791	89	4	6	..	541
St. Mary's Group of Hospitals [1-3-229]	St. Louis	F. M. Grogan	503	3	1	1	50	100
Norfolk State Hospital [1-234]	Norfolk, Neb.	C. G. Ingham	1,779	3	3	3	52	400
New Hampshire State Hospital [1-3]	Concord, N. H.	G. D. Niswander	3,660	31	2	6	..	263
New Jersey State Hospital at Ancora	Hammonton, N. J.	M. Mendelson	2,228	33	6	18	..	495
Bergen Pines County Hospital [1-3]	Paramus, N. J.	N. C. Galen	914	5	1	1	..	200
River Crest Sanitarium [1-3]	Astoria, N. Y.	M. Dollin	1,164	...	2	2	..	350
Binghamton State Hospital [1-3-306]	Binghamton, N. Y.	O. H. Boltz	3,191	60	6	6	..	425
Meadowbrook Hospital	Hempstead, N. Y.	R. R. Steen	1,116	23	1	1	..	225
Pinewood [1-3]	Katonah, N. Y.	L. Wender	259	...	1	1	..	400
Lenox Hill Hospital [1-3-288]	New York City	......	......	...	..	..	..	...
Roosevelt Hospital [1-3]	New York City	R. W. Laidlaw	71	...	..	1	..	133
New York *University*-Bellevue Medical Center University Hospital [269]	New York City	S. B. Wortis	57	...	..	8	58	135
St. Francis Hospital	New York City	......	......	...	..	..	..	...
Stony Lodge Sanitarium [1-3]	Ossining, N. Y.	L. E. Bernard	194	...	2	2	..	...
Letchworth Village [1-3]	Thiells, N. Y.	H. C. Storrs	4,370	41	1	2	..	450
Windsor Hospital [1-3]	Chagrin Falls, Ohio	J. H. Nichols	713	...	..	1	70	300
Christ Hospital [1]	Cincinnati	H. D. Fabing	658	5	1	1	..	200
Jewish Hospital [1-3]	Cincinnati	P. Piker	575	6	..	2	..	200
Longview State Hospital [1-3]	Cincinnati	D. Goldman	3,268	80	2	4	..	276
St. Charles Hospital [1]	Toledo, Ohio	E. Haynes	755	...	..	2	..	450
Abington Memorial Hospital [1-3]	Abington, Pa.	K. E. Appel	239	3	..	1	..	135
Embreeville State Hospital [1-3]	Embreeville, Pa.	A. O. Hecker	1,292	12	6	9	..	433
Albert Einstein Medical Center Southern Division [1]	Philadelphia	P. Sloane	......	...	..	1	..	270
Jefferson Medical College Hospital [1-3]	Philadelphia	B. L. Keyes	65	...	1	1	..	...
Woodville State Hospital [1-370]	Woodville, Pa.	O. Ramik	3,410	4	4	4	..	333
Charles V. Chapin Hospital [1-3]	Providence, R. I.	W. N. Hughes	1,013	1	2	2	..	403
Emma Pendleton Bradley Home [1-3]	Riverside, R. I.	M. W. Laufer	72	...	..	3	..	270
Brattleboro Retreat	Brattleboro, Vt.	J. L. Smalldon	1,101	6	4	4	..	417
Vermont State Hospital [1-3]	Waterbury, Vt.	R. A. Chittick	1,816	21	2	4	..	425
Western State Hospital [1-3]	Fort Steilacoom, Wash.	R. W. Brown	4,358	113	9	9	..	492
Pinel Foundation [1-3]	Seattle	J. B. Dugan	106	...	..	4	..	500
Mendota State Hospital	Madison, Wis.	G. B. Tybring	2,289	13	4	12	..	531
Queen's Hospital [1-440]	Honolulu, T. H.	E. Harris	569	1	1	3	..	150

Numerical and other references will be found on pages 387 through 390.

PSYCHIATRY PROGRAM IDENTIFICATION

10 Service in child psychiatry
11 Six months service at Los Angeles County Hospital, Los Angeles
12 Nine months service at Mount Zion Hospital, six months at Langley Porter Clinic and service in child psychiatry, San Francisco
13 Three months of service at Napa State Hospital, San Francisco Hospital, Stockton State Hospital, Sonoma State Home and San Quentin Prison, and six months at Colwell Memorial Hospital
14 Three months service Fort Miley Veterans Administration Hospital San Francisco, and Langley Porter Clinic, San Francisco; may include elective services at University of California Hospital, Mount Zion Hospital and Stanford University (Lane) Hospital, San Francisco
15 Three months service at Pacific Colony Hospital, Pomona, and three months service in child psychiatry at Camarillo State Hospital
16 Affiliate services at Colorado General and Denver General Hospitals
17 Affiliate service at Veterans Administration Hospital, West Haven, Connecticut State Hospital, Fairfield State Hospital, Norwich State Hospital and service in child psychiatry
18 Twelve months service at Grace New Haven Community Hospital New Haven, Connecticut
19 Six months service at Governor Bacon Health Center, Delaware City
20 Two months service at George Washington University Hospital, Washington, D C
21 Affiliate service at University Hospital, Augusta, Georgia
22 Twelve month service at the Neuropsychiatric Institute of the University of Illinois including service in child psychiatry
23 Eighteen months affiliate service including service at the Neuropsychiatric *Institute of the University of Illinois and three months* in child psychiatry
24 Affiliate service at Neuropsychiatric Institute of the University of Illinois and service in child psychiatry
25 Three months service at Veterans Administration Hospital, Downey Illinois, and service in child psychiatry
26 Six months service at Veterans Administration Hospital Hines, Illinois May include service in child psychiatry
27 Six months service in child psychiatry
28 Integrated [illegible] t Veterans Administration Hospital, [illegible] il and Indiana University Medical Ce [illegible] Indianapolis
29 Integrated [illegible] t Veterans Administration Hospital, Menninger Sanitarium and Topeka State Hospital Topeka, Kansas
30 Four months service at University of Louisville Services, Louisville, Kentucky, and four months service at Cincinnati General Hospital Cincinnati, Ohio
31 Three months service at University of Louisville Services Louisville Kentucky
32 Twelve months service at University of Louisville Services May include four months service at Central State Hospital four months service at Louisville General Hospital
33 Four months service at Central State Hospital and service in child psychiatry
34 Integrated program including service at Tulane University Unit Charity Hospital, New Orleans and Veterans Administration Hospitals New Orleans, and Biloxi, Mississippi
35 Six months service in child psychiatry and twelve months service at South Louisiana *State Hospital*
36 Service in child psychiatry six months service at Veterans Administration Hospital, Perry Point Maryland
37 Three months service in child *psychiatry at Johns Hopkins* Hospital (Harriet Lane House) Baltimore Maryland
38 Twelve months service at Boston State Hospital *and service in child* psychiatry
39 Twelve-eighteen months service at Veterans *Administration Hospital* Boston (Jamaica Plain), Massachusetts, and six months service in child psychiatry
40 Integrated program including service at Massachusetts General *Hospital and* McLean Hospital Waverly
41 Twelve *months* service at University Hospital Ann Arbor Michigan
42 University Hospital, Ann Arbor Michigan
43 Three months service Coldwater State Home and Training School Caro State *and Ionia* State Hospitals and service in child psychiatry
44 Six months service in child psychiatry at Childrens Hospital Detroit
45 Six months service at Receiving Hospital, Children's Hospital, Detroit, and Wayne County General Hospital and Infirmary, Eloise, Michigan
46 University of Minnesota Hospitals, Minneapolis, Minnesota
47 Three months service at Rochester State Hospital, Rochester, Minn
48 Affiliate service at Barnes Hospital, St Louis and three months at St Louis State Hospital
49 Six months service at Barnes Hospital, St Louis, Missouri
50 Service at St Louis State Hospital and St Louis City Hospital
51 Service at Lutheran Hospital, Omaha
52 Service at University of Nebraska Hospital
53 Affiliate service at University of Nebraska Hospital and Creighton Memorial St Joseph Hospital, Omaha, Nebraska
54 Six months service at Newark City Hospital, three months at New *Jersey State Hospital and three months in child psychiatry*
55 Three months service at Albany Hospital, Albany, New York
56 Affiliate services at Edward J Meyer Memorial Hospital and Buffalo State Hospital
57 Six months service at King's County Hospital, Brooklyn, New York
58 Integrated program with service at Bellevue Hospital Center and University Hospital
59 *Six months service at Mount Sinai Hospital, New York City*
60 Service in child psychiatry May include six months service at Mount Sinai Hospital and three months at Manhattan State Hospital
61 Twelve months service at New York Hospital and four months at Veterans Administration Hospital, New York City (Bronx), New York
62 Three months service at Grasslands, Rockland State, Albany Hospitals *and Letchworth Village*
63 Six months service at Rochester State Hospital, Rochester, New York
64 Six months service at Strong Memorial Rochester Municipal Hospitals, Rochester
65 Affiliate service at Strong Memorial Rochester Municipal Hospitals
66 Three months service at Syracuse Memorial, Binghamton, Syracuse and Willard State Hospitals, service at Craig Colony and service in child psychiatry
67 Affiliate service at State Hospitals at Raleigh and Butner, North Carolina
68 Eighteen months service at Duke Hospital, Durham, North Carolina
69 *Three months service at Longview State and Jewish Hospitals*, Cincinnati
70 Integrated program including service at Cleveland Clinic and *Windsor Hospital*
71 Integrated program including service at University Hospital and Veterans Administration Hospital, Cleveland, Ohio
72 Integrated program with service at *Institute of the Pennsylvania* Hospital and Pennsylvania Hospital Department for Mental and Nervous Diseases
73 Affiliate service at Temple University Hospital, Institute of Pennsylvania, Hospital of the Woman's Medical College of Pennsylvania
74 Six months service at Philadelphia General Hospital and service in child psychiatry
75 Two months affiliate service for institutional care
76 Integrated program including service at Vanderbilt University Hospital Veterans Administration Hospital, Nashville, Veterans Administration Hospital, Murfreesboro, and Central State Hospital, Nashville
77 *Four months affiliate* service at St Mary's infirmary, Galveston, Texas
78 Service in child psychiatry at Jefferson Davis Hospital, Houston Texas
79 Six months affiliate service at Veterans Administration Hospital, Salt Lake City, Utah, and affiliate services at State Hospital, Provo Utah
80 Integrated program including service at University of Virginia *Hospital* Charlottesville *and* Veterans Administration Hospital, *Roanoke, Va*
81 Affiliate service at Southwestern State Hospital, Marion and Lynchburg State Colony *Lynchburg, Va*
82 Six months service at Medical College of *Virginia—Hospital Division, Richmond*, and service in child psychiatry
83 Six months service at Veterans Administration Hospital, American Lake Washington, and six months *in child psychiatry*

24. PULMONARY DISEASES

Residency programs in the following hospitals have been approved for ONE year of training by the Council and the Subspecialty Board for Pulmonary Diseases of the American Board of Internal *Medicine*.

Hospitals, 109; Assistant Residencies and Residencies, 382

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
UNITED STATES ARMY							
Fitzsimons Army Hospital [1]	Denver	J A Wier	2,225	11	9	9	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1, 3]	Washington D C	H M Payne	130	7	1	3	218
VETERANS ADMINISTRATION							
Veterans Admin Hospital—*West Haven Division*	West Haven, Conn	N D Esopo	480	11		5	...
Veterans Admin Hospital [1-3]	*Rutland Heights*, Mass	S T Allison	1,711	29	1	1	...
Veterans Admin Hospital [1-3]	Minneapolis	W W Stead	689	60	1	1	...
Veterans Admin Hospital [1, 3]	Excelsior Springs Mo	A A Sprong	622	9	3	3	...
Veterans Admin Hospital	East Orange, N J	H I Small	590	6	3	3	...
Veterans Admin Hospital [1-3]	Albuquerque, N M	J W Berry	1,045	12	1	1	...
Veterans Admin Hospital [1-3]	Brooklyn, N Y	H L Katz	415	18	1	1	...
Veterans Admin Hospital [1-3]	Sunmount, N Y	J W. Raleigh	1,205	17	2	2	...
Veterans Admin Hospital [1]	Oteen, N C	W S Schwartz	3,004	50	6	6	...

Numerical and other references will be found on pages 387 through 390.

24. PULMONARY DISEASES—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
FEDERAL							
Veterans Admin. Hospital $^{1-3}$	Brecksville, Ohio	J. A. O'Hale	754	12	1	1	...
Veterans Admin. Hospital $^{1-3}$	Memphis, Tenn.	S. Phillips	1,330	7	1	1	...
Veterans Admin. Hospital $^{1-3}$	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital $^{1-3}$	McKinney, Texas	D. O. Shields	639	4	2	4	...
Veterans Admin. Hospital $^{1-3}$	Richmond, Va.	W. T. Thompson, Jr.	970	18	..	2	...
Veterans Admin. Hospital $^{1-3-127}$	Madison, Wis.	J. K. Curtis	980	23	6	6	...
Veterans Admin. Hospital $^{1-3}$	Milwaukee (Wood)	R. A. Hemphill	797	18	..	2	...
NONFEDERAL							
Maricopa County General Hospital $^{1-3}$	*Phoenix, Ariz.*	*B. Snyder*	253	3	1	1	300
City of Hope Medical Center	Duarte, Calif.	L. Tepper	370	14	1	2	300
Arroyo Del Valle Sanatorium $^{1-3}$	Livermore, Calif.	J. T. Duncan	595	7	1	1	300
Barlow Sanatorium $^{1-3}$	Los Angeles	H. W. Bosworth	219	1	2	2	200
Bret Harte Sanatorium $^{1-3}$	Murphys, Calif.	C. N. Reese	670	6	1	1	450
San Diego County General Hospital $^{1-3}$	San Diego, Calif.	V. J. Wyborney	277	8	1	3	150
San Francisco Hospital							
Stanford University Service $^{1-3}$	San Francisco	H. C. Hinshaw	433	8	..	1	195
University of California Service $^{1-3}$	San Francisco	S. M. Farber	477	10	2	3	195
Santa Clara County Hospital ^{1}	San Jose, Calif.	M. Manson	218	9	3	3	425
Fairmont Hospital of Alameda County $^{1-3}$	*San Leandro, Calif.*	*J. L. Eaton*	432	21	1	1	195
Tulare-Kings Counties Hospital $^{1-3}$	Springville, Calif.	W. A. Winn	463	12	4	4	550
National Jewish Hospital $^{1-3}$	Denver	S. H. Dressler	616	13	8	8	250
Cedarcrest Hospital $^{1-3}$	Newington, Conn.	R. C. Edson	643	14	1	1	335
Uncas on Thames $^{1-3}$	Norwich, Conn.	N. L. Cressy	899	29	3	3	335
Laurel Heights State Tuberculosis Sanatorium $^{1-3}$	Shelton, Conn.	K. S. Howlett, Jr.	676	14	2	2	205
District of Columbia General Hospital $^{1-3}$	Washington, D. C.	S. Katz	281	13	1	3	153
Glenn Dale Hospital $^{1-3}$ (P. O. Glen Dale, Md.)	Washington, D. C.	M. Weiss	1,197	26	4	4	338
Chicago State Tuberculosis Sanitarium ^{1}	Chicago	K. H. Pfuetze	318	9	..	5	330
City of Chicago Municipal Tuberculosis Sanitarium $^{1-3}$	Chicago	L. H. Berard	3,300	54	2	2	175
Peoria Municipal Tuberculosis Sanitarium $^{1-3}$	Peoria, Ill.	D. Morse	185	7	1	1	250
Lake County Tuberculosis Sanatorium $^{1-3}$	Waukegan, Ill.	C. K. Petter	276	6	1	2	150
Indianapolis General Hospital $^{1-3}$	*Indianapolis*	*J. Stygall*	221	4	..	1	300
Sunnyside Sanatorium $^{1-3}$	Indianapolis	A. G. Popplewell	386	8	2	2	400
Healthwin Hospital ^{1}	South Bend, Ind.	E. W. Custer	327	9	1	1	500
University of Kansas Medical Center $^{1-3}$	Kansas City, Kan.	M. Fitzpatrick	100	10	1	1	125
Charity Hospital of Louisiana							
Louisiana State University Unit ^{1}	New Orleans	W. R. Akenhead	276	20	1	3	175
Central Maine Sanatorium $^{1-3-140}$	Fairfield, Maine	W. B. Grow	250	5	1	1	75
Baltimore City Hospitals $^{1-3}$	*Baltimore*	*E. G. Beacham*	687	6	2	3	50
Boston Sanatorium $^{1-3}$	Boston	J. A. Foley	1,069	7	1	5	202
Cambridge Sanatorium ^{1}	*Cambridge, Mass.*	*R. Kurzmann*	217	3	..	..	114
Middlesex County Sanatorium $^{1-3}$	Waltham, Mass.	F. P. Dawson	514	11	2	3	485
Westfield State Sanatorium $^{1-3}$	Westfield, Mass.	J. M. Houser	231	9	3	3	490
Worcester City Hospital	Worcester, Mass.	...	...	..	..	..	...
Henry Ford Hospital $^{1-3}$	Detroit	E. O. Coates	551	15	..	2	225
Herman Kiefer Hospital $^{1-3}$	Detroit	P. T. Chapman	2,554	65	9	11	513
Michigan State Sanatorium ^{1}	Howell, Mich.	W. F. Fidler	661	..	4	4	850
Glen L [illegible] $^{1-3}$	Oak Terrace, Minn.	*R. H. Frost*	817	23	3	3	296
Mayo [illegible]	Rochester, Minn.	...	Incl. in Internal Medicine				150
Mississ [illegible] *Sanatorium* $^{1-3}$	*Sanatorium, Miss.*	*H. Boswell*	999	4	..	..	...
Robert Koch Hospital $^{1-3}$	Koch, Mo.	B. Friedman	1,245	16	5	16	267
St. Mary's Group of Hospitals $^{1-3}$	*St. Louis*	G. O. Broun	211	17	1	1	100
University of Nebraska Hospital $^{1-3}$	Omaha	...	...	..	..	1	200
New *Jersey Sanatorium for Chest Diseases* $^{1-3}$	Glen Gardner, N. J.	J. A. Smith	...	5	5	5	495
B. S. Pollak Hospital for Chest Diseases $^{1-3}$	Jersey City, N. J.	S. Cohen	1,357	37	..	9	167
Bergen Pines County Hospital $^{1-3}$	Paramus, N. J.	R. R. Little	356	36	2	2	200
Essex County Sanatorium $^{1-3}$	*Verona, N. J.*	*I. Ocheret*	804	26	2	4	529
Albany Hospital $^{1-3}$	Albany, N. Y.	F. Maxon	351	8	1	2	107
Kings County Hospital							
County Service ^{1}	Brooklyn, N. Y.	C. E. Hamilton	Incl. in Int. Med.		1	1	175
University Service ^{1}	*Brooklyn, N. Y.*	H. A. Lyons	Incl. in Int. Med.		2	2	...
Edward J. Meyer Memorial Hospital ^{1}	Buffalo	D. R. McKay	773	28	..	1	218
Elmhurst General Hospital $^{1-3-458}$	Elmhurst, N. Y.	S. Bassin	275	3	1	2	165
Nassau County Tuberculosis Hospital $^{1-3}$	Farmingdale, N. Y.	J. G. Carlton	506	17	6	6	...
Triboro Hospital $^{1-3}$	Jamaica, N. Y.	H. H. Epstein	1,273	21	11	11	157
Ulster County Tuberculosis Hospital	Kingston, N. Y.	H. F. Schwartz	49	..	1	1	333
Niagara Sanatorium $^{1-3}$	Lockport, N. Y.	L. C. Evander	324	14	1	2	296
Mount Morris Tuberculosis Hospital $^{1-3}$	Mount Morris, N. Y.	F. L. *Armstrong*	388	13	2	2	400
Bellevue Hospital Center							
Div. I—Columbia University $^{1-3}$	*New York City*	J. H. McClement	2,434	69	18	26	105
Bronx Municipal Hospital Center ^{1}	New York City	E. H. Rubin	454	20	8	10	157
Manhattan General Hospital	New York City	J. S. Edlin	552	10	2	8	...
New York Medical College—Metropolitan Medical Center							
Metropolitan Hospital $^{1-3}$	New York City	I. Epstein	479	11	5	5	165
Montefiore Hospital $^{1-3}$	New York City	R. Bloch	500	19	5	7	75
Morrisania City Hospital $^{1-3}$	New York City	P. Hurwitz	Incl. in Int. Med.		1	1	105
St. Joseph's Hospital for Chest Diseases $^{1-3}$	New York City	F. J. McCarthy	576	11	4	4	200
Homer Folks Tuberculosis Hospital $^{1-3}$	Oneonta, N. Y.	R. Horton	582	14	2	3	495
Ray Brook State Tuberculosis Hospital $^{1-3}$	*Ray Brook, N. Y.*	F. Beck	678	..	3	3	470
Iola-Monroe County Sanatorium $^{1-3-309}$	Rochester, N. Y.	J. M. MacMillan	576	14	2	5	416
Glenridge Sanatorium $^{1-3}$	*Schenectady, N. Y.*	J. M. Blake	268	5	2	2	300
Sea View Hospital $^{1-3}$	Staten Island, N. Y.	E. H. Robitzek	3,004	30	25	25	157
Broadacres Sanatorium ^{1}	Utica, N. Y.	S. C. Mahady	293	6	1	1	470
Grasslands Hospital $^{1-3}$	Valhalla, N. Y.	W. G. *Childress*	*516*	18	3	7	225
Duke University Hospital $^{1-3-328}$	Durham, N. C.	E. E. Menefee	161	2	..	1	250
North Carolina Sanatorium							
For the Treatment of Tuberculosis $^{1-3}$	McCain, N. C.	W. M. Peck	1,328	10	1	1	500
City Hospital $^{1-3}$	Cleveland	*R. C. McKay*	807	30	..	4	150
Sunny Acres-Cuyahoga County Tuberculosis Hospital $^{1-3}$	*Cleveland*	*H. G. Curtis*	823	18	3	3	333
Ohio State University Hospitals							
University Hospital $^{1-3}$	Columbus, Ohio	R. H. Browning	...	..	2	10	152
Ohio Tuberculosis Hospital $^{1-3}$	Columbus, Ohio	R. J. Atwell	320	5	2	8	288
Mahoning Tuberculosis Sanatorium $^{1-3}$	Youngstown, Ohio	H. H. Teitelbaum	282	4	2	2	300
Eagle [illegible] ^{1}	Eagleville, Pa.	J. J. Kirshner	414	6	3	3	...
Penns [illegible] for [illegible]	Hamburg, Pa.	R. H. McCutcheon	1,029	..	4	4	300
Grad [illegible] rsity of Pennsylvania $^{1-3}$	Philadelphia	H. Israel	205	7	1	1	200
Hosp [illegible] ennsylvania $^{1-3}$	Philadelphia	S. Leopold	Incl. in Int. Med.		2	2	100
Philadelphia *General Hospital-Northern* Division $^{1-3}$	Philadelphia	H. Shubin	422	12	..	2	...
Mont Alto State Sanatorium							
(Pennsylvania State Sanatorium No. 1) ^{1}	South Mountain, Pa.	W. A. Gette	1,670	20	2	2	300
West Tennessee Tuberculosis Hospital $^{1-3}$	Memphis, Tenn.	E. P. Bowerman	965	17	2	3	250
Oakville Memorial Sanatorium $^{1-3}$	Oakville, Tenn.	S. C. Carter	455	12	1	2	200
Parkland Memorial Hospital $^{1-3}$	Dallas, Texas	J. O. Armstrong	...	..	1	1	50

Numerical and other references will be found on pages 387 through 390.

24. PULMONARY DISEASES—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered*	Total Residencies Offered*	Beginning Stipend (Month)
Baylor University College of Medicine Affiliated Hospitals Veterans Admin. Hospital[1-3]	Houston, Texas	I. Chofuas	Incl. in Int. Med.		1	2	...
Blue Ridge Sanatorium	Charlottesville, Va.	C. G. Pearson	1,024	11	1	1	375
Firland Sanatorium[1-3]	Seattle	T. F. Sheehy, Jr.	1,847	45	3	3	300
Central Washington Tuberculosis Hospital[1]	Selah, Wash.	A. R. Allen	415	5	1	1	500
Muirdale Sanatorium[1-3]	Wauwatosa, Wis.	A. V. Cadden	1,637	16	..	1	257
Leahi Hospital[1-3]	Honolulu, T. H.	H. H. Walker	923	11	3	3	350

25. RADIOLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Radiology, through the Residency Review Committee for Radiology. As indicated in the column "Type of Training," approval has been extended in diagnostic roentgenology (D.R.); roentgenology (Roent.), including diagnostic and therapeutic; therapeutic radiology (Ther. Rad.), and Radiology (Rad.), including roentgenology and therapeutic radiology. After June 30, 1957, the Residency Review Committee for Radiology will not approve services which are not part of programs providing full training in all branches of the specialty. Some of the programs listed below as approved in limited fields do, through affiliation, offer three years of training in Radiology. This listing is now being revised. Until the revised list is published, prospective applicants are advised to correspond directly with the individual hospitals relative to affiliate training.

Hospitals, 414; Assistant Residencies and Residencies, 1,672

FEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY											
Letterman Army Hospital[1]	San Francisco	D. F. Dullum	Rad.	40,806	4,637	430	73	2	6	3	...
Fitzsimons Army Hospital[1]	Denver	A. B. Ramsay	Roent.	61,893	2,416	1,191	128	1	3	3	...
Army Medical Center[1-3]	Washington, D. C.	E. A. Lodmell- H. L. Berman	Rad.	61,924	9,187	646	874	3	9	3	...
Brooke Army Hospital[1-3]	San Antonio, Texas	J. A. Isherwood	Rad.	67,725	5,693	83	160	3	9	3	...
Tripler Army Hospital[1]	Honolulu, T. H.	D. T McCarthy	Roent.	82,310	1,517	1,678	136	2	6	3	...
UNITED STATES NAVY											
U. S. Naval Hospital[1-3]	Oakland, Calif.	C. D. Burroughs	D.R.	38,347	2,464	586	5	1	2	2	...
U. S. Naval Hospital[1]	San Diego, Calif.	J. L. Messersmith	Rad.	54,979	566	63	66	2	4	3	...
U. S. Naval Hospital	Bethesda, Md.	S. F. Williams	Rad.	37,623	4,135	365	...	1	2	2	...
U. S. Naval Hospital[1-3]	Chelsea, Mass.	C. E. Bentel	D.R.	24,787	869	135	10	1	2	2	...
U. S. Naval Hospital	St Albans, N. Y.	C. Gartenlaub	Roent.	45,334	4,312	124	17	1	3	3	...
U. S. Naval Hospital[1-3]	Philadelphia	G. C. Daughtridge	Rad.	33,990	1,674	20	7	1	2	2	...
UNITED STATES PUBLIC HEALTH SERVICE											
U S. Public Health Service Hospital[1-3-115]	New Orleans	G. A. Shipman	D.R.	22,162	.....	.....	..	1	3	2	...
U. S. Public Health Service Hospital[1-3-137]	Baltimore	L. B. Garbe	Rad.	16,052	2,459	649	89	1	4	3	...
National Institutes of Health—Clinical Center[1-3]	Bethesda, Md.	T. Hilbish	D.R.	20,355	83	2	2	2	2	1	...
U. S. Public Health Service Hospital[1-3-318]	Staten Island, N. Y.	W. M. Sennott	Roent.	24,221	1,759	478	...	2	4	2	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE											
Freedmen's Hospital[1-3]	Washington, D. C.	C. W. Kelley	Rad.	30,638	133	424	25	1	2	3	218
VETERANS ADMINISTRATION											
Veterans Admin. Hospital[1-3]	Birmingham, Ala.	(See University of Alabama Medical Center)									
Veterans Admin. Hospital[1-3-16]	Tuskegee, Ala.	J. J. Peters	D.R.	24,648	.....	.....	...	2	2	3	...
Veterans Admin. Hospital[1-3]	Long Beach, Calif.	F. Isaac	Rad.	54,707	4,986	1,365	5	2	6	3	...
Veterans Admin. Hospital[1-3-27]	Los Angeles	C. W. McClanahan	Rad.	110,640	8,919	1,674	41	3	8	3	...
Veterans Admin. Hospital[1]	San Francisco	W. W. Saunders	Roent.	30,517	4,664	175	48	2	3	2	...
Veterans Admin. Hospital[1-3]	Denver	A. L. Daywitt	D.R.	30,436	1,788	170	3	4	8	2	...
Veterans Admin. Hospital— Newington Division[1-3-73]	West Haven, Conn	S. W. Westing	Roent.	12,032	.....	.....	...	1	1	2	...
Veterans Admin. Hospital— West Haven Division[1-3-76]	West Haven, Conn.	A. B. Skorneck	D.R.	19,419	2,097	2	3	2	2	1	...
Veterans Admin. Hospital[1-3-85]	Washington, D. C.	S. R. Bersack	D.R.	15,054	1,615	178	8	1	3	2	...
Veterans Admin. Hospital[1-3]	Atlanta, Ga.	S. Krantz	Roent.	15,266	3,690	528	7	1	2	2	...
Veterans Admin. Hospital[1-3-91]	Augusta, Ga.	S. M. Roberts	D.R.	18,651	1,647	164	1	2	4	2	...
Veterans Admin. Research Hospital[1]	Chicago	(See Northwestern University Medical Center)									
Veterans Admin. Hospital[1]	Hines, Ill.	F. L. Hussey	Rad.	71,485	11,566	826	60	5	8	3	...
Veterans Admin. Hospital[1]	Indianapolis	(See Indiana University Medical Center Affiliated Hospitals)									
Veterans Admin. Hospital[1-130]	Des Moines, Iowa	P. J. Trier	Roent.	29,895	1,347	190	2	1	3	2	...
Veterans Admin. Hospital[1-3]	Iowa City	W. W. Sands	Rad.	17,368	3,238	197	17	2	5	2	...
Veterans Admin. Hospital[1-3-133]	Wadsworth, Kan.	(See Research and Affiliated Hospitals, Kansas City, Mo.)									
Veterans Admin. Hospital[1-3]	Louisville, Ky.	(See University of Louisville Hospitals)									
Veterans Admin. Hospital[1-3-147]	New Orleans	C. P. Oderr	D.R.	16,284	5,553	230	5	2	4	2	...
Veterans Admin. Hospital[1-3-9]	Boston (Jamaica Plain)	E. G. Wissing	Roent.	40,707	4,483	142	2	1	3	2	...
Veterans Admin Hospital[1-3-193-195-196-198]	Dearborn, Mich.	(See Wayne University Affiliated Hospitals, Detroit, Mich.)									
Veterans Admin Hospital[1-3-208]	Minneapolis	J. Jorgens	Rad.	75,320	3,285	1,280	35	7	13	3	...
Veterans Admin. Hospital[1-220]	Kansas City, Mo.	(See Research and Affiliated Hospitals)									
Veterans Admin. Hospital[1-3-231]	St. Louis	S. Kamberg	Roent.	27,311	5,077	432	15	2	6	2	...
Veterans Admin. Hospital	Omaha	H. B. Saichek	D.R.	13,536	1,498	40	1	2	3	2	...
Veterans Admin. Hospital[1-3-243]	East Orange, N. J.	J. R. Nahon	D.R.	23,101	2,119	47	1	1	3	1	...
Veterans Admin. Hospital[1-3-247]	Albany, N. Y.	H. Thomas	D.R	33,069	2,433	55	..	..	1	1	...
Veterans Admin. Hospital[1-3-250]	Brooklyn, N. Y.	W Schlein	Roent.	27,968	4,257	46	7	1	2	2	...
Veterans Admin Hospital[1-3]	Buffalo	K. Flachs	Roent.	22,565	2,822	48	..	1	2	2	...
Veterans Admin. Hospital[1-3]	New York City (Bronx)	J. Stein	Rad.	64,753	10,742	1,237	169	3	9	3	...
Veterans Admin. Hospital[1-3]	Durham, N. C.	W. F. Barry, Jr.	D.R.	27,834	2,130	56	32	2	3	1	...
Veterans Admin. Hospital[1-3]	Cleveland	M. D. Sachs	Rad.	35,112	3,476	142	10	1	4	3	...
Veterans Admin. Hospital	Dayton, Ohio	F. M. Ruegsegger	D.R.	35,770	2,243	87	5	1	3	1	...
Veterans Admin. Hospital[1-356]	Oklahoma City	(See University of Oklahoma Affiliated Hospitals)									
Veterans Admin. Hospital[1-3]	Portland, Ore.	L. W. Stille	Roent.	20,235	4,326	84	3	1	2	3	...
Veterans Admin. Hospital[1-3-375]	Philadelphia	G. T. Wohl	Rad.	24,883	2,255	34	15	2	4	3	...
Veterans Admin. Hospital[1]	Pittsburgh	S. L. Lewis	D.R.	14,476	6,560	275	75	3	9	1	...
Veterans Admin. Hospital[1-3-369]	Memphis, Tenn.	B. E. Greenberg	Rad.	58,717	6,294	121	13	1	3	2	...
Veterans Admin. Hospital[1]	Nashville, Tenn.	D. E. Sherman	Roent.	21,348	2,162	169	12	2	4	2	...
Veterans Admin. Hospital[1-3-397]	Dallas, Texas	B. K. Lovell	Rad.	15,425	1,664	133	39	2	5	3	...
Veterans Admin. Hospital[1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)									
Veterans Admin. Hospital[1-3]	McKinney, Texas	B. K. Lovell	Rad.	28,309	3,075	289	29	1	2	3	...
Veterans Admin. Hospital	Salt Lake City	(See University of Utah Affiliated Hospitals)									

25. RADIOLOGY—Continued

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL											
Veterans Admin. Hospital[1-3]	White River Jct., Vt.	N. W. Loud	Roent.	26,816	713	....	...	1	2	1	...
Veterans Admin. Hospital[1-3-287]	Richmond, Va.	H. Goodman	Roent.	28,165	3,331	55	23	1	3	2	...
Veterans Admin. Hospital[1-3]	Martinsburg, W. Va.	H. Litwer	D.R.	36,500	1,220	....	...	1	1	1	...
Veterans Admin. Hospital[1-3]	Milwaukee (Wood)	T. J. Pfeffer	Roent.	37,751	7,805	270	27	..	3	2	...
Veterans Admin. Hospital[1-3]	San Juan, P. R.	L. Ehrlich	D.R.	9,344	.....	....	...	1	2	2	...
NONFEDERAL											
Birmingham Baptist Hospital	Birmingham, Ala.	....	Rad.	......	.....	....	...	..	..	3	...
University of Alabama Medical Center											
University Hospital and Hillman Clinic[1-3-11]	Birmingham, Ala.	J. G. Wood	Rad.	31,698	6,872	365	115	2	6	3	168
Veterans Admin. Hospital[1-3-6]	Birmingham, Ala.	W. V. Brower	D.R.	25,269	955	...	955	1	1	2	...
University Hospital[1]	Little Rock, Ark.	H. J. Barnhard	Rad.	16,316	6,045	532	54	3	9	3	145
Kern General Hospital[1]	Bakersfield, Calif.	S. W. Iseminger	D.R.	27,762	1,244	151	14	1	3	2	325
Herrick Memorial Hospital[1-3-21]	Berkeley, Calif.	H. P. Brean	D.R.	12,060	1,660	...	16	1	3	2	175
San Joaquin General Hospital	French Camp, Calif.	A. Cove	D.R.	50,079	.....	1,485	11	1	1	2	200
General Hospital of Fresno County[1-3]	Fresno, Calif.	C. L. Ould-P. Myers	D.R.	17,229	1,070	95	21	1	1	1	300
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	H. J. Prichard-G. Beckstrand	Rad.	15,921	1,825	524	61	1	3	3	150
Cedars of Lebanon Hospital[1-3]	Los Angeles	D. Zion-H. Jaffe	Rad.	8,970	6,593	...	33	2	5	3	175
Hospital of the Good Samaritan[1-3]	Los Angeles	J. D. Camp	Rad.	33,158	4,852	188	26	2	2	3	200
Kaiser Foundation Hospital	Los Angeles	....	D.R.	......	.....	....	...	..	..	2	...
Los Angeles County Hospital[1]	Los Angeles	G. Jacobson	Rad.	99,738	10,353	856	300	4	12	3	246
Presbyterian Hospital—Olmsted Memorial[1-3]	Los Angeles	W. Brown-C. Benz	D.R.	14,277	1,744	....	14	1	3	1	200
Queen of Angels Hospital[1-3]	Los Angeles	L. S. Goin	Rad.	15,626	2,107	....	34	1	2	3	175
University of California Medical Center	Los Angeles	A. H. Dowdy	Rad.	32,378	8,786	792	3	2	8	3	250
White Memorial Hospital[1-3]	Los Angeles	W. L. Stilson	Rad.	12,407	4,117	555	61	2	4	3	151
Highland-Alameda County Hospital[1-3]	Oakland, Calif.	H. H. Jensen	Rad.	27,141	3,186	....	30	1	3	3	195
Collis P. and Howard Huntington Memorial Hospital[1-3]	Pasadena, Calif.	R. S. Harrison-W. B. Hill	D.R.	10,740	1,865	....	...	1	2	2	240
Sutter Community Hospital	Sacramento, Calif.	G. A. Fricker	Rad.	11,451	13,913	2,785	35	1	2	3	248
San Diego County General Hospital[1-3]	San Diego, Calif.	E. L. Whitehead	Rad.	17,174	2,192	112	47	1	2	3	150
Children's Hospital[1-3-9]	San Francisco	G. G. King	Rad.	5,273	1,033	67	24	1	1	2	125
Mount Zion Hospital[1-3-9]	San Francisco	J. Levitin	Rad.	13,659	1,727	192	9	1	2	2	150
St. Francis Memorial Hospital[1-3-9]	San Francisco	A. A. De Lorimier	Rad.	18,716	4,444	1,225	30	1	1	2	300
St. Mary's Hospital[1-3-9]	San Francisco	C. S. Capp	Rad.	14,029	1,450	362	11	1	2	2	...
San Francisco Hospital		....	Rad.	36,925	2,445	172	29	..	3	2	195
Stanford University Service[1-3]	San Francisco	L. H. Garland	.....	......	.....	....	..	..	..	..	...
University of California Service[1-3]	San Francisco	A. J. Williams	.....	......	.....	....	..	..	..	..	...
Stanford University Hospitals[1-3]	San Francisco	H. S. Kaplan	Rad.	16,207	5,061	....	60	3	9	3	80
University of California Hospital[1-3]	San Francisco	R. S. Stone	Rad.	32,696	14,881	813	129	5	10	3	200
Santa Clara County Hospital[1]	San Jose, Calif.	J. J. McCort	Rad.	11,081	1,718	217	29	1	2	3	310
St. John's Hospital	Santa Monica, Calif.	T. E. Havel	D.R.	9,727	2,256	296	14	1	1	1	300
Harbor General Hospital[1-3]	Torrance, Calif.	J. H. Woodruff	Rad.	34,895	2,162	615	106	2	6	3	246
Glockner-Penrose Hospital[1-3]	Colorado Springs, Colo.	J. McMullen-J. Del Regato	Roent.	17,477	8,491	884	8	3	9	3	200
General Rose Memorial Hospital[1-3]	Denver	J. H. Weiss-M. H. Levine	D.R.	12,884	1,820	....	16	..	1	1	250
Presbyterian Hospital[1-3]	Denver	K. D. A. Allen	Rad.	11,347	5,237	125	65	1	3	3	225
St. Joseph's Hospital[1-3]	Denver	E. J. Meister	Rad.	11,031	.....	1,539	46	1	3	1	200
St. Luke's Hospital[1-3]	Denver	W. P. Stampfli	Roent.	12,550	2,145	321	15	2	3	2	175
University of Colorado Medical Center[403]											
Colorado General Hospital[1-3]	Denver	R. R. Lanier	Rad.	26,249	1,689	291	47	3	9	3	150
Denver General Hospital[1-3]	Denver	E. Salzman	Rad.	25,119	651	261	11	..	..	3	175
Bridgeport Hospital[1-3]	Bridgeport, Conn.	J. J. Esposito	Rad.	17,165	2,387	....	93	1	2	2	[illegible]
St. Vincent's Hospital[9]	Bridgeport, Conn.	R. D. Russo	Rad.	......	.....	....	...	..	..	2	...
Hartford Hospital[1-3-64]	Hartford, Conn.	R. T. Ogden	Rad.	39,202	11,796	....	112	2	4	3	100
Grace-New Haven Community Hospital[1-3]	New Haven, Conn.	A. H. Janzen-R. M. Lowman	Rad.	56,406	8,695	484	154	3	9	3	[illegible]
Hospital of St. Raphael[3]	New Haven, Conn.	R. Shapiro	Rad.	18,956	5,811	568	38	2	6	3	125
St. Mary's Hospital[1-3]	Waterbury, Conn.	K. R. Kaess	Roent.	19,572	3,343	68	19	1	3	2	225
Waterbury Hospital[1]	Waterbury, Conn.	J. M. James	Roent.	16,672	1,790	....	29	1	3	2	225
Delaware Hospital[1-3]	Wilmington, Del.	W. W. Lattomus	Rad.	22,860	3,785	410	189	1	3	3	180
Central Dispensary and Emergency Hospital[1-3-402]	Washington, D. C.	J. E. Wissler	Rad	16,090	1,932	....	6	1	3	3	200
District of Columbia General Hospital[1-3]	Washington, D. C.	B. Gondos	D.R.	40,360	916	60	32	2	4	2	173
Doctors Hospital[1-3]	Washington, D. C.	F. O. Coe	Rad.	20,760	8,110	1,441	86	2	5	3	150
Garfield Memorial Hospital[1-3-402]	Washington, D. C.	R. M. Caulk	Rad.	15,595	5,515	632	19	..	3	3	200
[illegible]ity Hospital	Washington, D. C.	W. Baensch	Rad.	23,867	6,439	....	13	4	8	3	100
[illegible] University Hospital[1-3]	Washington, D. C.	W. Stanbro	Roent.	25,803	6,621	295	13	1	4	3	150
[illegible][1-3]	Jacksonville, Fla.	W. S. Rizk	D.R.	11,934	.....	....	18	1	1	1	225
Jackson Memorial Hospital[1-3]	Miami, Fla.	H. E. Davis	Rad.	60,370	7,732	....	102	2	7	3	75
Mount Sinai Hospital of Greater Miami[1-3]	Miami Beach, Fla.	J. Widrich	D.R.	9,687	665	13	18	1	1	1	250
Crawford W. Long Memorial Hospital[1-3]	Atlanta, Ga.	R. A. Elmer	Rad.	17,806	3,004	150	54	1	2	3	110
Grady Memorial Hospital[1]	Atlanta, Ga.	H. S. Weens	Rad.	44,486	7,824	256	48	2	6	3	20
Piedmont Hospital[1]	Atlanta, Ga.	E. G. Smith, Jr.	D.R.	7,049	578	3	15	1	1	1	235
University Hospital[1]	Augusta, Ga.	L. P. Holmes	Rad.	19,418	1,500	121	4	1	3	3	200
Emory University Hospital	Emory University, Ga.	T. F. Leigh	Rad.	21,946	9,583	....	90	1	3	3	190
Augustana Hospital[1-3]	Chicago	D. S. Beilin	Rad.	14,660	2,148	....	...	1	3	3	150
Cook County Hospital[1-3]	Chicago	I. F. Hummon	Rad	105,186	33,790	....	151	4	12	3	175
Englewood Hospital[1-3]	Chicago	A. M. Bernstein	Roent.	9,919	765	....	...	1	1	1	200
Grant Hospital[1]	Chicago	A. M. Pantone	D.R.	9,796	1,623	....	...	2	2	1	225
Illinois Central Hospital[1-3]	Chicago	R. R. Lough-R. C. Crain	Rad.	26,841	4,038	360	25	1	1	2	265
Illinois Masonic Hospital[1-3]	Chicago	J. H. Gilmore	Rad.	23,724	2,436	89	27	1	1	3	115
Mercy Hospital[1-3]	Chicago	W. W. Furey	Rad.	19,529	7,982	2,328	125	1	3	3	100
Michael Reese Hospital[1-3]	Chicago	B. Levine-E. Uhlmann	Rad.	35,562	10,045	218	2,222	4	8	3	100
Mount Sinai Hospital[1-3]	Chicago	J. Arendt	Roent.	22,320	5,599	786	29	2	4	2	100
Northwestern University Medical Center											
Chicago Wesley Memorial Hospital[1-3]	Chicago	A. H. Cannon	Rad.	40,437	3,124	....	25	2	4	3	75
Passavant Memorial Hospital	Chicago	B. Lewis	Rad.	16,032	1,973	3	...	1	3	3	50
Veterans Admin. Research Hospital	Chicago	W. T. Moss-G. Cailleteau	Roent.	13,280	2,358	206	8	1	4	2	...
Evanston Hospital[1-3]	Evanston, Ill.	R. G. Willy-A. Hamann	Rad.	28,980	6,209	574	42	1	3	3	225
Presbyterian Hospital[1]	Chicago	F. H. Squire	Rad.	33,333	3,138	1,186	43	2	4	3	125
Provident Hospital[1-3]	Chicago	W. P. Quinn	Rad.	7,063	884	228	18	1	3	3	200
Ravenswood Hospital[1-3]	Chicago	D. L. Jenkinson	Roent.	11,999	1,682	90	14	2	2	3	100
St. Luke's Hospital[1-3]	Chicago	E. H. Jenkinson	Rad.	32,663	5,089	100	6	2	6	3	125
University of Chicago Clinics[1-3]	Chicago	P. C. Hodges	Rad.	39,534	18,371	748	109	4	12	3	200

Numerical and other references will be found on pages 387 through 390.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered[a]	Total Residencies Offered[a]	Length of Approved Program (Years)	Beginning Stipend (Month)
University of Illinois Research and Educational Hospitals[1-3]	Chicago	R. A. Harvey	Rad.	57,340	15,574	....	...	1	7	3	125
St. Francis Hospital[1]	Evanston, Ill.	A. C. Ledoux	Roent.	29,722	2,741	206	16	1	1	2	175
Little Company of Mary Hospital[1-3]	Evergreen Park, Ill.	W. W. Furey	Rad.	30,936	2,930	348	41	1	3	3	175
St. Francis Hospital[1-3]	Peoria, Ill	P. R. Dirkse- D. F. Anderson	Roent.	21,193	3,327	390	4	1	2	2	225
Swedish American Hospital	Rockford, Ill.	H. W. Ackemann	Rad.	14,390	1,638	1,638	145	1	1	1	...
Carle Memorial Hospital and Clinic	Urbana, Ill.	...	Rad.	21,961	2,500	1,050	9	1	1	3	250
Clinic Hospital[3]	Bluffton, Ind.	R. E. Bishop	Rad.	23,733	1,493	....	12	1	2	3	400
St. Joseph's Hospital[1-3]	Fort Wayne, Ind.	C. H. Warfield	Roent.	16,149	3,237	115	6	1	2	2	250
Indiana University Medical Center and Affiliated Hospitals											
Indianapolis General Hospital[1-3-9]	Indianapolis	W. A. Tosick	Rad.	39,582	3,719	123	45	..	..	2	205
Indiana University Medical Center Hospital[1]	Indianapolis	J. A. Campbell	Rad.	29,948	6,240	1,310	88	4	12	3	165
Veterans Admin. Hospital[1]	Indianapolis	P. C. Harding	Roent.	19,380	2,142	66	12	..	..	2	...
Methodist Hospital[1-3]	Indianapolis	H. C. Ochsner	D.R.	42,527	3,041	3,801	66	1	2	2	278
St. Elizabeth Hospital[1]	Lafayette, Ind.	G. W. Hunsberger	Roent.	10,934	1,562	185	23	1	2	2	225
Iowa Methodist Hospital[1-3]	Des Moines, Iowa	A. B. Phillips	Rad.	14,893	1,076	....	24	1	2	3	175
State University of Io	Iowa City	E. F. Van Epps	Rad.	58,091	15,517	....	146	3	9	3	140
University of Kansas	Kansas City, Kan.	G. M. Tice	Rad.	27,218	6,338	623	91	3	4	3	125
St. Francis Hospital[1-3]	Wichita, Kan.	J. R. Kline	D.R.	21,229	2,782	223	45	1	2	2	275
Wesley Hospital[1-3]	Wichita, Kan.	N. C. Nash	Rad.	14,945	2,878	....	30	1	1	1	175
St. Joseph Infirmary[1-3-140]	Louisville	S. E. Johnson	Rad.	27,265	5,197	2,518	127	1	4	3	210
University of Louis											
Louisville General	Louisville	E. L. Pirkey	Rad.	40,908	2,925	121	35	2	6	3	83
Veterans Admin.	Louisville	J. F. Shaw	Rad.	18,834	1,420	134	6	1	3	3	...
Charity Hospital of Louisiana[1]	New Orleans	M. Garcia	Rad.	151,594	55,956	4,183	258	5	14	3	100
Ochsner Foundation Hospital[1-142]	New Orleans	E. H. Little	Rad.	49,098	3,167	315	...	1	4	3	225
	New Orleans	L. J. Bristow, Jr.	Rad.	24,048	5,090	448	37	1	3	3	225
		A. R. Payzant	Rad.	28,545	2,677	227	21	1	3	3	125
		W. H. Carroll	Rad.	30,609	10,293	755	67	2	6	3	125
		H. A. Smith	Roent.	19,015	1,906	477	17	1	1	2	100
	Lewiston, Maine	C. F. Miller	Rad.	11,379	1,605	132	60	..	1	3	225
	Portland, Maine	J. F. Gibbons	Rad.	17,986	2,675	37	81	2	2	3	100
	Baltimore	J. DeCarlo	D.R.	30,915	777	517	7	1	3	2	50
	Baltimore	R. H. Morgan	Rad.	70,359	12,273	....	311	8	9	3	25
Mercy Hospital[1-3]	Baltimore	E. R. Dana	Roent.	21,241	1,101	....	48	1	1	1	275
Sinai Hospital[1-3-9]	Baltimore	J. O. Salik	D.R.	20,276	1,227	....	34	1	3	2	110
University Hospital[1-3]	Baltimore	J. M. Dennis	Rad.	60,152	6,246	...	119	1	5	3	75
Washington County Hospital[1]	Hagerstown, Md.	S. H. Macht	Rad.	15,042	2,384	569	87	1	1	3	250
Beth Israel Hospital[1-3-186]	Boston	F. G. Fleischner	Rad.	23,067	1,633	158	4	2	5	3	100
Boston City Hospital[1-3]	Boston	M. Ritvo	Rad.	107,203	3,509	249	56	..	11	3	132
Children's Medical Center[1-3]	Boston	E. B. D. Neuhauser	Roent.	23,387	2,191	....	...	..	4	2	50
Faulkner Hospital[1-3-169]	Boston	L. E. Hawes	Roent.	8,950	1,200	35	...	1	2	2	...
Lahey Clinic[1-3-174-175-177]	Boston	M. I. Smedal	Roent.	46,167	1,705	19	4	2	7	3	200
Massachusetts General Hospital[1-3]	Boston	L. L. Robbins	Rad.	69,512	18,678	....	245	2	6	3	67
Massachuset	Boston	G. Levene	Roent.	46,343	4,043	193	4	2	4	2	50
New Englan	Boston	A. Ettinger	Rad.	28,716	2,434	79	8	1	3	3	100
New Englan	Boston	J. H. Marks	Roent.	22,316	5,632	112	53	1	3	2	135
Peter Bent	Boston	M. C. Sosman	Rad.	28,254	2,407	....	10	2	9	3	42
Cambridge City Hospital[1]	Cambridge, Mass.	F. A. Herzan	Roent.	15,591	981	25	6	1	2	2	125
Mount Auburn Hospital[1-3]	Cambridge, Mass.	R. Schatzki	Roent.	16,870	2,297	120	2,684	..	1	2	175
Lawrence General Hospital[1-3]	Lawrence, Mass.	G. V. West	Roent.	15,220	2,134	200	26	1	3	1	175
Lynn Hospital[1-3]	Lynn, Mass.	H. A. Osgood	Roent.	23,111	2,969	....	7	1	1	3	150
Newton-Wellesley Hospital[1-3]	Newton, Mass.	C. Liebman	Roent.	14,097	.....	993	4	1	2	2	170
Salem Hospital[1-3]	Salem, Mass.	R. W. Liming	Roent.	14,124	1,848	461	2	1	3	3	125
Springfield Hospital[1-3]	Springfield, Mass.	R. A. Grugan	D.R.	15,522	1,734	4	20	1	1	1	175
Memorial Hospital[1-3]	Worcester, Mass.	W. J. Elliott	Roent.	2,484	.....	....	15	1	1	1	200
St. Joseph Mercy Hospital[1-3]	Ann Arbor, Mich.	S. W. Donaldson	Rad.	24,167	1,726	274	33	1	3	3	250
University Hospital[1-3]	Ann Arbor, Mich.	F. J. Hodges	Rad.	55,555	9,561	723	140	6	18	3	154
Leila Y. Post Montgomery Hospital[1-3]	Battle Creek, Mich.	S. P. Barden	Rad.	11,925	1,616	212	20	..	1	3	275
Children's Hospital[1]	Detroit	W. A. Evans, Jr.	D.R.	19,532	.....	18	...	..	2	1	...
Grace Hospital[1-3]	Detroit	H. A. Jarre	Rad.	35,742	6,472	1,826	33	2	4	3	275
Harper Hospital[1-3-196]	Detroit	L. Reynolds	Rad.	27,071	21,900	470	275	3	9	3	225
Henry Ford Hospital[1-3]	Detroit	W. R. Eyler	Rad.	71,471	5,051	485	88	4	12	3	225
Mount Carmel Mercy Hospital[1-3]	Detroit	J. M. Grace	Roent.	46,766	3,428	167	31	1	2	2	225
Providence Hospital[1]	Detroit	W. A. Irwin	Rad.	29,613	3,369	2,655	209	1	3	3	275
Sinai Hospital[1-3]	Detroit	H. Z. Mellins	D.R.	16,279	2,248	60	22	1	1	1	275
Wayne University Affiliated Hospitals		...	Rad.	.....	.....	....	...	..	..	3	...
Veterans Admin. Hospital[1-3]	Dearborn, Mich.	E. E. Levine	Rad.	25,756	3,108	164	4	2	6	2	...
Detroit Memorial Hospital	Detroit	...	....	.....	......	....	...	..	..	..	...
Herman Kiefer Hospital[1-3]	Detroit	C. C. Birkelo	D.R.	264,908	.....	....	...	2	2	1	406
Receiving Hospital[1-3-204]	Detroit	J. E. Lofstrom	Rad.	79,710	8,562	562	69	6	18	3	260
Wayne County General Hospital and Infirmary[1-3]	Eloise, Mich.	J. Zbikowski	Roent.	49,473	1,818	39	18	3	3	2	306
Hurley Hospital[1-3]	Flint, Mich	D. R. Limbach	Rad.	57,636	7,324	494	112	2	6	3	325
St. Joseph Hospital	Flint, Mich.	J. E. Livesay	D.R.	20,279	443	....	34	1	1	2	400
Blodgett	Grand Rapids, Mich.	H. C. Jones	Roent.	14,727	3,611	12	38	1	2	2	250
	Grand Rapids, Mich.	V. Lester	Rad.	19,587	3,033	261	109	1	3	3	225
	Pontiac, Mich.	J. Morton	Rad.	28,534	3,783	....	45	1	2	2	325
	Minneapolis	C. O. Hansen	Roent.	16,717	8,801	538	...	..	1	2	200
	Minneapolis	L. G. Idstrom	Rad.	32,850	3,682	....	46	1	1	3	200
Hospitals[1-3-210]	Minneapolis	L. G. Rigler	Rad.	52,050	11,892	960	232	5	15	3	185
Mayo Foundation[1]	Rochester, Minn.	H. M. Weber	Rad.	263,113	27,924	820	1,627	8	25	3	150
Charles T. Miller Hospital[1-3]	St. Paul	H. O. Peterson	Rad.	16,530	7,801	....	...	1	3	3	185
St. Joseph's Hospital[1-3]	St. Paul	J. P. Medelman	Roent.	13,825	2,290	70	6	1	1	1	185
St. Louis County Hospital[1-3]	Clayton, Mo.	S. J. Merenda	Roent.	13,123	3,828	520	5	1	3	1	225
Kansas City General Hospital No. 1[1-3]	Kansas City, Mo.	J. W. Barry	Rad.	24,293	1,038	160	33	1	3	3	150
Menorah Medical Center[1-3]	Kansas City, Mo.	D. S. Dann	Roent.	14,780	926	232	25	1	2	2	300
Research an											
Veterans	Wadsworth, Kan.	R. F. Davis	Roent.	21,970	1,970	109	4	4	10	2	...
Children's	Kansas City, Mo.	...	....	.....	......	....	...	..	..	..	...
Kansas Ci	Kansas City, Mo.	I. H. Lockwood	D.R.	17,555	296	....	5	1	3	3	150
Research Hospital[1-3]	Kansas City, Mo.	I. H. Lockwood	Rad.	16,694	1,792	57	57	4	12	3	220
Veterans Admin. Hospital[1]	Kansas City, Mo.	M. F. Westfall	Rad.	28,351	1,427	129	2	2	4	1	...
St. Joseph Hospital[1-3]	Kansas City, Mo.	C. E. Virden	Rad.	18,557	3,749	48	140	1	4	3	250
St. Luke's Hospital[1-3]	Kansas City, Mo.	L. A. Scarpellino	Roent.	13,974	2,171	83	37	1	3	3	175
Barnes Hospital[1-3]	St. Louis	H. Wilson	Rad.	59,354	14,443	....	...	..	..	..	...
De Paul Hospital[1-3]	St. Louis	E. C. Ernst	Rad.	11,617	1,902	228	43	1	1	3	200
Homer G. Phillips Hospital[1-3]	St. Louis	W. E. Allen, Jr.	Rad.	27,664	2,082	108	70	2	5	3	190
Jewish Hospital[1-3]	St. Louis	H. R. Senturia	Rad.	17,834	6,397	471	61	2	3	2	100
St. Louis City Hospital[1-3]	St. Louis	D. Weir	Rad.	49,487	8,326	340	135	2	6	3	190

Numerical and other references will be found on pages 387 through 390.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered*	Total Residencies Offered*	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Luke's Hospital[1-3]	St. Louis	H. W. Frerking	Roent.	11,344	1,551	8	40	1	1	3	250
St. Mary's Group of Hospitals[1-3-224]	St. Louis	L. Sante	Rad.	27,121	3,992	164	52	1	3	3	100
Creighton Memorial—St. Joseph's Hospital[1-10]	Omaha	J. F. Kelly, Sr.	Rad.	15,731	1,866	147	30	1	3	3	175
Nebraska Methodist Hospital[1-3]	Omaha	H. B. Hunt	Rad.	12,907	5,976	1,002	124	1	1	3	300
University of Nebraska Hospital[1-1]	Omaha	H. B. Hunt	Rad.	15,911	1,910	345	64	1	4	3	175
Mary Hitchcock Memorial Hospital[1-3]	Hanover, N. H.	W. C. MacCarty, Jr.	Rad.	25,690	3,123	1,010	100	1	3	3	188
Hackensack Hospital[1-3]	Hackensack, N. J.	E. J. Ryan	Rad.	13,389	2,304	218	10	1	3	2	150
Jersey City Medical Center[1-3]	Jersey City, N. J.	H. J. Perlberg	Roent.	41,285	9,338	422	185	4	6	3	145
Morristown Memorial Hospital[1-3]	Morristown, N. J.	F. Reed, Jr.	Roent.	13,487	1,950	191	19	1	1	1	185
Burlington County Hospital[1]	Mt. Holly, N. J.	H. P. Kane	Roent.	8,079	709	90	5	1	1	1	100
Harrison S. Martland Medical Center[1-3]	Newark, N. J.	P. J. Santora	Roent.	43,548	2,593	178	15	2	6	2	162
Hospital of Saint Barnabas and for Women and Children[1-3]	Newark, N. J.	P. J. Gianquinto	Roent.	7,100	1,316	367	16	1	2	2	150
Newark Beth Israel Hospital[1-3]	Newark, N. J.	N. J. Furst	Roent.	14,412	4,524	157	72	1	1	2	100
Albany Hospital[1-3]	Albany, N. Y.	J. F. Roach	Rad.	25,925	7,953	...	68	1	3	3	160
Brooklyn Hospital[1-3]	Brooklyn, N. Y.	J. H. Wentworth	Rad.	21,776	2,159	203	38	1	3	3	200
Cumberland Hospital[1-3-210]	Brooklyn, N. Y.	E. Mendelson	D.R.	21,034	441	5	1	1	3	2	106
Jewish Hospital[1-3]	Brooklyn, N. Y.	S. S. Schwartz	Rad.	26,510	4,714	...	25	2	5	3	100
Kings County Hospital	Brooklyn, N. Y.	H. Mellins-A. B. Friedmann	D.R.	134,989	14,333	481	141	6	8	2	104
Long Island College Hospital[1-3]	Brooklyn, N. Y.	A. L. L. Bell	Rad.	18,216	1,182	35	24	1	3	3	150
Maimonides Hospital[1-3]	Brooklyn, N. Y.	M. Slobodkin	D.R.	29,503	1,721	169	24	1	3	2	75
Methodist Hospital[1-3]	Brooklyn, N. Y.	N. F. Bartone	Roent.	12,267	1,637	38	16	1	2	2	175
Buffalo General Hospital[1-3]	Buffalo	G. J. Culver	Rad.	25,188	8,343	...	77	2	4	3	175
Deaconess Hospital[1-3-161]	Buffalo	R. Seibel	Rad.	5,037	93	4,107	27	1	1	3	300
Edward J. Meyer Memorial Hospital[1]	Buffalo	E. G. Eschner	Roent.	37,242	1,242	745	20	1	3	3	248
Millard Fillmore Hospital	Buffalo	E. H. Schnap	Rad.	19,440	1,285	142	...	1	1	3	285
Roswell Park Memorial Institute[1-3-204]	Buffalo	W. T. Murphy-E. Lassel	Rad.	26,117	39,540	3,471	790	7	11	3	275
Elmhurst General Hospital[1-3-458]	Elmhurst, N. Y.	P. Strax	D.R.	23,174	712	1,038	...	1	1	2	105
Flushing Hospital and Dispensary[1-3-270]	Flushing, N. Y.	M. Pomeranz	D.R.	19,214	611	204	...	1	3	2	175
Meadowbrook Hospital	Hempstead, N. Y.	H. R. Zatzkin	Rad.	27,077	8,569	428	38	1	3	3	225
Queens General Hospital[1-3]	Jamaica, N. Y.	A. V. Shapiro-L. B. Goldman	Rad.	77,013	4,461	1,190	90	1	4	3	105
Charles S. Wilson Memorial Hospital[1-3]	Johnson City, N. Y.	B. D. Jay	Roent.	21,715	1,508	169	11	1	2	2	225
Long Island Jewish Hospital[1-3-273]	New Hyde Park, N. Y.	B. S. Epstein	D.R.	13,944	1,589	60	10	2	4	1	75
New Rochelle Hospital[1-3]	New Rochelle, N. Y.	J. F. Miller	Roent.	19,924	2,195	44	6	1	2	2	225
Bellevue Hospital Center Div. III—New York University College of Medicine[1-3-278]	New York City	M. Poppel	Rad.	129,364	8,190	1,124	261	4	15	3	105
Beth David Hospital[1-3]	New York City	M. Birnkrant	D.R.	8,800	.....	...	...	1	1	1	125
Beth Israel Hospital[1-3-9]	New York City	A. Geffen	D.R.	15,163	2,388	82	7	2	3	2	140
Bronx Hospital[1-3]	New York City	A. J. Bernstein-J. R. Freid	Roent.	17,305	3,063	282	10	1	3	2	100
Bronx Municipal Hospital Center[-9]	New York City	M. Elkin	D.R.	1,847	.....	...	...	3	9	2	105
Doctors Hospital[1-3]	New York City	A. J. Tillinghast	Roent.	6,928	695	...	19	1	2	2	200
Fordham Hospital[1-3]	New York City	H. Poster	D.R.	28,797	.....	...	7	1	1	1	105
Francis Delafield Hospital[1-3]	New York City	H. Jacox	Rad.	9,266	17,434	468	18	11	13	3	105
Goldwater Memorial Hospital[1-3-289]	New York City	H. K. Taylor	D.R.	11,011	2,275	175	1	3	3	1	104
Hospital for Joint Diseases[1-3]	New York City	M. M. Pomeranz	Roent.	26,745	6,029	194	8	1	3	3	80
Lenox Hill Hospital[1-3]	New York City	F. H. Ghiselin	Roent.	21,923	3,420	130	3,602	1	3	3	150
Lincoln Hospital[1-3]	New York City	R. Feig	Roent.	34,034	490	159	19	1	2	2	165
Memorial Center for Cancer and Allied Diseases		......	Rad.	......	.....	...	...	..	..	2	...
James Ewing Hospital[1-3]	New York City	R. S. Sherman	.....	12,543	577	...	202	..	..	..	150
Memorial Hospital[1-3]	New York City	R. Sherman-J. J. Nickson	.....	58,387	43,950	...	235	4	21	..	100
Montefiore Hospital[1-3]	New York City	H. Jacobson-J. Fried	Rad.	56,111	16,146	1,620	63	4	10	3	55
Morrisania City Hospital[1-3]	New York City	J. Fierstein-P. W. Cohen	Rad.	21,943	1,890	259	44	2	2	2	105
Mount Sinai Hospital[1-3]	New York City	B. S. Wolf-S. M. Silverstone	Rad.	41,117	6,670	.....	91	2	6	3	50
New York Hospital[1-3-298]	New York City	J. A. Evans	Rad.	73,504	9,417	600	300	3	13	3	116 66
New York Medical College-Metropolitan Medical Center											
Flower and Fifth Avenue Hospitals[1-3]	New York City	F. J. Borrelli	Rad.	41,297	1,454	200	33	1	3	3	...
[illegible] Hospital[1-3]	New York City	F. J. Borrelli	D.R.	33,688	2,275	175	14	2	4	2	105
N[illegible] Medical S[illegible][1-3]	New York City	W. H. Shehadi	Roent.	10,732	1,240	190	30	1	2	2	100
New York University-Bellvue Medical Center											
University Hospital	New York City	M. Poppel	Rad.	22,561	2,996	106	113	1	4	3	85
Presbyterian Hospital[1]	New York City	H. W. Jacox	Rad.	105,244	17,680	2,528	162	4	12	3	250
Roosevelt Hospital[1-3]	New York City	A. A. Dunn	Rad.	44,907	3,151	71	4,579	2	6	3	133
St. Francis Hospital[1-3]	New York City	J. J. Haggerty	D.R.	....	......	.....	.....	1	2	1	125
St. Luke's Hospital[1-3]	New York City	H. F. Hempel	Rad.	38,081	3,993	.....	33	2	6	3	100
St. Vincent's Hospital[1-3]	New York City	F. F. Ruzicka, Jr.	Rad.	34,101	3,002	547	20	2	4	3	125
United Hospital[1-3]	Port Chester, N. Y.	T. West	Roent.	12,786	2,966	20	2	1	1	1	200
Genesee Hospital[1-3]	Rochester, N. Y.	G. J. Baron	Roent.	22,857	2,753	236	21	1	1	3	150
Rochester General Hospital[1-3]	Rochester, N. Y.	E. F. Merrill	Rad.	21,594	6,110	1,006	65	1	3	3	125
St. Mary's Hospital[1-3]	Rochester, N. Y.	A. V. Winchell	Roent.	21,487	740	111	274	1	1	2	200
Strong Memorial-Rochester Municipal Hospital[1-3-201]	Rochester, N. Y.	G. H. Ramsey	Rad.	28,820	5,104	390	342	3	9	3	92
State University of New York Upstate Medical Center Hospital[1-3]	Syracuse, N. Y.	C. Hale	Roent.	32,978	5,173	.....	112	2	6	3	192
Grasslands Hospital[1-3]	Valhalla, N. Y.	A. G. Debbie	Roent.	19,966	2,477	1,084	8	1	3	3	175
St. John's Riverside Hospital[1-3]	Yonkers, N. Y.	J. Miller	Roent.	7,854	1,092	254	8	1	2	2	250
North Carolina Memorial Hospital[1-3]	Chapel Hill, N. C.	E. H. Wood	Rad.	29,031	1,945	97	63	2	6	3	136
Duke University Hospital[1-3-323]	Durham, N. C.	R. J. Reeves	Rad.	69,290	8,774	630	90	5	12	3	102
Watts Hospital[1-3]	Durham, N. C.	S. P. Perry	D.R.	3,462	1,992	.....	22	1	3	2	175
North Carolina Baptist Hospital[1-3]	Winston-Salem, N. C.	I. Meschan	Rad.	28,990	253	32	33	2	6	3	125
Bismarck Hospital[3]	Bismarck, N. Dak.	H. M. Berg	Rad.	26,461	2,841	842	58	1	3	3	210
Akron City Hospital[1-3-327]	Akron, Ohio	F. T. Moore	Rad.	49,144	9,537	.....	185	2	6	3	270
Akron General Hospital[1]	Akron, Ohio	C. J. Miller, Jr.	Rad.	18,745	3,723	164	21	1	1	3	250
Aultman Hospital[1-3]	Canton, Ohio	S. Larson	Roent.	24,499	2,186	728	25	2	4	2	275
Mercy Hospital[1-3]	Canton, Ohio	T. J. Dodd	Roent.	24,740	3,469	.....	37	2	4	3	200
Cincinnati General Hospital[1-3-320]	Cincinnati	B. Felson	Rad.	46,636	7,247	226	67	4	12	3	85
Good Samaritan Hospital[1-3]	Cincinnati	J. McCarthy	Roent.	27,961	4,543	75	43	1	2	2	250
Jewish Hospital[1-3]	Cincinnati	L. Rosenberg	Rad.	22,300	2,287	329	75	1	3	3	115
City Hospital[1-3]	Cleveland	H. Hauser	Rad.	39,479	3,235	193	64	3	9	3	150
Cleveland Clinic Hospital[1-3]	Cleveland	C. R. Hughes	Rad.	96,308	8,922	232	70	4	12	3	175
Huron Road Hospital[1-3]	Cleveland	W. Heinrich	Rad.	28,037	2,318	275	2,590	2	3	3	210
Lutheran Hospital[1-3]	Cleveland	J. A. Groh	Roent.	14,434	2,400	101	5	1	3	3	250
Mount Sinai Hospital[1-3]	Cleveland	H. Mahrer	Roent.	26,958	3,857	.....	21	1	3	3	215

Numerical and other references will be found on pages 387 through 390.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
St. Luke's Hospital[1-3]	Cleveland	D. D. Brannan	Rad.	40,539	4,792	428	34	1	3	3	120
St. Vincent Charity Hospital[1-3]	Cleveland	E. J. O'Malley	Rad.	19,468	1,672	.....	15	1	3	3	225
University Hospitals[1-3]	Cleveland	H. L. Friedell	Rad.	54,317	7,313	759	58	2	6	3	125
Ohio State University Hospitals											
University Hospital[1-3-319]	Columbus, Ohio	S. W. Nelson	Rad.	56,112	12,295	647	343	4	12	3	...
Miami Valley Hospital[1-3]	Dayton, Ohio	G. A. Nicoll	Rad.	21,654	2,736	.....	58	1	3	3	250
St. Elizabeth Hospital[1]	Dayton, Ohio	....	D.R.	......	......	.....	.....	..	..	1	...
Elyria Memorial Hospital	Elyria, Ohio	D. Russell	D.R.	......	......	.....	...	1	1	1	270
Mercy Hospital[1-3]	Toledo, Ohio	M. M. Thompson	Rad.	15,891	858	.....	12	1	3	3	275
Youngstown Hospital[1-3]	Youngstown, Ohio	E. C. Baker	Rad.	28,045	9,575	378	498	1	3	3	175
University of Oklahoma Hospitals											
University Hospital[1-3]	Oklahoma City	P. E. Russo	Rad.	33,634	9,874	1,627	105	2	6	3	...
Veterans Admin. Hospital[1]	Oklahoma City	S. M. Glasser	D.R.	23,527	2,367	197	.....	2	4	1	...
Wesley Hospital[1]	Oklahoma City	E. H. Kalmon	D.R.	9,881	2,427	46	34	1	1	1	275
St. John's Hospital[1-3]	Tulsa, Okla.	L. M. Pascucci	Rad.	11,314	1,595	140	.....	1	4	3	175
Providence Hospital[1-3]	Portland, Ore.	S. Rees	D.R.	13,859	1,404	.....	40	1	3	2	275
St. Vincent's Hospital[1-3]	Portland, Ore.	S. E. Rees	Roent.	12,508	1,584	.....	40	1	3	3	275
University of Oregon Medical School Hospitals and Clinics	Portland, Ore.	C. T. Dotter	Rad.	37,844	3,422	.....	41	2	6	3	100
Abington Memorial Hospital[1-3]	Abington, Pa.	J. D. Zulick	Roent.	22,546	4,223	354	40	1	2	3	150
Sacred Heart Hospital[1-3]	Allentown, Pa.	C. L. Mengel-K. W. Taber	Rad.	10,419	5,021	650	600	1	3	3	225
Bryn Mawr Hospital[1-3]	Bryn Mawr, Pa.	R. M. Harvey	Rad.	21,748	3,661	405	128	1	3	3	200
Geo. F. Geisinger Memorial Hospital and Foss Clinic[1-3]	Danville, Pa.	C. L. Hinkel	Rad.	23,146	1,896	3,751	36	1	4	3	175
Thomas M. Fitzgerald Mercy Hospital[1-3-367]	Darby, Pa.	B. P. Widmann-F. Alexander	Rad.	16,185	1,896	284	98	1	3	3	100
St. Vincent's Hospital	Erie, Pa.	R. D. Bacon	Rad.	16,526	1,047	41	20	1	2	3	100
Albert Einstein Medical Center											
Northern Division[1-3]	Philadelphia	J. Gershon-Cohen	Rad.	24,543	6,820	496	66	2	6	3	150
Southern Division[1]	Philadelphia	H. Isard	Rad.	15,409	2,337	.....	55	1	3	3	150
American Oncologic Hospital[1-4]	Philadelphia	S. G. Castigliano	Th.R.	1,763	7,284	759	49	2	2	1	250
Chestnut Hill Hospital[1]	Philadelphia	R. P. Barden	Roent.	9,105	1,719	370	51	1	2	2	150
Episcopal Hospital[1-3]	Philadelphia	H. Fisher	Rad.	23,402	2,666	.....	34	1	1	3	150
Germantown Dispensary and Hospital[1-3]	Philadelphia	B. R. Young	Rad.	27,169	3,610	1,107	54	1	4	3	150
Graduate Hospital of the											
University of Pennsylvania[1-3]	Philadelphia	A. Finkelstein	Rad.	22,275	3,234	574	19	3	10	3	75
Hahnemann Medical College and Hospital[3]	Philadelphia	J. S. Lehman	Rad.	30,978	3,542	129	318	2	6	3	75
Hospital of the University of Pennsylvania[1-3]	Philadelphia	E. Pendergrass	Rad.	167,251	13,325	3,331	204	6	24	3	...
Hospital of the Woman's											
Medical College of Pennsylvania[1-3]	Philadelphia	J. H. Vastine, II	Roent.	9,387	2,100	3	40	1	2	3	200
Jeanes Hospital[371]	Philadelphia	E. P. Pendergrass	Rad.	5,004	898	73	11	1	1	1	300
Jefferson Medical College Hospital[1-3]	Philadelphia	R. L. Nichols	Rad.	48,163	4,649	1,174	196	4	12	3	100
Nazareth Hospital[1]	Philadelphia	J. S. Fetter	Roent.	17,783	1,901	536	27	1	3	3	200
Pennsylvania Hospital[1-3]	Philadelphia	P. A. Bishop	Rad.	20,889	1,981	270	93	2	2	3	100
Philadelphia General Hospital[1-3]	Philadelphia	B. P. Widmann	Rad.	3,459	10,164	216	123	9	9	3	114
Presbyterian Hospital[1-3]	Philadelphia	E. L. Lame	Rad.	10,477	2,535	.....	34	1	2	3	150
Temple University Hospital[1-3]	Philadelphia	W. E. Chamberlain	Rad.	36,691	5,645	78	25	..	..	3	...
Allegheny General Hospital[1]	Pittsburgh	T. B. Childs	Roent.	27,354	3,081	551	35	1	3	3	200
Mercy Hospital[1-3]	Pittsburgh	C. R. Perryman	Rad.	36,529	15,221	.....	40	2	6	3	175
Montefiore Hospital[1-3]	Pittsburgh	H. W. Friedman	Roent.	16,904	3,088	342	..	2	2	3	225
Pittsburgh Medical Center	Pittsburgh	G. W. Grier	Rad.	16,962	1,491	67	20	1	3	3	125
St. Francis General Hospital and Rehabilitation Institute[1]	Pittsburgh	G. H. Alexander	Rad.	18,728	2,492	12	26	1	3	3	200
Western Pennsylvania Hospital[1-3]	Pittsburgh	D. H. Rice	Roent.	25,751	3,651	641	76	1	2	2	225
Reading Hospital[1-3]	Reading, Pa.	G. W. Chamberlin	Rad.	4,878	......	.....	..	2	6	3	225
St. Joseph's Hospital[1-3]	Reading, Pa.	W. W. Werley-N. Carabello	Roent.	10,815	1,911	329	12	1	1	1	250
Robert Packer Hospital[1-3]	Sayre, Pa.	J. T. Littleton	Rad.	32,999	3,796	517	23	2	4	3	200
Sharon General Hospital[3]	Sharon, Pa.	H. A. Steiner	Roent.	13,095	1,738	.....	28	1	1	1	250
Chester County Hospital	West Chester, Pa.	J. Gershon-Cohen	Roent.	7,140	1,495	750	5	1	1	1	150
Rhode Island Hospital[1-3]	Providence, R. I.	L. A. Martineau	Roent.	32,072	1,974	460	.....	1	3	3	100
Roger Williams General Hospital	Providence, R. I.	R. R. Hunt	Roent.	12,083	2,621	650	54	1	1	2	200
Roper Hospital[1-3]	Charleston, S. C.	H. S. Pettitt	Rad.	26,335	5,462	24	57	2	4	3	138
Columbia Hospital of Richland County	Columbia, S. C.	G. W. Smith	Roent.	47,824	3,939	168	38	1	1	1	175
Spartanburg General Hospital	Spartanburg, S. C.	H. E. Plenge	Rad.	30,865	548	.....	38	1	1	3	250
Baroness Erlanger Hospital[1-3]	Chattanooga, Tenn.	C. W. Reavis	Rad.	22,193	3,638	400	63	2	2	2	175
Baptist Memorial Hospital[1-3]	Memphis, Tenn.	J. E. Whiteleather	Roent.	23,881	2,958	355	118	2	7	3	150
City of Memphis Hospitals[1-3]	Memphis, Tenn.	C. Heacock	Rad.	37,139	1,603	189	74	2	8	3	100
Methodist Hospital	Memphis, Tenn.	J. C. King	Rad.	23,473	5,213	637	24	2	6	3	150
George W. Hubbard Hospital[1-3]	Nashville, Tenn.	G. J. Tarleton	Rad.	9,476	1,172	118	29	1	3	3	125
Vanderbilt University Hospital[1-3]	Nashville, Tenn.	H. C. Francis	Rad.	26,297	3,925	134	91	3	7	3	50
Brackenridge Hospital[1-3]	Austin, Texas	J. C. Rude	D.R.	14,814	1,878	180	36	1	1	1	200
Baylor University Hospital[1-3]	Dallas, Texas	J. E. Miller	Rad.	25,955	7,748	.....	133	1	4	3	160
Methodist Hospital[1-3]	Dallas, Texas	H. H. Millwee	D.R.	13,476	1,046	63	51	1	1	1	200
St. Paul's Hospital[1-3]	Dallas, Texas	G. D. Carlson	Rad.	13,082	1,655	.....	53	1	3	2	125
University of Texas Medical Branch Hospital[1-3]	Galveston, Texas	R. N. Cooley	Rad.	67,407	9,354	.....	126	3	9	3	160
Baylor University College of Medicine Affiliated Hospitals											
Jefferson Davis Hospital[1-3]	Houston, Texas	V. P. Collins	Rad.	50,256	127	42	67	2	6	3	75
Methodist Hospital[1-3]	Houston, Texas	C. H. Burge	Rad.	16,967	1,750	.....	9	1	2	2	220
Veterans Admin. Hospital[1-3]	Houston, Texas	H. L. Barton	Roent.	37,619	5,595	392	20	2	6	2	...
Hermann Hospital[1-3-401]	Houston, Texas	L. M. Vaughan	Roent.	40,202	5,246	180	60	1	3	2	100
St. Joseph's Hospital[3-401]	Houston, Texas	C. W. Yates	Rad.	23,256	2,737	56	42	1	1	3	225
University of Texas M. D. Anderson Hospital and Tumor Institute[1-3-402]	Houston, Texas	G. H. Fletcher	Rad.	15,930	30,133	1,977	536	3	14	3	150
Baptist Memorial Hospital[1-3]	San Antonio, Texas	E. F. Lyon, Jr.	D.R.	13,149	1,342	71	67	1	2	2	150
Robert B. Green Memorial Hospital[1-3]	San Antonio, Texas	F. E. O'Neill	D.R.	30,692	1,295	142	25	1	2	2	150
Santa Rosa Hospital[1-3]	San Antonio, Texas	J. J. Wiesner	Rad.	14,697	1,290	214	187	1	2	3	250
Scott and White Memorial Hospitals[1-3]	Temple, Texas	A. W. Sommer	Rad.	44,257	5,254	489	120	1	3	3	250
University of Utah Affiliated Hospitals		....	Roent.	......	......	.....	...	..	..	3	...
Dr. W. H. Groves Latter-Day Saints Hospital[8]	Salt Lake City	E. R. Crowder	Roent.	8,935	616	.....	...	1	3	3	200
Holy Cross Hospital[1-3-405]	Salt Lake City	R. R. Meyer	....	7,504	1,348	.....	10	1	2	..	175
St. Mark's Hospital[1-3-9]	Salt Lake City	H. P. Plenk	Roent.	7,258	1,523	50	16	1	1	2	245
Salt Lake County General Hospital	Salt Lake City	W. R. Christensen	Roent.	17,419	4,004	258	15	2	6	3	135
Veterans Admin. Hospital	Salt Lake City	D. W. Stowell	....	11,196	......	.....	...	1	3	..	...
University of Vermont Affiliated Hospitals											
De Goesbriand Memorial Hospital[1-3]	Burlington, Vt.	F. Van Buskirk	Roent.	11,557	1,305	69	...	1	2	1	100
Mary Fletcher Hospital[1-3-412]	Burlington, Vt.	A. B. Soule, Jr.	Rad.	15,850	4,558	122	50	1	3	3	167
University of Virginia Hospital[1-3]	Charlottesville, Va.	V. W. Archer	Roent.	38,167	5,692	600	48	2	6	3	50
De Paul Hospital[1-3]	Norfolk, Va.	J. Foster	Roent.	14,006	2,184	544	27	1	3	2	200

Numerical and other references will be found on pages 387 through 390.

25. RADIOLOGY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Type of Training	Number of X-Ray Examinations	Number of Deep X-Ray Treatments	Number of Superficial X-Ray Treatments	Number of Radium Treatments	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
Norfolk General Hospital [1-3]	Norfolk, Va.	C. P. Wisoff	Roent.	12,010	4,286	256	133	1	4	3	185
Medical College of Virginia—Hospital Division [1-3]	Richmond, Va.	F. B. Mandeville	Rad.	14,888	......	4,763	134	1	5	3	50
Providence Hospital [1-3]	Seattle	E. A. Addington	D.R.	14,789	766	227	18	1	2	2	200
Swedish Hospital [1-3]	Seattle	S. T. Cantril, Ther.	Rad.	......	10,129	1,085	173	..	2	3	150
Virginia Mason Hospital [1-3]	Seattle	T. Carlile	Rad.	26,216	3,578	1,127	75	1	3	3	275
Sacred Heart Hospital	Spokane, Wash.	M. T. Harris	Rad.	11,899	1,102	17	37	2	2	2	250
St. Mary's Hospital [1-3]	Huntington, W. Va.	H. R. Crews	Roent.	18,296	3,914	448	19	2	2	2	200
Madison General Hospital [1-3]	Madison, Wis.	R. C. Schmitz	D.R.	20,053	2,391	72	37	1	1	1	150
Methodist Hospital	Madison, Wis.	W. L. Wastow	Rad.	12,806	1,402	210	35	1	1	2	150
University Hospitals [1-3]	Madison, Wis.	E. Pohle	Rad.	41,738	7,000	166	60	3	7	3	175
Columbia Hospital [1-3-433]	Milwaukee	S. A. Morton	Rad.	47,288	3,000	4,650	83	1	3	3	195
Evangelical Deaconess Hospital [1-3]	Milwaukee	A. Melamed-A. Marck	Roent.	18,276	2,397	45	20	1	1	1	250
Milwaukee County Hospital [1-3]	Milwaukee	J. L. Marks-M. Greenberg	Rad.	58,917	6,217	397	42	2	6	3	207
Milwaukee Hospital [1-3]	Milwaukee	H. W. Hefke	Rad.	47,603	7,601	.....	99	..	1	3	195
St. Joseph's Hospital [1-3]	Milwaukee	G. W. Sengpiel	Rad.	23,379	2,843	339	32	1	3	3	300
St. Luke's Hospital [1-3]	Milwaukee	H. H. Wright	Roent.	10,841	3,717	.....	19	1	2	3	275
San Juan City Hospital [1-3]	San Juan, P. R.	J. Landron Becerra	Roent	15,912	3,063	.....	.....	2	6	2	150

26. SURGERY

Residency programs in the following services have been approved for FOUR years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. (See additional lists of approved three year and affiliated services, pages 379 through 382.)

Hospitals, 278; Assistant Residencies and Residencies, 3,600

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES ARMY							
Letterman Army Hospital [1]	San Francisco	H. T. Berwald	1,176	24	3	12	...
Fitzsimons Army Hospital [1]	Denver	C. S. Lyter	988	16	2	8	...
Army Medical Center [1-3]	Washington, D. C.	R. T. Gants	761	1	4	16	...
Brooke Army Hospital [1-3]	San Antonio, Texas	W. F. Bowers	2,157	34	4	16	...
Tripler Army Hospital [1]	Honolulu, T. H.	G. L. Beatty	8,485	30	3	12	...
UNITED STATES NAVY							
U. S. Naval Hospital [1-3]	Oakland, Calif.	M. L. Gerber	1,268	12	2	8	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. M. Hanner	2,962	24	3	9	...
U. S. Naval Hospital	Bethesda, Md.	R. B. Brown	2,525	8	4	8	...
U. S. Naval Hospital [1-3]	Chelsea, Mass.	L. L. Haynes	956	12	1	4	...
U. S. Naval Hospital	St. Albans, N. Y.	R. N. Grant	2,798	29	2	8	...
U. S. Naval Hospital [1-3]	Philadelphia	P. J. McNamara	2,513	20	2	7	...
U. S. Naval Hospital [1-3]	Portsmouth, Va.	J. J. Zuska	3,239	18	2	8	...
UNITED STATES PUBLIC HEALTH SERVICE							
U. S. Public Health Service Hospital [1-3]	San Francisco	W. A. Williamson	.....	12	1	4	..
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE							
Freedmen's Hospital [1-3]	Washington, D. C.	B. Syphax	1,060	18	3	11	28
VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	(See University of Alabama Medical Center)					
Veterans Admin. Hospital [1-3-17]	Little Rock, Ark.	R. J. Lipin	2,530	53	2	8	...
Veterans Admin. Hospital [1-3-25]	Long Beach, Calif.	J. A. Weinberg	1,525	40	3	12	...
Veterans Admin. Hospital [1-3-33]	Los Angeles	J. D. Briggs	2,968	153	10	22	...
Veterans Admin. Hospital [1-45]	San Francisco	L. G. Brizzolara	1,197	28	4	13	...
Veterans Admin. Hospital [1-3-57]	Denver	B. Eiseman	3,591	56	7	15	...
Veterans Admin. Hospital Newington Division [1-3-73]	West Haven, Conn.	P. W. Fenney	1,161	16	3	7	...
Veterans Admin. Hospital West Haven Division [1-3-74]	West Haven, Conn.	W. W. Lindenmuth	1,614	23	3	10	...
Veterans Admin. Hospital [1-3-80]	Washington, D. C.	J. G. Lee	1,685	40	2	7	...
Veterans Admin. Hospital [1-89]	Coral Gables, Fla.	M. H. Todd	2,612	86	5	14	...
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	J. C. Thoroughman	1,502	18	7	16	...
Veterans Admin. Hospital [91]	*Augusta, Ga.*	*(See Medical College of Georgia Medical Center)*					
Veterans Admin. Hospital [1-119]	Hines, Ill.	C. B. Puestow	3,197	74	7	47	...
Veterans Admin. Hospital [1]	Indianapolis	J. C. Finneran	1,198	69	..	..	...
Veterans Admin. Hospital [1-130]	Des Moines, Iowa	L. T. Palumbo	2,301	27	4	16	...
Veterans Admin. Hospital [1-3]	Iowa City	E. S. Brintnall	1,479	73	6	13	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	C. B. Boeshart	515	20	3	8	...
Veterans Admin. Hospital [1-3]	Louisville, Ky.	J. E. Hamilton	2,550	47	4	14	...
Veterans Admin. Hospital [1-3-148]	New Orleans	L. K. *Richardson*	1,351	44	5	10	...
Veterans Admin. Hospital [1-3-160]	Fort Howard, Md.	J. M. Miller	1,588	19	3	6	...
Veterans Admin Hospital [1-3]	Perry Point, Md.	R. T. Shackelford	1,283	19	2	5	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	H. H. Faxon	2,638	56	6	25	...
Veterans Admin. Hospital [1-3-193]	Dearborn, Mich.	C. G. Johnston	2,415	74	8	20	...
Veterans Admin. Hospital [1-3-208]	Minneapolis	D. J. Ferguson	1,812	51	8	17	...
Veterans Admin. Hospital [1-219]	Kansas City, Mo.	G. A. Higgins	751	6	1	6	...
Veterans Admin. Hospital [1-3]	St. Louis	F. B. Hershey-J. E. Lewis	1,964	34	4	16	...
Veterans Admin. Hospital [1-3-240]	Omaha	W. P. Kleitsch	1,745	27	4	10	...
Veterans Admin. Hospital [1-3]	Albuquerque; N. M.	W. A. Childs	589	27	5	14	...
Veterans Admin. Hospital [1-3-247]	Albany, N. Y.	J. A. Nelson	1,731	49	3	11	...
Veterans Admin. Hospital [1-3-254]	Brooklyn, N. Y.	J. J. Cincotti	2,907	64	6	18	...
Veterans Admin. Hospital [1-3-263]	Buffalo	W. M. Chardack	2,005	42	4	16	...
Veterans Admin. Hospital [1-3-300]	New York City (Bronx)	J. Kneisel	2,291	41	4	14	...
Veterans Admin. Hospital [1-3-269]	New York City (Manhattan)	W. F. MacFee	602	11	5	20	...
Veterans Admin. Hospital [1-3]	Cleveland	C. L. Cogbill	1,843	37	8	16	...
Veterans Admin. Hospital	Dayton, Ohio	C. C. Burton	2,727	91	5	18	...
Veterans Admin. Hospital [1]	Oklahoma City	F. A. Quenzer	1,382	53	5	8	...
Veterans Admin. Hospital [1-3-362]	Portland, Ore.	R. A. Wise	1,423	25	4	14	...
Veterans Admin. Hospital [1-3-374]	Philadelphia	*W. G. Nichols, Jr.*	2,838	65	4	11	...

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
FEDERAL							
Veterans Admin. Hospital [1-379]	Pittsburgh	F. C. Jackson	1,275	46	7	21	...
Veterans Admin. Hospital [1-3-391]	Memphis, Tenn.	R. F. Bowers	3,856	65	6	24	...
Veterans Admin. Hospital [1]	Nashville, Tenn.	R .I. Carlson	2,472	38	3	19	...
Veterans Admin. Hospital [1-3-394-395]	Dallas, Texas	J. P. North	987	34	2	6	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)					
Veterans Admin. Hospital [1-3-405]	McKinney, Texas	J. P. North	1,349	26	1	4	...
Veterans Admin. Hospital [410]	Salt Lake City	J. A. Gubler	1,023	9	3	8	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	(See Dartmouth Medical Center, Hanover, N. H.)					
Veterans Admin. Hospital [1-3]	Richmond, Va.	R. MacDonald	1,920	19	2	8	...
Veterans Admin. Hospital [1-3]	Seattle	J. T. Payne	742	45	4	14	...
Veterans Admin. Hospital [1-3-435]	Milwaukee (Wood)	M. B. Smith	2,112	68	5	17	...
NONFEDERAL							
University of Alabama Medical Center							
University Hospital and Hillman Clinic [1-3]	Birmingham, Ala.	C. Lyons	4,442	48	10	26	108
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	R. A. Dillard	899	14	4	7	...
Lloyd Noland Hospital [1-3]	Fairfield, Ala.	J. M. Slaughter	1,593	7	2	7	225
Maricopa County General Hospital [1-3]	Phoenix, Ariz.	C. T. Read	441	8	1	5	300
University Hospital [1]	Little Rock, Ark.	J. H. Growdon	1,082	41	4	12	145
General Hospital of Fresno County [1-3-21]	Fresno, Calif.	R. J. Rife	1,148	28	2	7	300
Los Angeles County Hospital [1]	Los Angeles	C. J. Berne	4,314	136	4	13	246
University of California Medical Center [1-3]	Los Angeles	W. P. Longmire, Jr.	......	...	8	12	250
Highland-Alameda County Hospital [1-3-41]	Oakland, Calif.	E. M. Taylor	2,000	45	8	16	195
Kaiser Foundation Hospital [1-3-59]	Oakland, Calif.	A. L. Baritell	2,068	35	6	12	245
Mount Zion Hospital [1-3]	San Francisco	A. L. Brown	1,687	19	2	6	150
San Francisco Hospital							
Stanford University Service [1-3]	San Francisco	C. Mathewson	1,475	78	1	8	195
University of California Service [1-3]	San Francisco	L. Goldman	1,461	71	1	6	195
Stanford University Hospitals [1-3]	San Francisco	V. Richards	2,325	19	4	13	80
University of California Hospital [1-3]	San Francisco	H. G. Bell	1,856	20	4	14	200
Santa Clara County Hospital [1]	San Jose, Calif.	G. S. Harmon	1,132	76	7	7	200
Santa Barbara Cottage Hospital [1-3]	Santa Barbara, Calif.	J. H. Saint	911	12	4	9	200
Harbor General Hospital [1-3]	Torrance, Calif.	F. B. Wilkins	1,419	38	5	14	246
University of Colorado Medical Center							
Colorado General Hospital [1-3]	Denver	H. Swan	1,288	77	4	16	160
Denver General Hospital [1-3]	Denver	D. H. Watkins	1,297	105	..	..	157
St. Vincent's Hospital [1-3]	Bridgeport, Conn.	W. H. Curley, Jr.	6,139	45	2	8	300
Hartford Hospital [1-3-65]	Hartford, Conn.	P. G. McLellan	5,654	47	9	23	100
New Britain General Hospital [1-3]	New Britain, Conn.	B. B. Clark	4,918	48	1	4	200
Grace-New Haven Community Hospital [1-3-66]	New Haven, Conn.	G. E. Lindskog-C. C. Bishop	3,954	56	4	17	50
Delaware Hospital [1-3]	Wilmington, Del.	C. L. Munson	4,777	77	2	5	180
Memorial Hospital [1-3]	Wilmington, Del.	J. C. Pierson	3,751	27	1	4	185
Central Dispensary and Emergency Hospital [1-3-75-462]	Washington, D. C.	C. D. Briggs	3,574	33	4	10	225
District of Columbia General Hospital [1-3]	Washington, D. C.	B. Blades-R. Coffey	1,450	24	2	8	153
Garfield Memorial Hospital [1-3-462]	Washington, D. C.	W. W. Chase	4,372	45	1	6	210
Georgetown University Hospital	Washington, D. C.	R J. Coffey	3,527	50	14	27	100
George Washington University Hospital [1-3-80]	Washington, D. C.	B. Blades	7,296	59	5	11	150
Providence Hospital [1-3]	Washington, D. C.	P. Caulfield	1,736	11	2	8	300
Duval Medical Center [1-3]	Jacksonville, Fla.	K. A. Morris	2,633	46	4	9	150
Jackson Memorial Hospital [1-3]	Miami, Fla.	J. J. Farrell	5,118	93	7	17	75
Grady Memorial Hospital [1]	Atlanta, Ga.	J. M. Howard	4,303	85	12	29	20
Piedmont Hospital [1]	Atlanta, Ga.	F. W. McRae	3,057	22	1	4	235
Medical College of Georgia Medical Center							
Eugene Talmadge Memorial Hospital	Augusta, Ga.	......	......	...	..	...	...
University Hospital [1]	Augusta, Ga	J. H. Sherman	2,216	14	12	33	200
Veterans Admin. Hospital [1-3]	Augusta, Ga.	C. M. Rhode	920	28	2	6	...
Emory University Hospital	Emory University, Ga.	J. D. Martin, Jr.	4,633	27	6	7	190
Cook County Hospital [1-3]	Chicago	K. A. Meyer	13,191	168	9	36	75
Mount Sinai Hospital [1-3]	Chicago	J. M. Greene	3,894	23	2	5	100
Northwestern University Medical Center							
Chicago Wesley Memorial Hospital [1-3]	Chicago	W. G. Maddock	3,128	31	4	7	75
Passavant Memorial Hospital	Chicago	L. Davis	1,893	18	2	5	50
Veterans Administration Research Hospital	Chicago	(See listing of Veterans Admin. Research Hospital on page 381)					
Evanston Hospital	Evanston, Ill.	(See listing of Evanston Hospital in following section)					
Presbyterian Hospital [1-109]	Chicago	E. J. Beattie, Jr.	2,615	35	4	12	125
St. Luke's Hospital [1-3]	Chicago	J. L. Lindquist	2,641	31	8	16	75
University of Chicago Clinics [1-3]	Chicago	L. R. Dragstedt	2,618	135	5	18	200
University of Illinois							
Research and Educational Hospitals [1-3]	Chicago	W. H. Cole	1,744	70	5	14	125
St. Francis Hospital [1]	Evanston, Ill.	D. P. Slaughter	3,061	41	3	9	175
Indianapolis General Hospital [1-3]	Indianapolis	J. Leffel	1,580	22	3	9	205
Indiana University Medical Center [1-123]	Indianapolis	H. B. Shumacker, Jr.	1,081	52	5	14	165
Iowa Methodist Hospital [1-3-125]	Des Moines, Iowa	R. A. Dorner	3,873	24	2	8	175
State University of Iowa Hospitals [1-3]	Iowa City	R. T. Tidrick	2,811	147	8	22	140
University of Kansas Medical Center [1-3]	Kansas City, Kan.	F. Allbritten	1,261	64	6	20	125
Louisville General Hospital [1-3-137]	Louisville, Ky.	R. J. Noer	1,886	48	6	19	83
Charity Hospital of Louisiana							
Independent Unit [1]	New Orleans	L. J. O'Neil	2,066	48	3	9	100
Louisiana State University Unit [1-141]	New Orleans	J. D. Rives	2,964	62	6	24	100
Tulane University Unit [1-145-146]	New Orleans	A. Ochsner	2,951	77	6	22	100
Confederate Memorial Medical Center [1]	Shreveport	P. D. Abramson	2,969	39	6	16	125
Maine General Hospital [1]	Portland, Maine	J. M. Parker	1,814	17	2	8	100
Baltimore City Hospitals [1-3]	Baltimore	M. M. Ravitch	2,310	74	6	18	50
Church Home and Hospital [1-3]	Baltimore	C. R. Edwards	3,573	25	4	9	200
Franklin Square Hospital [1-3]	Baltimore	H. E. Wilgis	2,539	17	3	6	225
Johns Hopkins Hospital [1-3-152]	Baltimore	A. Blalock	3,263	81	9	11	25
Mercy Hospital [1-3]	Baltimore	D. Pessagno	2,975	37	2	6	275
Sinai Hospital [1-3]	Baltimore	A. M. Seligman	2,939	32	4	11	110
Union Memorial Hospital [1-3]	Baltimore	E. S. Stafford	5,075	43	4	8	215
University Hospital [1-3]	Baltimore	R. W. Buxton	2,576	34	15	28	75
Beth Israel Hospital [1-3-164]	Boston	J. Fine	3,743	45	5	14	42
Boston City Hospital [1-3]	Boston	......	.....	...	24	69	112
I Surgical Service	Boston	C. G. Child	2,384	56	..	...	...
III Surgical Service	Boston	J. J. Byrne	2,413	53	..	...	...
V Surgical Service	Boston	J. E. Dunphy	2,281	59	..	...	...
Carney Hospital [1-3-168]	Boston	J. J. Todd	4,556	38	4	10	150
Massachusetts General Hospital [1-3-170]	Boston	E. D. Churchill	10,471	...	8	25	67
Massachusetts Memorial Hospitals [1-3-176]	Boston	R. Smithwick	1,800	32	6	29	25
New England Center Hospital [1-3-180]	Boston	A. A. Thibodeau	1,610	31	4	13	100
Peter Bent Brigham Hospital [1-3-182]	Boston	F. D. Moore	3,266	93	6	20	25
St. Elizabeth's Hospital [1-3-186]	Boston	J. W. Spellman	5,141	40	3	9	125
Cambridge City Hospital [1]	Cambridge, Mass.	J. B. Vernaglia	2,182	33	1	4	125
Springfield Hospital [1-3]	Springfield, Mass.	W. Fenn	6,684	79	6	14	150

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Memorial Hospital [1-3]	Worcester, Mass.	B. C. Wheeler	3,989	33	2	6	200
St. Vincent Hospital [1-3]	Worcester, Mass.	J. C. McCann	6,261	52	4	7	175
Worcester City Hospital [1-3]	Worcester, Mass.	E. J. Croce	2,227	37	2	6	215
St. Joseph Mercy Hospital [1-3]	Ann Arbor, Mich.	E. T. Thieme	1,510	12	4	7	250
University Hospital [1-3-463]	Ann Arbor, Mich.	F. A. Coller	2,399	81	8	25	154
Grace Hospital [1-3-197]	Detroit	R. P. Reynolds	8,207	52	4	16	275
Harper Hospital [1-3-191]	Detroit	E. A. Oslus	3,952	46	12	22	225
Henry Ford Hospital [1-3]	Detroit	L. S. Fallis	5,062	130	20	56	225
Receiving Hospital [1-3-202]	Detroit	C. G. Johnston	4,259	125	6	22	200
Wayne County General Hospital and Infirmary [1-3]	Eloise, Mich.	L. E. Lee, Jr.	3,235	101	8	24	306
Hurley Hospital [1-3]	Flint, Mich.	A. H. Kretchmar	4,640	65	2	8	325
Butterworth Hospital [1-3]	Grand Rapids, Mich.	H. M. Andre	3,335	48	3	8	225
Highland Park General Hospital [1]	Highland Park, Mich.	J. A. Witter	1,427	28	2	8	308
Minneapolis General Hospital [1-3]	Minneapolis	O. J. Campbell	943	76	6	14	185
University of Minnesota Hospitals [1-3-213]	Minneapolis	O. H. Wangensteen	1,776	92	9	29	185
Mayo Foundation [1]	Rochester, Minn.	......	12,638	140	35	142	150
Ancker Hospital [1-3]	St. Paul, Minn.	J. M. Culligen	1,688	85	2	8	185
University Hospitals [1]	Jackson, Miss.	J. D. Hardy	.....	...	..	...	...
Kansas City General Hospital No. 1 [1-3]	Kansas City, Mo.	R. R. Coffey	1,084	42	2	8	150
Barnes Hospital [1-3]	St. Louis	C. A. Moyer	2,843	71	23	26	50
Homer G. Phillips Hospital [1-3]	St. Louis	R. Elman	2,777	66	10	22	190
Jewish Hospital [1-3-222]	St. Louis	M. D. Pareira	2,950	29	3	8	100
Missouri Pacific Hospital [3]	St. Louis	R. A. Weir	1,779	15	5	11	200
St. Louis City Hospital [1-3]	St. Louis	......	3,235	71	4	15	190
St. Luke's Hospital [1-3]	St. Louis	C. E. Lischer	2,876	39	2	5	250
St. Mary's Group of Hospitals [1-3-226]	St. Louis	C. R. Hanlon	2,746	57	4	13	100
Creighton Memorial-St. Joseph's Hospital [1]	Omaha	H. H. McCarthy	4,328	45	3	12	175
University of Nebraska Hospital [1-3-235-236]	Omaha	M. M. Musselman	524	22	2	8	175
Dartmouth Medical Center		......	2,228	34	5	17	188
Mary Hitchcock Memorial Hospital [1-3]	Hanover, N. H.	R. E. Weismann	.....	...	..	..	...
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	W. B. Crandall	.....	...	..	..	...
Albany Hospital [1-3]	Albany, N. Y.	E. H. Campbell	3,201	69	4	11	160
Coney Island Hospital [1-3]	Brooklyn, N. Y.	J. E. Hammett	3,291	55	..	..	105
Jewish Hospital [1-3]	Brooklyn, N. Y.	L. Berger	2,884	13	6	9	100
Kings County Hospital							
County Service [1]	Brooklyn, N. Y.	J. F. Raycroft	4,202	73	5	14	104
University Service [1]	Brooklyn, N. Y.	C. Dennis	3,953	71	5	14	104
Long Island College Hospital [1-3]	Brooklyn, N. Y.	E. J. Browder	2,413	18	2	5	150
Maimonides Hospital [1-3]	Brooklyn, N. Y.	A. Hurwitz	2,620	20	5	9	75
Methodist Hospital [1-3]	Brooklyn, N. Y.	A. J. Vosseler	2,126	29	2	5	175
Wyckoff Heights Hospital [1-3-255]	Brooklyn, N. Y.	P. Zoller	2,454	18	3	12	100
Allied Hospitals of the Sisters of Charity [1-3]	Buffalo	F. M. Zaepfel	10,171	110	2	8	230
Buffalo General Hospital [1-3-260]	Buffalo	J. R. Paine	3,102	34	3	14	175
Edward J. Meyer Memorial Hospital [1-262]	Buffalo	J. D. Stewart	1,677	50	2	10	248
Millard Fillmore Hospital	Buffalo	H. N. Kenwell	5,051	20	2	8	285
Mary Imogene Bassett Hospital [1-3]	Cooperstown, N. Y.	J. H. Powers	1,387	16	2	5	145
Flushing Hospital and Dispensary [1-3]	Flushing, N. Y.	C. N. Baker	4,834	24	1	4	175
Queens Hospital Center [1-3]	Jamaica, N. Y.	L. J. Morse	1,246	158	4	10	105
Long Island Jewish Hospital	New Hyde Park, N. Y.	P. E. Lear	3,042	34	2	5	75
Bellevue Hospital Center							
Div. I—Columbia University [1-3-285]	New York City	K. M. Lewis, Sr.	1,812	21	6	13	105
Div. II—Cornell University [1-3-271]	New York City	C. W. Holman	1,787	20	3	15	105
Div. III—New York University College of Medicine [1-3-275]	New York City	J. Mulholland	2,709	24	8	19	105
Div. IV—New York University Post Graduate Medical School [1-3-282]	New York City	J. W. Hinton	2,250	24	2	10	105
Beth Israel Hospital [1-3-269]	New York City	L. Ginzburg	2,153	21	2	4	[illegible]
Bronx Municipal Hospital Center	New York City	C. B. Ripstein	123	4	6	18	[illegible]
Harlem Hospital [1-3]	New York City	A. D. Maynard	1,211	22	4	12	165
Lenox Hill Hospital [1-3]	New York City	F. M. Donehue-H. C. Maier	3,216	27	2	8	180
Lincoln Hospital [1-3]	New York City	F. H. Amendola	2,617	24	4	10	105
Montefiore Hospital [1-3-292]	New York City	E. Hurwitt	2,743	44	4	11	75
Mount Sinai Hospital [1-3]	New York City	J. H. Garlock	4,747	60	10	17	50
New York Hospital [1-3-294]	New York City	F. Glenn	4,725	61	8	29	116.67
New York Medical College-Metropolitan Medical Center							
Flower and Fifth Avenue Hospitals [1-3]	New York City	J. M. Winfield	4,634	34	6	7	...
Metropolitan Hospital [1-3]	New York City	J. M. Winfield	1,595	40	2	8	105
New York Polyclinic Medical School and Hospital [1-3]	New York City	R. E. Brennan	3,759	38	3	12	100
Presbyterian Hospital [1]	New York City	G. H. Humphreys, II	4,453	67	8	26	270
Roosevelt Hospital [1-3]	New York City	......	3,715	35	6	18	133
St. Clare's Hospital [1-3]	New York City	J. L. Madden	3,618	43	2	8	200
St. Luke's Hospital [1-3]	New York City	H. A. Zintel	3,596	54	4	10	100
St. Vincent's Hospital [1-3]	New York City	L. M. Rousselot	6,087	98	6	16	125
Genesee Hospital [1-3]	Rochester, N. Y.	E. Douglas	3,382	48	2	7	150
Rochester General Hospital [1-3-310]	Rochester, N. Y.	D. C. Houghton	3,604	35	3	12	125
St. Mary's Hospital [1-3]	Rochester, N. Y.	N. J. Pfaff	6,840	13	2	8	200
Strong Memorial-Rochester Municipal Hospital [1-3-311]	Rochester, N. Y.	W. J. M. Scott	2,939	120	8	25	92
State University of New York Upstate Medical Center Hospitals [1-3]	Syracuse, N. Y.	R. O. Gregg	11,823	169	10	21	192
Grasslands Hospital [1-3]	Valhalla, N. Y.	G. C. Adie	653	35	2	5	175
North Carolina Memorial Hospital [1-3]	Chapel Hill, N. C.	N. A. Womack	765	16	8	22	156
Duke University Hospital [1-3-323-324]	Durham, N. C.	D. Hart	2,171	23	12	22	127
North Carolina Baptist Hospital [1-3-325]	Winston-Salem, N. C.	H. H. Bradshaw	1,790	21	5	18	125
Akron City Hospital [1-3-327]	Akron, Ohio	S. A Schlueter	8,233	73	6	13	250
Akron General Hospital [1-327]	Akron, Ohio	R. T. Allison	4,598	23	4	13	250
St. Thomas Hospital [1-3]	Akron, Ohio	R. M. Bartlett	3,652	19	3	8	250
Cincinnati General Hospital [1-3-331]	Cincinnati	W. A. Altemeier	2,620	80	10	33	50
City Hospital [1-3]	Cleveland	F. A. Simeone	1,789	49	9	21	150
Cleveland Clinic Hospital [1-3]	Cleveland	R. S. Dinsmore	7,095	44	8	22	175
Lutheran Hospital [1-3]	Cleveland	J. H. Lazzari	5,782	27	2	5	250
Mount Sinai Hospital [1-3-338]	Cleveland	S. O. Freed[illegible]	2,580	32	5	11	215
St. John's Hospital [1-3]	Cleveland	F. T. [illegible]	2,052	8	2	6	170
St. Luke's Hospital [1-3]	Cleveland	D. M. [illegible]	3,745	55	2	8	120
St. Vincent Charity Hospital [1-3]	Cleveland	F. Vecchio	6,308	64	4	11	210
University Hospitals [1-3]	Cleveland	W. D. Holden	4,843	82	9	23	125
Ohio State University Hospitals							
University Hospital [1-3]	Columbus, Ohio	R. M. Zollinger	4,251	102	5	24	132
Lakewood Hospital [1-3]	Lakewood, Ohio	N. W. Thiessen	4,298	15	4	9	200
St. Elizabeth Hospital [1]	Youngstown, Ohio	A. Phillips	1,812	14	3	9	300
University of Oklahoma Hospitals [1-3-355]	Oklahoma City	F. M. Lingenfelter	1,392	32	3	12	85
St. Vincent's Hospital [1-3-358]	Portland, Ore.	A. Boyden	5,788	34	2	8	275
University of Oregon Medical School Hospitals and Clinics [360]	Portland, Ore.	W. K. Livingston	1,434	71	2	8	100
Abington Memorial Hospital [1-3]	Abington, Pa.	C. M. Smyth	2,519	41	1	4	130

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Geo. F. Geisinger Memorial Hospital and Foss Clinic [1-3]	Danville, Pa.	H. L. Foss	1,959	21	1	4	175
Harrisburg Hospital [1-3]	Harrisburg, Pa.	C. E. Moore	3,453	51	2	5	250
Germantown Dispensary and Hospital [1-3-370]	Philadelphia	S. D. Weeder	3,124	34	1	4	150
Graduate Hospital of the University of Pennsylvania [1-3]	Philadelphia	H. R. Hawthorne	1,440	16	2	4	...
Hahnemann Medical College and Hospital [3]	Philadelphia	W. L. Martin	2,801	34	3	12	75
Hospital of the University of Pennsylvania [1-3]	Philadelphia	I. S. Ravdin	5,111	104	10	29	125
Hospital of the Woman's Medical College of Pennsylvania [1-3]	Philadelphia	L. K. Ferguson	1,425	10	1	4	110
Jefferson Medical College Hospital [1-3]	Philadelphia	T. A. Shallow-J. Gibbon, Jr.	3,217	64	8	19	50
Lankenau Hospital [1-3]	Philadelphia	J. M. Deaver-G. C. Engel	2,218	19	2	8	100
Pennsylvania Hospital [1-3]	Philadelphia	J. W. Raker	1,634	33	12	12	20
Temple University Hospital [1-3]	Philadelphia	W. E. Burnett	2,393	38	..	..	...
Allegheny General Hospital [1]	Pittsburgh	J. A. Heberling	6,160	71	1	4	200
Mercy Hospital [1-3]	Pittsburgh	H. G. Kuehner	3,563	30	4	16	175
Pittsburgh Medical Center	Pittsburgh	S. P. Harbison	1,613	22	4	11	125
Western Pennsylvania Hospital [1-3]	Pittsburgh	G. V. Foster	6,995	91	5	12	225
Robert Packer Hospital [1-3]	Sayre, Pa.	D. Guthrie	2,491	39	2	6	200
York Hospital	York, Pa.	J. F. Bacon	5,916	32	1	4	225
Rhode Island Hospital [1-3]	Providence, R. I.	J. M. Beardsley	4,728	69	3	9	100
Roper Hospital [1-3]	Charleston, S. C.	F. E. Kredel	2,786	43	6	13	138
Greenville General Hospital [1-3]	Greenville, S. C.	L. C. Meyer	5,340	33	1	4	200
Baptist Memorial Hospital [1-3-359]	Memphis, Tenn.	R. M. Miles	4,071	30	2	7	150
City of Memphis Hospitals [1-3]	Memphis, Tenn.	H. Wilson	2,625	25	2	8	100
George W. Hubbard Hospital [1-3]	Nashville, Tenn.	M. Walker	998	15	3	12	125
Vanderbilt University Hospital [1-3]	Nashville, Tenn.	H. W. Scott	2,684	37	4	14	50
Baylor University Hospital [1-3]	Dallas, Texas	J. W. Duckett	3,577	18	3	9	160
Parkland Memorial Hospital [1-3]	Dallas, Texas	B. Wilson	1,481	34	7	16	50
University of Texas Medical Branch Hospitals [1-3]	Galveston, Texas	R. M. Moore	1,755	40	6	18	160
Baylor University College of Medicine Affiliated Hospitals							
Jefferson Davis Hospital [1-3]	Houston, Texas	M. E. De Bakey	1,728	70	6	16	150
Methodist Hospital [1-3]	Houston, Texas	L. L. D. Tuttle	2,620	40	2	4	220
Veterans Admin. Hospital [1-3]	Houston, Texas	G. L. Jordon, Jr.	1,916	56	6	15	...
Salt Lake County General Hospital	Salt Lake City	R. Richards	827	31	3	12	150
University of Vermont Affiliated Hospitals							
De Goesbriand Memorial Hospital [1-3]	Burlington, Vt.	A. A. Gladstone	1,050	15	1	3	100
Mary Fletcher Hospital [1-3-412]	Burlington, Vt.	A. G. MacKay	1,056	13	2	8	100
University of Virginia Hospital [1-3]	Charlottesville, Va.	W. H. Muller, Jr.	2,127	20	7	17	50
Chesapeake and Ohio Hospital [1-3]	Clifton Forge, Va.	J. M. Emmett	4,992	23	4	10	200
Norfolk General Hospital [1-3]	Norfolk, Va.	R. L. Payne, Jr.	2,476	33	4	8	185
Medical College of Virginia-Hospital Division [1-3-415-416]	Richmond, Va.	C. Williams, Sr.	5,008	64	5	23	50
King County Hospital Unit No. 1 (Harborview) [1-422-424]	Seattle	H. N. Harkins	1,721	82	6	11	125
Virginia Mason Hospital [1-3]	Seattle	J. W. Baker	4,462	54	3	11	150
University Hospitals [1-3-426]	Madison, Wis.	E. R. Schmidt	2,383	87	4	16	175
Milwaukee County Hospital [1-3]	Milwaukee	J. M. King	4,955	59	8	20	207
Milwaukee Hospital [1-3-430-435]	Milwaukee	I. Schulz	2,697	22	2	7	195
San Juan City Hospital [1-3]	San Juan, P. R.	J. Noya Benitez	1,244	19	2	8	150

Residencies programs in the following services have been approved for THREE years of training by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery. (See additional lists of approved four year and affiliated services, pages 376 through 379, 381 and 382.)

Hospitals, 218; Assistant Residencies and Residencies, 1,331

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
William Beaumont Army Hospital	El Paso, Texas	G. F. Peer	2,505	10	2	2	...

UNITED STATES NAVY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
U. S. Naval Hospital [1-3]	Great Lakes, Ill.	H. H. Eighmy	2,037	5	1	3	...

UNITED STATES PUBLIC HEALTH SERVICE

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
U. S. Public Health Service Hospital [1-3]	New Orleans	J. L. Elliott	2,775	16	1	3	...
U. S. Public Health Service Hospital [1-3]	Baltimore	H. D. Fishburn	2,778	57	2	6	...
U. S. Public Health Service Hospital [1-3]	Boston	O. C. Williams	3,464	9	1	3	...
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	J. D. Lane, Jr.	3,783	28	..	..	...
U. S. Public Health Service Hospital [1]	Seattle	P. E. Walker	2,621	20	2	6	...

VETERANS ADMINISTRATION

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Veterans Admin. Hospital [1-3-25]	Tuskegee, Ala.	A. G. Yancey	1,415	26	3	8	...
Veterans Admin. West Side Hospital [1-3-109]	Chicago	M. I. Gibbel	2,073	35	6	18	...
Veterans Admin. Hospital [1-3-233]	Lincoln, Neb.	B. R. Walske	1,852	15	2	6	...
Veterans Admin. Hospital [1-3-242]	East Orange, N. J.	A. H. Levy	855	27	3	12	...
Veterans Admin. Hospital [1-3-352]	Providence, R. I.	P. Cooper	2,270	44	4	10	...
Veterans Admin. Hospital [3]	Columbia, S. C.	K. M. Lippert	1,374	22	1	3	...
Veterans Admin. Hospital [1-3]	Martinsburg, W. Va.	I. Harrison	1,396	31	4	7	...
Veterans Admin. Hospital [1-3]	San Juan, P. R.	L. A. Passalacqua	1,761	7	2	6	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	C. N. Carraway-B. Carraway	879	14	2	6	250
Mobile County Hospital [1-3]	Mobile, Ala.	E. B. Frazer	843	18	2	4	250
Kern General Hospital [1]	Bakersfield, Calif.	R. F. Foote	1,212	40	4	8	325
Herrick Memorial Hospital [1-3]	Berkeley, Calif.	L. E. Brown	3,840	24	1	3	175
San Joaquin General Hospital	French Camp, Calif.	W. Brock	922	16	3	7	260
Glendale Sanitarium and Hospital [1]	Glendale, Calif.	J. Janzen	3,163	28	1	3	200
California Hospital	Los Angeles	W. H. Olds	2,427	22	7	19	150
Cedars of Lebanon Hospital [1-3]	Los Angeles	D. State	4,651	36	4	8	175
Hospital of the Good Samaritan [1-3]	Los Angeles	K. W. Blake	2,968	14	2	6	200
Queen of Angels Hospital [1-3]	Los Angeles	H. J. Lange	3,742	47	1	4	175
St. Vincent's Hospital [3]	Los Angeles	L. C. Bennett	3,768	8	1	3	200
White Memorial Hospital [1-3-28]	Los Angeles	A. I. Kugel	1,330	25	1	4	151
Mercy Hospital [1]	San Diego, Calif.	J. J. O'Hara	8,388	23	2	5	200
San Diego County General Hospital [1-3]	San Diego, Calif.	G. C. Franklin	971	33	4	7	150
St. Joseph's Hospital [1-3]	San Francisco	T. P. Shomaker	2,552	19	1	3	200
St. Luke's Hospital [1-3]	San Francisco	G. D. Delprat	4,692	19	3	5	200
St. Mary's Hospital [1-3]	San Francisco	T. J. Whalen	4,137	18	3	6	...
Southern Pacific General Hospital [1-3]	San Francisco	V. M. Strange	2,381	6	4	9	175
Mercy Hospital [1-3]	Denver	H. Buchtel	5,912	19	3	6	225
Presbyterian Hospital [1-3-53]	Denver	K. C. Sawyer	1,429	5	1	3	225
St. Anthony Hospital [1-3]	Denver	J. A. Pollice	1,450	7	1	3	175
St. Joseph's Hospital [1-3]	Denver	G. B. Packard	2,045	14	2	5	200
St. Luke's Hospital [1-3-54]	Denver	G. Wallgast	7,305	40	2	6	225

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
Bridgeport Hospital [1-3]	Bridgeport, Conn.	I. L. [illegible]	3,564	37	1	4	275
St. Francis Hospital [1-3]	Hartford, Conn.	L. A. [illegible]	4,090	37	2	4	125
Hospital of St. Raphael [3]	New Haven, Conn.	O. [illegible]	3,586	35	4	11	125
St. Mary's Hospital [1-3]	Waterbury, Conn.	J. F. Burke	2,364	32	2	5	225
Waterbury Hospital [1]	Waterbury, Conn.	A. E. Herrmann	3,565	63	1	4	225
Doctors Hospital [1-3]	Washington, D. C.	C. S. White	4,586	48	1	3	150
St. Vincent's Hospital [1-3-87]	Jacksonville, Fla.	F. Waas	4,001	51	5	9	225
Mount Sinai Hospital of Greater Miami [1-8]	Miami Beach, Fla.	R. M. Fleming	3,961	50	1	3	250
Tampa Municipal Hospital [1-3]	Tampa, Fla.	W. C. Myers, Jr.	6,022	71	1	3	250
Crawford W. Long Memorial Hospital [1-3]	Atlanta, Ga.	C. E. Holloway	5,468	31	6	10	110
Georgia Baptist Hospital [1]	Atlanta, Ga.	W. S. Dorough	8,752	33	2	7	290
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	D. Shepard	4,318	29	1	7	165
American Hospital [1-3]	Chicago	M. Thorek-P. Thorek	2,255	32	5	5	65
Augustana Hospital [1-3]	Chicago	N. M. Percy	3,352	49	3	6	150
Grant Hospital [1]	Chicago	C. K. Solander	1,601	13	1	2	225
Illinois Central Hospital [1-3]	Chicago	C. C. Guy	2,115	30	2	4	205
Illinois Masonic Hospital [1-3]	Chicago	P. Shambaugh	1,595	22	1	1	115
Mercy Hospital [1-3-94]	Chicago	H. A. Oberhelman	2,406	41	4	10	100
Michael Reese Hospital [1-3]	Chicago	N. Crohn	2,842	68	2	8	75
Provident Hospital [1-3]	Chicago	G. Shropshear	632	33	1	3	200
St. Joseph Hospital [1-3]	Chicago	F. B. McCarty	2,272	19	1	3	300
St. Mary of Nazareth Hospital [1-3]	Chicago	E. H. Warszewski	3,292	26	3	6	150
Evanston Hospital [1-3]	Evanston, Ill	J. M. Dorsey	1,469	25	1	3	225
St. Francis Hospital [1-3]	Peoria, Ill.	C. D. Branch	1,219	40	1	3	225
Clinic Hospital [3-122]	Bluffton, Ind.	H. D. Caylor	604	11	1	3	300
Methodist Hospital [1-3]	Indianapolis	J. E. Owen	6,152	56	2	6	278
St. Vincent's Hospital [1-3]	Indianapolis	W. D. Gatch	5,218	19	1	3	275
St. Elizabeth's Hospital [1]	Lafayette, Ind.	R. E. Gery	1,444	17	2	2	225
St. Margaret's Hospital	Kansas City, Kan.	M. V. Laing	5,534	79	1	3	350
Wesley Hospital [1-3]	Wichita, Kan.	B. P. Meeker	1,633	8	1	3	175
St. Joseph Hospital	Lexington, Ky.	F. M. Massie	1,676	25	3	8	210
St. Joseph Infirmary [1-3]	Louisville, Ky.	R. Moore, Jr.	6,565	20	2	6	210
Ochsner Foundation Hospital [1-115]	New Orleans	A. Ochsner	1,825	22	7	27	225
Touro Infirmary [1]	New Orleans	L. Strug	4,061	40	2	6	125
Lutheran Hospital [1-3]	Baltimore	W. E. Gilmore	2,457	..	3	6	220
Maryland General Hospital [1-3]	Baltimore	W. M. Firor	3,262	34	5	8	225
Provident Hospital and Free Dispensary [1-3]	Baltimore	S. McLanahan	1,108	8	3	8	150
St. Joseph's Hospital [3]	Baltimore	W. E. Grose	1,872	19	2	6	225
South Baltimore General Hospital [1-3]	Baltimore	G. H. Yeager	2,664	24	4	10	150
Prince George's General Hospital [1-3]	Cheverly, Md	S. Schwartzbach	3,961	25	2	2	200
Beverly Hospital [103]	Beverly, Mass.	R. E. Alt	2,596	34	2	5	150
Mount Auburn Hospital [1-3]	Cambridge, Mass.	S. J. G. Nowak	3,198	36	1	3	125
Malden Hospital [1-3]	Malden, Mass.	W. E. Garrey	2,435	25	3	6	175
Newton-Wellesley Hospital [1-3]	Newton, Mass.	R. I. Smith	2,348	20	2	4	170
Quincy City Hospital [1-3]	Quincy, Mass.	J. M. McGowan	4,916	26	1	4	163
Leila Y. Post Montgomery Hospital [1-3]	Battle Creek, Mich.	R. L. Mustard	904	10	1	2	275
Alexander Blain Hospital	Detroit	A. Nahoum	1,297	3	2	8	250
Detroit Memorial Hospital [1]	Detroit	E. F. Eldredge	4,340	28	2	4	275
Mount Carmel Mercy Hospital [1-3]	Detroit	T. A. Boutrous	11,312	18	4	13	225
Providence Hospital [1]	Detroit	W. G. Quigley	6,987	44	1	3	275
St. John Hospital [1-3]	Detroit	C. J. France	1,727	3	1	3	275
St. Joseph Mercy Hospital	Detroit	L. B. Sarat	4,179	30	1	3	275
Sinai Hospital [1-3]	Detroit	M. P. Meyers	3,605	28	2	6	275
McLaren General Hospital [1]	Flint, Mich.	E. P. Vary	5,938	33	2	5	325
Blodgett Memorial Hospital [1-3]	Grand Rapids, Mich.	W. R. Torgerson	1,862	30	1	4	250
St. Mary's Hospital [1-3]	Grand Rapids, Mich.	F. Gillett	1,612	11	1	3	200
Bronson Methodist Hospital [1]	Kalamazoo, Mich.	P. F. Cooper	2,757	46	1	5	200
Pontiac General Hospital [1-3]	Pontiac, Mich.	R. W. Bullard, Jr.	5,180	41	1	3	300
Saginaw General Hospital [1-3]	Saginaw, Mich.	H. M. Bishop	3,205	34	1	3	325
Mount Sinai Hospital [1-3]	Minneapolis	M. Binder	1,502	16	1	3	200
St. Barnabas Hospital [1-3]	Minneapolis	B. A. Smith-J. H. Strickler	1,592	8	2	2	235
Mayo Foundation [1]	Rochester, Minn.	....	12,638	140	35	142	150
Charles T. Miller Hospital [1-3]	St. Paul, Minn.	B. G. Lannin	2,184	40	1	4	185
Mercy Hospital—Street Memorial [1-3]	Vicksburg, Miss.	G. H. Martin	2,791	11	1	3	225
Vicksburg Hospital	Vicksburg, Miss.	W. H. Parsons	1,596	9	1	4	30
St. Louis County Hospital [1-3]	Clayton, Mo.	B. L. Sinner	403	17	3	8	225
Kansas City General Hospital No. 2 [1-3]	Kansas City, Mo.	R. E. Allen	1,024	23	2	6	150
St. Joseph Hospital [1-3]	Kansas City, Mo.	V. T. Williams	7,078	58	1	4	250
St. Luke's Hospital [1-3]	Kansas City, Mo.	I. S. Brown	1,484	13	2	5	175
St. Mary's Hospital [1-3]	Kansas City, Mo.	M. S. Harless	5,420	38	1	3	275
De Paul Hospital [1-3]	St. Louis	J. W. Thompson	4,666	21	2	5	200
Missouri Baptist Hospital [1-3]	St. Louis	D. J. Verda	2,179	37	2	7	175
St. John's Hospital [1-3]	St. Louis	G. T. Gafney	3,218	38	2	5	200
Atlantic City Hospital [1-3]	Atlantic City, N. J.	J. H. Mason, III	4,455	28	1	3	200
Cooper Hospital [1-3]	Camden, N. J.	E. R. Ristine	2,608	59	1	3	200
West Jersey Hospital [1-3]	Camden, N. J.	K. L. Athey	3,966	11	1	3	225
Jersey City Medical Center [1-3]	Jersey City, N. J.	E. J. Halligan	5,131	83	8	27	92
Burlington County Hospital [1]	Mount Holly, N. J.	T. J. Summey	1,670	13	1	3	100
Harrison S. Martland Medical Center [1-3]	Newark, N. J.	C. MacArthur	1,857	39	3	9	162
Hospital of Saint Barnabas and for Women and Children [1-3]	Newark, N. J.	M. J. O'Grady	225	4	1	4	150
Newark Beth Israel Hospital	Newark, N. J.	E. V. Parsonnet	8,631	47	1	4	100
St. Francis Hospital [1-3]	Trenton, N. J.	L. S. Slea	4,618	102	2	5	210
Beth El Hospital [1-3]	Brooklyn, N. Y.	H. Neuhof	3,013	18	3	6	125
Brooklyn Hospital [1-3]	Brooklyn, N. Y.	W. H. Field	3,025	30	4	10	165
Cumberland Hospital [1-3-255]	Brooklyn, N. Y.	J. J. Gainey	1,243	13	3	7	105
Greenpoint Hospital [1-3]	Brooklyn, N. Y.	S. Schussheim	2,458	15	2	6	105
Norwegian Lutheran Deaconesses' Home and Hospital [1-3]	Brooklyn, N. Y.	R. P. San Filippo	2,100	55	1	3	185
St. Catherine's Hospital [1-3]	Brooklyn, N. Y.	J. McCabe	3,382	17	1	4	150
St. John's Episcopal Hospital [1-3]	Brooklyn, N. Y.	M. N. Foote	2,442	26	1	3	175
Clifton Springs Sanitarium and Clinic [1-8]	Clifton Springs, N. Y.	R. M. Price	1,986	16	1	3	150
Elmhurst General Hospital [1-3-468]	Elmhurst, N. Y.	D. N. Marks	2,093	28	1	3	105
Meadowbrook Hospital	Hempstead, N. Y.	J. N. Shell	2,184	70	4	10	225
Jamaica Hospital [1-3]	Jamaica, N. Y.	E. J. Patterson	3,664	27	1	4	200
Mary Immaculate Hospital [1-8-271]	Jamaica, N. Y.	V. Juster	4,705	43	4	10	160
Charles S. Wilson Memorial Hospital [1-3]	Johnson City, N. Y.	C. Steenburg	4,720	29	3	9	225
Nassau Hospital [3]	Mineola, N. Y.	W. Freese	3,449	20	1	4	225
New Rochelle Hospital [1-8]	New Rochelle, N. Y.	G. C. Adie	6,364	24	1	3	225
Beth David Hospital [1-8]	New York City	L. Breidenbach	2,654	20	1	3	125
Bronx Hospital [1-3]	New York City	R. Friedlander	2,810	25	4	10	60
Fordham Hospital [1-8]	New York City	H. H. Janes-A. B. Sullivan	2,555	50	2	6	105
French Hospital [1-3]	New York City	H. B. Keyes	3,295	13	1	4	50
Morrisania City Hospital [1-8]	New York City	R. J. Azzari	1,068	19	2	6	105
St. Francis Hospital [1-8]	New York City	....	.....	..	1	4	125

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [*]	Total Residencies Offered [*]	Beginning Stipend (Month)
Highland Hospital [1-3]	Rochester, N. Y.	H. R. Ziegler	4,153	30	2	5	175
Ellis Hospital [1-3]	Schenectady, N. Y.	S. F. MacMillan	4,402	75	1	4	150
Charlotte Memorial Hospital [1]	Charlotte, N. C.	J. M. Van Hoy	2,041	14	1	4	250
Lincoln Hospital [1-3]	Durham, N. C.	H. M. Schiebel	678	4	2	3	175
Rex Hospital [1]	Raleigh, N. C.	J. W. Neal	2,285	19	1	3	200
City Memorial Hospital [1]	Winston-Salem, N. C.	J. F. Marshall	1,850	8	1	3	300
Aultman Hospital [1-3]	Canton, Ohio	W. R. Farrar	5,402	61	5	12	275
Mercy Hospital [1-3]	Canton, Ohio	L. B. Schumaker	5,716	31	8	18	200
Christ Hospital [1]	Cincinnati	E. A. Kindel	2,643	43	2	5	200
Good Samaritan Hospital [1-3-337]	Cincinnati	R. J. Tapke	2,468	16	2	8	250
Jewish Hospital [1-3-337]	Cincinnati	J. R. Mack	6,059	50	5	12	145
St. Mary's Hospital [1-3]	Cincinnati	R. Mansfield	1,385	15	1	3	250
Evangelical Deaconess Hospital [1-3]	Cleveland	J. H. Lazzari	2,455	21	1	3	150
Huron Road Hospital [1-3]	Cleveland	O. J. Fronck	3,031	42	3	7	210
St. Alexis Hospital [1-3]	Cleveland	C. R. Lulenski	5,623	60	3	8	250
Mount Carmel Hospital [1]	Columbus, Ohio	W. H. Teachnor	5,535	60	1	3	275
White Cross Hospital [1-3]	Columbus, Ohio	E. M. Fusco	4,563	28	2	4	275
Miami Valley Hospital [1-3]	Dayton, Ohio	R. D. Arn	2,630	36	2	6	250
Marymount Hospital [1-3]	Garfield Heights, Ohio	W. E. Mishler	2,680	8	2	6	200
St. Rita's Hospital [1-3]	Lima, Ohio	C. H. Leech	5,773	38	1	3	275
Maumee Valley Hospital [1-3]	Toledo, Ohio	W. W. Beck	556	42	2	6	225
Mercy Hospital [1-3]	Toledo, Ohio	H. L. Hauman	5,376	47	1	4	275
St. Vincent's Hospital [1-3]	Toledo, Ohio	B. G. Shaffer	4,838	35	1	3	275
Youngstown Hospital [1-3]	Youngstown, Ohio	W. K. Allsop	10,085	90	2	8	175
St. Anthony Hospital	Oklahoma City	L. J. Starry	5,680	47	1	3	150
St. John's Hospital [1-3]	Tulsa, Okla.	T. J. Hardman	5,440	39	4	11	175
Allentown Hospital [1-3]	Allentown, Pa.	R. L. Schaeffer	9,102	72	1	3	225
Sacred Heart Hospital [1-3]	Allentown, Pa.	C. A. Holland	5,126	61	1	3	225
St. Luke's Hospital [1]	Bethlehem, Pa.	D. P. Walker	3,819	53	2	4	275
Bryn Mawr Hospital [1-3]	Bryn Mawr, Pa	F R Robbins	3,716	39	1	4	200
Hamot Hospital [1-3]	Erie, Pa.	B. Goldman	5,207	59	1	3	200
St. Vincent's Hospital	Erie, Pa.	J. E. O'Brien	5,316	49	1	3	100
Harrisburg Polyclinic Hospital [1]	Harrisburg, Pa.	W. K. McBride	4,452	45	2	6	300
St. Joseph's Hospital [1]	Lancaster, Pa	J L. Atlee, Jr.	3,810	42	1	3	200
Albert Einstein Medical Center							
Northern Division [1-3]	Philadelphia	R. Goldsmith	3,515	75	3	9	150
Southern Division [1]	Philadelphia	A. Ulin	1,916	42	1	3	150
Episcopal Hospital [1-3]	Philadelphia	J. W. Klopp-G. P. Rosemond	1,796	32	2	6	150
Methodist Episcopal Hospital [1-3]	Philadelphia	G. Willauer	1,852	14	1	4	150
Philadelphia General Hospital [1-3]	Philadelphia	G. Rosemond	2,677	110	7	7	114
Presbyterian Hospital [1-3]	Philadelphia	F. A. Bothe	2,996	52	2	6	150
Woman's Hospital [1-3]	Philadelphia	C. M. Smyth, Jr.	1,267	...	1	1	175
Montefiore Hospital [1-3]	Pittsburgh	Y D. Koskoff	5,431	44	1	3	225
St. Francis General Hospital and Rehabilitation Institute [1]	Pittsburgh	H. E. Feather	3,202	19	1	4	200
Reading Hospital [1-3]	Reading, Pa	C. B. Rentschler	1,658	23	1	3	225
St. Joseph's Hospital [1-3]	Reading, Pa	R. R. Impink	1,274	19	1	4	250
Williamsport Hospital [1-3]	Williamsport, Pa	F. E Sanford	2,518	17	1	3	225
Columbia Hospital of Richland County	Columbia, S C	G. T McCutchen	3,384	34	1	3	175
Sacred Heart Hospital [1]	Yankton, S. Dak	C B. McVay	2,081	20	1	4	300
Baroness Erlanger Hospital [1-3]	Chattanooga, Tenn.	V Fletcher	2,677	19	8	14	150
Methodist Hospital	Memphis, Tenn	J. M Aste	7,593	36	2	6	150
St Joseph Hospital [1-3-390]	Memphis, Tenn	A. J Grobmyer	1,425	11	1	5	150
Baptist Hospital [1-3]	Nashville, Tenn	J Kirtley	1,711	6	4	10	175
Nashville General Hospital [1-3]	Nashville, Tenn.	O. F. Noel	1,524	14	3	8	150
St. Thomas Hospital [1-3]	Nashville, Tenn	W R. Cate, Jr.	4,772	23	2	8	200
Brackenridge Hospital [1-3-391]	Austin, Texas	R. Ross	1,650	29	1	4	200
Methodist Hospital [1-3]	Dallas, Texas	B. E. Park	2,976	12	3	7	125
Hermann Hospital [1-3]	Houston, Texas	G. Waldron	4,993	33	1	6	100
St. Joseph's Hospital [3-401]	Houston, Texas	J. P. Barnes	4,189	32	1	4	225
Robert B. Green Memorial Hospital [1-3-407]	San Antonio, Texas	A. W. Hartman-A. R. McComb	2,421	46	4	10	150
Dr. W. H. Groes Latter-Day Saints Hospital [3]	Salt Lake City	V. L. Rees	5,120	39	2	8	200
De Paul Hospital [1-3]	Norfolk, Va.	J. Vann	2,661	18	1	3	200
Johnston-Willis Hospital [1-3]	Richmond, Va.	F. S Johns	3,515	3	1	3	250
Jefferson Hospital [1-3]	Roanoke, Va.	H H Trout, Jr	956	12	2	4	200
Swedish Hospital [1-3]	Seattle	E. B Speir	2,278	2	1	3	150
Beckley Hospital [1-3]	Beckley, W. Va	H. F. Cooper	2,828	15	1	4	250
Charleston General Hospital [1-3]	Charleston, W. Va	V. Skaff	2,783	17	2	8	225
Kanawha Valley Hospital [3]	Charleston, W Va	J C. Condry	951	..	1	3	200
Memorial Hospital [1-3]	Charleston, W. Va	B. Bradford, Jr.	1,677	15	2	5	225
St. Marys Hospital [1-3]	Huntington, W. Va.	F L. Coffey	2,123	13	2	4	200
Broaddus Hospital [1-3]	Philippi, W. Va	H. C. Myers	1,248	52	1	3	200
Ohio Valley General Hospital [1-3]	Wheeling, W. Va.	J. O. Rankin	3,486	24	1	3	300
Madison General Hospital [1-3]	Madison, Wis.	S B. Harper	3,836	26	1	4	150
Columbia Hospital [1-3-434]	Milwaukee	F. Raine	1,195	7	2	4	195
St. Joseph's Hospital [1-3]	Milwaukee	C. Conroy	6,086	68	2	6	300
Gorgas Hospital [1]	Ancon Canal Zone	E. P. Shirokov	2,707	25	2	6	345
Queen's Hospital [1]	Honolulu, T. H.	J. E Strode	2,547	21	2	7	150
Bayamon District Hospital [1-3]	Bayamon, P. R	J. M Bertran	1,500	81	1	3	150

Residency programs in the following hospitals approved by the Council, the American Board of Surgery and the American College of Surgeons through the Conference Committee on Graduate Training in Surgery, offer training in surgery of less than three years' duration, which is integrated with or contributory to a fully approved program.

(See also additional lists of approved four and three year services, pages 376 through 381.)

Hospitals, 40; Assistant Residencies and Residencies, 153

FEDERAL

VETERANS ADMINISTRATION

Veterans Admin. Research Hospital [1]	Chicago	F. W. Preston	810	68	6	12	...
Veterans Admin. Hospital [1-3]	Wichita, Kan.	A. H. Hinshaw	1,495	42	1	4	...
Veterans Admin. Hospital [1-3]	Durham, N. C.	R. W. Postlethwait	974	17	4	7	...

NONFEDERAL

Samuel Merritt Hospital [1-12]	Oakland, Calif.	A. J. Hunnicutt	2,792	20	..	2	195
Children's Hospital [1-3]	San Francisco	F. C. Bost	1,013	4	1	2	125
French Hospital [1-3]	San Francisco	W. L. Rogers	2,824	22	2	3	150
Community Hospital of San Mateo County	San Mateo, Calif.	K. H. Prindle	424	16	1	2	500
Santa Barbara General Hospital	Santa Barbara, Calif.	R. J. Rhorer	280	...	..	..	...
Children's Hospital [1-3]	Denver	C. G. Freed	1,186	32	..	2	150
Children's Memorial Hospital [1-3]	Chicago	W. J. Potts	2,226	30	..	2	125
Henrotin Hospital [1]	Chicago	C. B. Puestow	1,309	19	1	1	200
Broadlawns—Polk County Hospital [1]	Des Moines, Iowa	W. H. Myerly	868	24	..	2	150

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Norton Memorial Infirmary[1-3]	Louisville, Ky.	J. E. Maurer	1,826	18	3	5	200
Lafayette Charity Hospital[1]	Lafayette, La.	J. D. Rives	1,032	13	2	2	450
Lawrence F. Quigley Memorial Hospital[1-3]	Chelsea, Mass.	H. H. Howard	1,097	21	..	4	225
Truesdale Hospital[1-3]	Fall River, Mass.	C. H. Hawes	2,136	...	4	4	150
Lynn Hospital[1-3]	Lynn, Mass.	C. F. Twomey	1,342	27	2	2	150
Salem Hospital[1-3]	Salem, Mass.	W. G. Phippen	1,352	9	1	1	125
Pondville Hospital[1]	Walpole, Mass.	E. M. Daland	.....	...	..	4	490
Westfield State Sanatorium[1-3]	Westfield, Mass.	F. S. Hopkins	715	32	..	3	490
Ellis Fischel State Cancer Hospital[1-3]	Columbia, Mo.	N. D. Rodes	1,340	43	..	6	200
Francis Delafield Hospital[1-3]	New York City	G. H. Humphreys, II	732	87	4	14	105
Goldwater Memorial Hospital[1-3-200]	New York City	B. Shafiroff	433	11	2	8	104
Gouverneur Hospital[1-3]	New York City	....	631	11	9	9	105
Knickerbocker Hospital[1-3]	New York City	R. H. Patterson	2,837	16	9	9	100
United Hospital[1-3]	Port Chester, N. Y.	G. O. Tremble	3,096	38	2	2	200
Mary Day Nursery and Children's Hospital[1-3]	Akron, Ohio	R. T. Allison	1,686	12	2	6	250
Children's Hospital[1]	Cincinnati	W. A. Altemeier	1,568	21	..	..	...
Children's Hospital[1-3]	Columbus, Ohio	H. W. Clatworthy	1,452	20	..	2	175
Good Samaritan Hospital[1-3]	Dayton, Ohio	F. Miller	5,333	29	2	2	250
Holzer Hospital[1]	Gallipolis, Ohio	M. J. Magnussen	2,784	17	..	1	150
Easton Hospital[1-3]	Easton, Pa.	T. C. Zulick, Jr.	1,655	26	2	2	250
Children's Hospital[1-3]	Philadelphia	C. E. Koop	2,283	26	2	4	67
Children's Hospital[1-3]	Pittsburgh	W. B. Kiesewetter	841	7	1	1	125
Gaston Hospital	Dallas, Texas	J. V. Goode	.....	...	..	..	250
University of Texas M. D. Anderson Hospital and Tumor Institute[1-3-401]	Houston, Texas	E. C. White	1,066	35	..	14	300
Holy Cross Hospital[1-3]	Salt Lake City	R. R. Robinson	3,731	35	3	3	175
Lynchburg General Hospital[1-3]	Lynchburg, Va.	J. E. Haynsworth	2,109	20	1	2	200
Children's Orthopedic Hospital[1]	Seattle	H. E. Coe	991	19	..	..	...
Chesapeake and Ohio Hospital[1-3]	Huntington, W. Va.	J. E. Parsons-J. M. Emmett	5,529	20	4	4	200

Residencies programs in the following hospitals are approved by the Council as offering satisfactory training of ONE or TWO years' duration in preparation for residency training in the surgical specialities only. Applicants intending to qualify for examination by the American Board of Surgery should refer to the lists of approved services on pages 376 through 382. (Surgical Residencies, J.A.M.A., *156:432, Sept. 25, 1954.*)

Hospitals, 119; Assistant Residencies and Residencies, 302

FEDERAL

UNITED STATES ARMY

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
U. S. Army Hospital[1-3]	Fort Campbell, Ky.	E. C. Lineberger	7,236	12	4	4	...
U. S. Army Hospital[1]	Fort Knox, Ky.	C. A. Owen	4,179	4	2	2	...
U. S. Army Hospital[1]	Fort Bragg, N. C.	F. E. Hagman	8,838	79	2	2	...
Valley Forge Army Hospital[1]	Phoenixville, Pa.	W. R. Matuska	3,038	12	4	4	...
U. S. Army Hospital[1]	Fort Belvoir, Va.	F. H. Van Wagoner	5,321	31	4	4	...
Madigan Army Hospital	Tacoma, Wash.	E. J. Doyle	1,722	5	2	2	...

UNITED STATES AIR FORCE

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
U. S. Air Force Hospital[1-3]	Rantoul, Ill.	O. K. Park	900	...	1	1	...
U. S. Air Force Hospital[1-3]	San Antonio, Texas	D. Gold	1,686	4	2	2	...
U. S. Air Force Hospital	Wichita, Falls, Texas	M. N. Jensen	1,080	10	2	2	...

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered[8]	Total Residencies Offered[8]	Beginning Stipend (Month)
Good Samaritan Hospital[1]	Phoenix, Ariz.	D. W. Melick	7,075	30	2	2	250
St. Joseph's Hospital[1-3]	Phoenix, Ariz.	D. Polson	2,518	13	1	3	300
St. Mary's Hospital and Sanitorium[1-3]	Tucson, Ariz.	D. J. Helm	4,538	23	4	4	250
Tucson Medical Center[1-3]	Tucson, Ariz.	G. D. Boone	997	8	3	3	250
Arkansas Baptist Hospital	Little Rock, Ark.	G. W. Reagan, Sr.	2,499	14	1	1	250
General Hospital of Riverside County[1]	Arlington, Calif.	....	524	23	1	1	[illegible]
Seaside Memorial Hospital[1-3]	Long Beach, Calif.	S. G. Pearson	2,205	10	4	4	150
Santa Fe Coast Lines Hospital	Los Angeles	L. Chaffin	1,189	4	2	2	250
Collis P. and Howard [illegible] Memorial Hospital[1-3]	Pasadena, Calif.	C. F. Doehring	3,418	38	3	3	200
Sa[illegible]rity Hospital	San Bernardino, Calif.	R. Seavers	746	33	4	5	190
M[illegible]	San Francisco	E. Carlson	1,414	9	1	2	200
St[illegible]	Santa Monica, Calif.	J. F. Roberts	1,478	11	1	1	200
C[illegible]	Pueblo, Colo.	H. H. Kerr	634	28	5	5	415
Greenwich Hospital[illegible]	Greenwich, Conn.	H. P. Serrell	3,116	40	1	1	150
Hartford Municipal Hospital and Health Center[1-3]	Hartford, Conn.	C. Kelly	485	17	1	2	250
Meriden Hospital[1-3]	Meriden, Conn.	F. Guiffrida	1,989	11	2	2	200
Lawrence and Memorial Associated Hospitals[1-3]	New London, Conn.	F. B. Hartman	4,252	20	3	3	270
Norwalk Hospital[1-3]	Norwalk, Conn.	E. C. Beck	1,694	13	2	2	100
Sibley Memorial Hospital[1-3]	Washington, D. C.	P. S. Putzki	5,905	11	..	3	200
Riverside Hospital[1-3]	Jacksonville, Fla.	T. Moseley	851	...	1	1	170
St. Luke's Hospital[1-3]	Jacksonville, Fla.	R. Thompson	4,285	15	2	2	225
St. Francis Hospital[1-3]	Miami Beach, Fla.	J. H. Tanous	720	7	2	2	200
Orange Memorial Hospital[1-3]	Orlando, Fla.	F. D. Gray	1,701	25	4	4	150
Mound Park Hospital[1-3]	St. Petersburg, Fla.	C. Franckle	1,451	18	1	1	234
Mac Neal Memorial Hospital[1-3]	Berwyn, Ill.	R. Mrazek	2,168	24	2	2	225
Englewood Hospital[3]	Chicago	J. M. Levenson	3,079	7	1	1	200
Hospital of St Anthony De Padua[1-3]	Chicago	W. R. Sladek	3,692	23	2	2	250
Norwegian American Hospital[1-3]	Chicago	I. Isoe	746	7	2	2	225
Ravenswood Hospital[1-3]	Chicago	C. Noggle	2,504	43	2	2	100
St. Anne's Hospital[1-3]	Chicago	P. F. Fox	4,904	26	2	2	250
Woodlawn Hospital[1]	Chicago	H. P. Jenkins	1,112	7	1	1	200
Little Company of Mary Hospital[1-3]	Evergreen Park, Ill.	D. G. Sullivan	4,931	22	2	6	175
Methodist Hospital of Central Illinois[3]	Peoria, Ill.	W. H. Eastman	6,446	4	4	4	200
St. Anthony Hospital[1-3]	Rockford, Ill.	R. G. Smith	4,368	7	1	2	200
Ball Memorial Hospital[1]	Muncie, Ind.	A. G. Hurley	4,876	38	1	1	270
Mercy Hospital[1-3]	Iowa City	G. H. Scanlon	2,001	11	2	2	200
St. Francis Hospital[1-3]	Wichita, Kan.	J. H. Holt	3,473	50	2	4	225
Good Samaritan Hospital[3]	Lexington, Ky.	A. E. Grimes	2,131	16	1	1	225
Hotel Dieu-Sisters Hospital[1]	New Orleans	M. Salatich	3,232	18	2	4	225
Ochsner Foundation Hospital[1]	New Orleans	A. Ochsner	.....	...	..	..	...
Central Maine General Hospital[1]	Lewiston, Maine	W. V. Cox	3,245	54	1	1	225
Bon Secours Hospital[3]	Baltimore	S. G. Sullivan	1,220	7	1	2	200
New England Hospital[1-3]	Boston	A. Brown	1,810	4	2	2	75
Burbank Hospital[1]	Fitchburg, Mass.	F. P. Ross	3,343	36	2	3	250
Jennings Memorial Hospital[1-3-208]	Detroit	J. B. Hartzell	730	4	..	2	350
Woman's Hospital[1-3]	Detroit	J. R. Brown	3,342	17	1	2	275
Borgess Hospital[1-3]	Kalamazoo, Mich.	J. Hammer	3,520	114	1	1	225
Edward W. Sparrow Hospital[1-3]	Lansing, Mich.	S. H. Rutledge	6,377	59	2	3	400

Numerical and other references will be found on pages 387 through 390.

26. SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
St. Joseph Mercy Hospital [1-3]	Pontiac, Mich.	C. G. Darling	2,043	20	2	6	325
Swedish Hospital [1-3]	Minneapolis	A. Russeth	8,591	49	3	3	200
Menorah Medical Center [1-3]	Kansas City, Mo.	P. H. Halperin	4,765	31	3	6	300
Missouri Methodist Hospital [1]	St. Joseph, Mo.	H. L. Warres	4,431	41	3	3	225
St. Anthony's Hospital [1-3]	St. Louis	B. L. Sinner	3,690	18	1	1	150
St. Elizabeth Hospital [1-3]	Lincoln, Neb.	R. F. Mueller	3,857	30	3	3	350
Hackensack Hospital [1-3]	Hackensack, N. J.	A. I. Mader, Jr.	4,026	32	1	3	150
Monmouth Memorial Hospital [1-3]	Long Branch, N. J.	H. Kazmann	2,626	50	1	3	200
Mountainside Hospital [1-3]	Montclair, N. J.	H. Wesson	4,809	177	1	1	175
Morristown Memorial Hospital [1-3]	Morristown, N. J.	G. H. Laudig	3,919	31	1	1	185
Fitkin Memorial Hospital [1-3]	Neptune, N. J.	M. Q. Hancock	2,517	46	1	1	200
Presbyterian Hospital [1-3]	Newark, N. J.	G. F. Hewson	5,448	65	3	3	125
Orange Memorial Hospital [1-3]	Orange, N. J.	W. H. Glass	4,372	38	1	3	150
Deaconess Hospital [1-3]	Buffalo	E. T. McGroder	4,627	27	2	6	300
Columbus Hospital [2]	New York City	V. Carabba	2,292	18	2	2	125
Hospital for Joint Diseases [1-3]	New York City	P. Klingenstein	906	8	4	4	80
Jewish Memorial Hospital [1-3]	New York City	B. Sherwin	2,137	16	1	1	150
Lebanon Hospital [1-3]	New York City	B. Sherwin-C. B. Ripstein	2,535	6	1	1	100
Misericordia Hospital [1-3]	New York City	A. S. McQuillan	1,996	27	1	2	125
Mother Cabrini Memorial Hospital [1-3]	New York City	J. P. Alvich	1,286	4	1	3	125
New York Infirmary [2-3]	New York City	L. Loseke	664	10	1	2	150
Sydenham Hospital [1-3]	New York City	S. Standard	780	2	3	4	105
St. Agnes Hospital [1]	Raleigh, N. C.	G. W. Paschal	625	...	1	1	250
Kate Bitting Reynolds Memorial Hospital [1]	Winston-Salem, N. C.	J. M. Walker, Jr.	2,543	19	1	3	300
Bismarck Hospital [3]	Bismarck, N. Dak.	R. H. Waldschmidt	725	5	2	2	300
St. Luke's Hospital	Fargo, N. Dak.	V. G. Borland	1,057	9	1	1	300
Deaconess Hospital [1-3]	Cincinnati	R. W. Good-J. Payne	3,174	9	3	3	175
Fairview Park Hospital [1-3]	Cleveland	W. E. Smith	1,279	7	4	4	250
Doctor's Hospital [1-3]	Cleveland Heights, Ohio	R. R. Renner	3,308	24	2	5	200
St. Elizabeth Hospital [1]	Dayton, Ohio	T. P. Rab	4,101	28	1	1	225
Mercy Hospital [1-3]	Hamilton, Ohio	W. F. Hume	2,759	17	6	18	250
Lima Memorial Hospital [1-3]	Lima, Ohio	R. R. Snowball	5,199	29	1	3	275
Mansfield General Hospital [1-3]	Mansfield, Ohio	A. H. Voegele	998	4	3	3	225
Wesley Hospital [1]	Oklahoma City	J. H. Robinson	1,271	15	2	2	225
Good Samaritan Hospital [1-3]	Portland, Ore.	J. Raaf	5,937	50	1	1	275
Providence Hospital [1-3]	Portland, Ore.	L. P. Gambee	6,849	55	3	3	275
Bradford Hospital [1-3]	Bradford, Pa.	S. A. McCutcheon	1,291	6	..	2	250
Hazleton State Hospital [1-3]	Hazleton, Pa.	J. P. H. Kettrick	2,455	13	2	4	415
Frankford Hospital [1-3]	Philadelphia	O. P. Large	1,607	10	1	3	250
St. Joseph's Hospital [1-3]	Philadelphia	J. A. Lehman	2,628	...	1	1	...
St. Mary's Hospital [3]	Philadelphia	P. A. McCarthy	2,208	12	1	1	250
Mercy Hospital [1-3]	Wilkes-Barre, Pa.	L. C. Blaum	2,431	5	1	1	250
Wilkes-Barre General Hospital [1-3]	Wilkes-Barre, Pa.	P. J. Morgan	3,047	14	1	2	225
Columbia Hospital	Wilkinsburg, Pa.	W. B. Hetzel	3,668	30	1	2	300
Newell Hospital [2]	Chattanooga, Tenn.	E. T. Newell, Jr.	1,922	14	3	3	400
St. Mary's Memorial Hospital [1-3]	Knoxville, Tenn.	C. L. Chumley	3,291	15	1	2	250
Harris Hospital [1-3]	Fort Worth, Texas	A. F. Kauffmann	5,047	28	2	4	300
Southern Pacific Hospital [3]	Houston, Texas	J. R. Gandy	466	6	1	3	...
Baptist Memorial Hospital [1-3]	San Antonio, Texas	R. F. Gossett	5,441	25	1	1	150
Thomas D. Dee Memorial Hospital [1-3]	Ogden, Utah	L. S. Perry	1,543	5	2	2	275
St. Elizabeth's Hospital [1-3]	Richmond, Va.	G. W. Horsley	968	4	1	2	200
Lewis Gale Hospital [1-3]	Roanoke, Va.	W. L. Sibley	2,719	17	2	2	300
Doctors Hospital [1-3]	Seattle	A. W. Lobb	4,030	28	1	2	250
Providence Hospital [1-3]	Seattle	A. Bill	5,700	79	1	2	200
Sacred Heart Hospital	Spokane, Wash.	D. G. Corbett	9,847	78	1	1	250
St. Luke's Hospital [1-3]	Spokane, Wash.	M. F. Kepl	2,408	19	1	1	225
Laird Memorial Hospital [1-3]	Montgomery, W. Va.	W. R. Laird	1,918	12	..	2	200
Mercy Hospital [1-3]	Janesville, Wis.	E. W. Reinardy	3,092	5	3	3	200
La Crosse Lutheran Hospital [1-3]	La Crosse, Wis.	S. B. Gundersen	1,989	7	1	2	300
Methodist Hospital [1-3]	Madison, Wis.	J. R. Steeper	5,021	47	1	1	200
Evangelical Deaconess Hospital [1-3]	Milwaukee	H. B. Benjamin	3,474	14	3	4	250
St. Luke's Hospital [1-3]	Milwaukee	J. J. Adamkiewicz	2,350	19	3	3	275

27. THORACIC SURGERY

Residency programs in the following hospitals have been approved by the Council on Medical Education and Hospitals without specifying the number of years for which they are approved.

Hospitals, 90; Assistant Residencies and Residencies, 210

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Beginning Stipend (Month)
UNITED STATES ARMY							
Fitzsimons Army Hospital [1]	Denver	J. M. Salyer	349	3	1	2	...
Army Medical Center [1-3]	Washington, D. C.	E. J. Jahnke	90	2	1	2	...
UNITED STATES NAVY							
U. S. Naval Hospital [1]	San Diego, Calif.	J. M. Hanner	313	27	1	1	...
U. S. Naval Hospital	St. Albans, N. Y.	R. N. Grant	182	1	1	1	...
VETERANS ADMINISTRATION							
Veterans Admin. Hospital [1-3-25]	Los Angeles	F. X. Byron	378	36	2	2	...
Veterans Admin. Research Hospital [1]	Chicago	(See Northwestern University Medical Center)					
Veterans Admin. Hospital [1]	Hines, Ill.	H. T. Langston	408	21	2	4	...
Veterans Admin. Hospital [1-3]	Rutland Heights, Mass.	J. B. Petter	224	5	1	1	...
Veterans Admin. Hospital [1-3]	Minneapolis	T. J. Kinsella	114	14	1	1	...
Veterans Admin. Hospital [1-3]	St. Louis	T. H. Burford	251	10	1	2	...
Veterans Admin. Hospital [1-3-251]	Brooklyn, N. Y.	R. Klopstock	125	6	1	2	...
Veterans Admin. Hospital [1-3]	Buffalo, N. Y.						
Veterans Admin. Hospital [1-3]	Castle Point, N. Y.	R. Douglass	156	..	..	2	...
Veterans Admin. Hospital [1-3-302]	New York City (Bronx)	A. Himmelstein	127	8	2	3	...
Veterans Admin. Hospital [1-3]	Sunmount, N. Y.	J. W. Bell	428	..	..	1	...
Veterans Admin. Hospital [1]	Oteen, N. C.	J. D. Murphy	832	29	..	3	...
Veterans Admin. Hospital [1-3-342]	Cleveland	H. J. Mendelsohn	112	8	1	2	...
Veterans Admin. Hospital [1-3]	Memphis, Tenn.	F. A. Hughes	594	36	..	2	...
Veterans. Admin. Hospital [1-3]	Dallas, Texas	R. H. Holland	190	19	..	1	...
Veterans Admin. Hospital [1-3]	Richmond, Va.	L. W. Bosher, Jr.	291	21	1	2	...
Veterans Admin. Hospital [1-3]	Milwaukee (Wood)	F. Raine	185	7	..	1	...

Numerical and other references will be found on pages 387 through 390

27. THORACIC SURGERY—Continued

NONFEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Beginning Stipend (Month)
City of Hope Medical Center	Duarte, Calif.	A. Goldman	339	23	2	2	400
Highland-Alameda County Hospital [1-3-41]	Oakland, Calif.	P. Samson	308	7	2	3	195
Harbor General Hospital [1-3]	*Torrance, Calif.*	*B. Ramsay*	87	4	1	2	216
National Jewish Hospital [1-3]	Denver	J. B. Grow	113	9	2	2	200
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	G. E. Lindskog	538	7	..	1	50
Cedarcrest Hospital [1-3]	Newington, Conn.	R. L. Kemler	323	2	1	1	335
Uncas on Thames	Norwich, Conn.	W. O. Kelley	526	7	1	1	335
George Washington University Hospital [1-3-81]	Washington, D. C.	B. Blades	456	11	..	2	267
University Hospital [1]	Augusta, Ga.	R. Major	179	8	..	2	200
Chicago State Tuberculosis Sanitarium [1-3]	Chicago	H. T. Langston	230	..	2	2	250
Children's Memorial Hospital [1-3]	Chicago	W. J. Potts	.....	..	..	1	125
City of Chicago Municipal Tuberculosis Sanitarium [1-3]	Chicago	W. M. Lees	1,597	12	..	9	175
Northwestern University Medical Center							
Veterans Admin. Research Hospital [1]	Chicago	F. W. Preston	75	7	..	1	...
State University of Iowa Hospitals [1-3]	Iowa City	J. H. Ehrenhaft	Incl. in Surgery		1	2	250
University of Kansas Medical Center [1]	Kansas City, Kan.	L. F. Allbritten	....	..	6	12	125
Charity Hospital of Louisiana							
Louisiana State University Unit [1]	*New Orleans*	L. H. Strug	113	8	..	2	175
Tulane University Unit [1]	New Orleans	A. Ochsner	254	11	..	1	175
Confederate Memorial Medical Center [1]	Shreveport, La.	*W. W. McCook*	47	..	..	..	125
University Hospital [1-3]	Baltimore	R. A. Cowley	224	10	..	6	75
Boston City Hospital [1-3]	Boston	*J. W. Strieder*	240	16	..	3	162
Boston Sanatorium [1-3]	Boston	J. W. Strieder	144	3	1	3	202
New England Deaconess Hospital [1]	Boston	F. M. Woods	.....	..	2	4	200
University Hospital [1-3]	Ann Arbor, Mich.	C. Haight	691	19	3	12	185
Herman Kiefer Hospital [1-3]	Detroit	W. M. Tuttle	1,449	5	4	7	513
Ingham Chest Hospital	Lansing, Mich.	C. J. Stringer	475	9	1	2	400
Mayo Foundation [1]	Rochester, Minn.	O. T. Clagett	....	..	..	2	150
University Hospitals [1]	Jackson, Miss.	J. D. Hardy	.....	..	2	4	250
Missouri State Sanatorium [1]	Mount Vernon, Mo.	W. W. Buckingham	290	3	2	2	300
Barnes Hospital [1-3]	St. Louis	T. Burford	742	26	3	3	50
B. S. Pollak Hospital for Chest Diseases [1-3]	Jersey City, N. J.	F. Bortone	174	..	..	2	167
Kings County Hospital							
County Service [1]	Brooklyn, N. Y.	E. H. Griffin	185	4	1	2	104
University Service [1]	Brooklyn, N. Y.	M. Newman	175	12	1	2	104
Buffalo General Hospital [1-3]	Buffalo	J. R. Paine	174	8	1	1	300
Edward J. Meyer Memorial Hospital [1]	Buffalo	J. D. Stewart	124	13	..	2	248
Triboro Hospital [1-3]	Jamaica, N. Y.	L. Miscall	207	12	6	6	157
Mount Morris Tuberculosis Hospital [1-3]	Mount Morris, N. Y.	J. M. Judd	128	4	1	1	400
Bellevue Hospital Center							
Div. I—Columbia University [1-3-285]	New York City	R. H. Wylie	262	10	2	4	105
Bronx Municipal Hospital Center [1]	New York City	C. B. Ripstein	.....	..	2	4	150
Montefiore Hospital [1-3]	New York City	A. H. Aufses	101	5	..	1	75
New York Medical College-Metropolitan Medical Center							
Metropolitan Hospital [1-3]	New York City	S. A. Thompson	113	4	2	2	105
St. Joseph's Hospital for Chest Diseases [1-3]	New York City	W. W. Fischer	276	4	1	2	250
Homer Folks Tuberculosis Hospital [1-3]	Oneonta, N. Y.	A. M. Skinner	233	4	2	2	405
Ray Brook State Tuberculosis Hospital [1-3]	Ray Brook, N. Y.	D. Pecora	233	..	2	2	450
Sea View Hospital [1-3-315]	Staten Island, N. Y.	L. R. Davidson	324	3	2	4	157
Charlotte Memorial Hospital [1]	Charlotte, N. C.	J. M. Van Hoy	195	7	1	2	250
Duke University Hospital [1-3-323]	Durham, N. C.	W. C. Sealy	527	15	..	1	127
North Carolina Baptist Hospital [1-3]	Winston-Salem, N. C.	*H. H. Bradshaw*	215	14	..	..	125
[illegible]	Cleveland	G. H. A. Clowes, Jr.	189	9	..	2	150
[illegible]	Cleveland	D. Effler	550	27	2	3	175
[illegible]ty Tuberculosis Hospital [1-3]	Cleveland	S. O. Freedlander	160	2	1	1	[illegible]
[illegible] [1-347]	Columbus, Ohio	M. G. Buckles	824	14	1	2	[illegible]
Ohio State University Hospitals							
Ohio Tuberculosis Hospital [1-3]	Columbus, Ohio	N. C. Andrews	156	11	..	2	[illegible]
University Hospital [1-3]	Columbus, Ohio	K. P. Klassen	680	25	..	2	[illegible]
University of Oregon							
Medical School Hospitals and Clinics	Portland, Ore.	W. S. Conklin	273	7	1	2	100
Episcopal [illegible]	Philadelphia	R. P. Glover	102	4	1	2	150
Hahnemann [illegible]	Philadelphia	C. Bailey	1,013	74	3	5	75
Philadelphia [illegible]	Philadelphia	Mendelssohn Johnson Bailey	.....	..	3	3	111
Pittsburgh [illegible]		E. M. Kent	.....	..	..	..	...
Allegheny [illegible]	Pittsburgh					2	125
Children's [illegible]	Pittsburgh		54	2	..	2	150
Presbyterian Hospital	Pittsburgh		318	2	1	3	200
[illegible] Hospital [1-3-388]	Memphis, Tenn.	D. M. Carr	401	3	2	2	215
[illegible] Hospital [1-3]	Memphis, Tenn.	F. H. Cole	600	9	2	2	100
[illegible] [1-3]	Dallas, Texas	R. R. Shaw	Incl. in Surgery		1		
[illegible] Branch Hospitals [1-3]	Galveston, Texas	A. W. Harrison			1	1	75
[illegible] of Medicine Affiliated Hospitals		M. E. De Bakey	.....	..			
Jefferson Davis Hospital [1-3]	Houston, Texas						
Methodist Hospital [1-3]	Houston, Texas					1	275
Veterans Admin. Hospital	Houston, Texas		255	6	..	2	50
Dr. W. H. Groves *Latter-Day Saints Hospital* [1]	Salt Lake City	W. R. Rumel	692	17	..	1	300
University of Virginia Hospital [1-3-418]	Charlottesville, Va.	E. C. Drash	143	5	1	1	400
Firland Sanatorium [1-3]	Seattle	F. J. Jarvis	Incl. in Pul. Diseases		1		
Leahi Hospital [1-3]	Honolulu, T. H.	P. W. Gebauer					

28. UROLOGY

Residency programs in the following hospitals have been approved by the Council and the American Board of Urology, through the Residency Review Committee for *Urology*, as offering training of three years', two years' or one year's duration. It should be noted that beginning July 1, 1957 only those hospitals which, either intramurally or through affiliation, are able to *provide full* training in the specialty will continue to be approved. Those hospitals which have residency programs approved for one or two years of training will be reviewed prior to July 1, 1957 relative to their qualifying for continued approval.

Hospitals, 223; Assistant Residencies and Residencies, 666

FEDERAL

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered [8]	Total Residencies Offered [8]	Length of Approved Program (Years)	Beginning Stipend (Month)
UNITED STATES ARMY								
Letterman Army Hospital [1]	San Francisco	E. Lowry	309	5	1	3	3	...
Fitzsimons Army Hospital [1]	*Denver*	C. W. Hoffman	190	3	1	1	1	...
Army Medical Center [1-3]	Washington, D. C.	J. W. Schwartz	553	5	2	6	3	...

Numerical and other references will be found on pages 387 through 390.

28. UROLOGY—Continued

Name of Hospital	Location	Chief of Service	Inpatients Treated	Autopsies	First Year Residencies Offered *	Total Residencies Offered *	Length of Approved Program (Years)	Beginning Stipend (Month)
FEDERAL								
Brooke Army Hospital [1-3]	San Antonio, Texas	C. C. Dodson	939	12	2	6	3	...
Tripler Army Hospital [1]	Honolulu, T. H.	R. T. Artman	868	3	1	1	3	...
UNITED STATES NAVY								
U. S. Naval Hospital [1-3]	Oakland, Calif.	M. S. Curtis	608	4	1	2	3	...
U. S. Naval Hospital [1]	San Diego, Calif.	J. R. Dillon, Jr.	1,297	17	2	4	3	...
U. S. Naval Hospital	Bethesda, Md.	J. S. Hanten	786	1	2	4	3	...
U. S. Naval Hospital	St. Albans, N. Y.	J. F. Richardson	441	9	1	3	3	...
U. S. Naval Hospital [1-3]	Philadelphia	R. P. Black	593	5	1	1	3	...
UNITED STATES PUBLIC HEALTH SERVICE								
U. S. Public Health Service Hospital [1-3]	Staten Island, N. Y.	C. D. Miller	613	9	1	4	3	...
DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE								
Freedmen's Hospital [1-3]	Washington, D. C.	R. F. Jones	264	4	..	1	3	218
VETERANS ADMINISTRATION								
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	(See University of Alabama Medical Center)						
Veterans Admin. Hospital [1-3]	Long Beach, Calif.	A. J. Bischoff	338	14	1	3	3	...
Veterans Admin. Hospital [1-3-27-31-34]	Los Angeles	(See University of California Medical Center)						
Veterans Admin. Hospital [1]	San Francisco	H. M. Weyrauch-D. R. Smith	225	12	1	3	3	...
Veterans Admin. Hospital [1-3-42]	Washington, D. C.	J. G. Lee	318	8	..	3	3	...
Veterans Admin. Hospital [1-3]	Atlanta, Ga.	W. N. Morrison	380	3	1	1	2	...
Veterans Admin. Hospital [1]	Hines, Ill.	F. Lloyd	1,115	23	1	7	3	...
Veterans Admin. Hospital [1]	Des Moines, Iowa	L. J. Arduino	850	12	1	3	3	...
Veterans Admin. Hospital [1-3]	Wadsworth, Kan.	I. S. Brown	175	10	1	3	3	...
Veterans Admin. Hospital	Louisville, Ky.	(See University of Louisville Hospitals)						
Veterans Admin. Hospital [1-3-130]	New Orleans	E. Burns	319	4	1	3	3	...
Veterans Admin. Hospital [1-3]	Fort Howard, Md.	H. J. Meisel	242	3	1	1	3	...
Veterans Admin. Hospital [1-3]	Boston (Jamaica Plain)	R. Chute	763	6	..	2	3	...
Veterans Admin. Hospital [1-3]	West Roxbury, Mass.	H. S. Talbot	230	8	1	2	3	...
Veterans Admin. Hospital [1-3]	Dearborn, Mich.	J. M. Caputo	549	7	1	1	1	...
Veterans Admin. Hospital [1-3-208]	Minneapolis	C. D. Creevy	536	15	1	3	3	...
Veterans Admin. Hospital	Jackson, Miss.	(See University of Mississippi Medical Center)						-
Veterans Admin. Hospital [1]	Kansas City, Mo.	(See University of Kansas Medical Center, Kansas City, Kan.)						
Veterans Admin. Hospital [1-5]	St. Louis	J. P. Altheide	376	7	1	3	3	...
Veterans Admin. Hospital [1-3]	Lincoln, Neb.	A. D. Munger	296	3	1	2	3	...
Veterans Admin. Hospital [1-3-250]	Brooklyn, N. Y.	F. L. Senger	531	14	1	3	3	...
Veterans Admin. Hospital [1-3]	Buffalo	W. M. Chardack	451	9	1	2	3	...
Veterans Admin. Hospital [1-3]	New York City (Bronx)	A. L. Dean	1,044	13	2	5	3	...
Veterans Admin. Hospital [1-3-260]	New York City (Manhattan)	A. H. Ulm	193	8	1	4	3	...
Veterans Admin. Hospital [1-3]	Cleveland	G. Austen, Jr.	392	16	1	3	3	...
Veterans Admin. Hospital	Dayton, Ohio	F. F. Kelly	738	18	1	3	3	...
Veterans Admin. Hospital [1-3-362]	Portland, Ore.	(See University of Oregon Medical School Hospitals)						
Veterans Admin. Hospital [1-3]	Philadelphia	P. B. Hughes	610	18	..	1	3	...
Veterans Admin. Hospital [1-377]	Pittsburgh	C. A. Kuehn	753	11	1	4	3	...
Veterans Admin. Hospital [1-3-392]	Memphis, Tenn.	W. S. Bradley, Jr.	1,074	11	..	2	3	...
Veterans Admin. Hospital [1-3]	Dallas, Texas	R. C. Smith	380	11	..	2	3	...
Veterans Admin. Hospital [1-3]	Houston, Texas	(See Baylor University College of Medicine Affiliated Hospitals)						
Veterans Admin. Hospital [1-3]	White River Jct., Vt.	(See Dartmouth Medical College Hospitals, Hanover, N. H.)						
Veterans Admin. Hospital [1-3-120]	Richmond, Va.	R. C. Bunts	1,340	8	1	4	3	...
Veterans Admin. Hospital [1-3-131]	Milwaukee (Wood)	R. S. Irwin	750	20	..	3	3	...
NONFEDERAL								
Carraway Methodist Hospital [1-3]	Birmingham, Ala.	H. Hudson	155	3	..	1	3	250
University of Alabama Medical Center			.....	..	..	..	3	...
University Hospital and Hillman Clinic [1-3-11]	Birmingham, Ala.	B. Barelare	341	7	..	3	..	108
Veterans Admin. Hospital [1-3]	Birmingham, Ala.	F. D. Howard	347	14	1	3	..	...
University Hospital [1]	Little Rock, Ark.	J. W. Headstream	260	2	..	2	3	145
Kern General Hospital [1]	Bakersfield, Calif.	S. G. Kearney	330	11	..	2	3	325
Los Angeles County Hospital [1-31]	Los Angeles	J. J. Crane	3,240	85	3	7	3	246
Presbyterian Hospital-Olmsted Memorial [1-3-26]	Los Angeles	T. O. Powell	945	2	1	3	2	200
University of California Medical Center			....	..	..	..	3	...
University Hospital	Los Angeles	W. E. Goodwin	46	.	1	3	..	239
Veterans Admin. Hospital [1-3]	Los Angeles	W. E. Goodwin	1,380	36	2	7	..	...
Harbor General Hospital [1-3]	Torrance, Calif.	E. Belt	565	19	2	4	..	200
White Memorial Hospital [1-3-28]	Los Angeles	R. W. Barnes	489	5	1	2	3	151
Highland-Alameda County Hospital [1-3]	Oakland, Calif.	H. Kay	379	4	1	1	3	195
San Diego County General Hospital [1-3]	San Diego, Calif.	E. Le Duc	340	6	1	2	3	150
Southern Pacific General Hospital [1-3]	San Francisco	T. E. Gibson	456	6	1	2	3	175
Stanford University Hospitals			.....	..	..	..	3	...
San Francisco Hospital—(Stanford University Service) [1-3]	San Francisco	W. A. Sumner	317	..	..	2	..	195
Stanford University Hospital [1-3]	San Francisco	H. M. Weyrauch	469	2	1	2	..	80
University of California Hospitals			.....	..	..	..	3	...
Franklin Hospital [1-3]	San Francisco	J. W. Schulte	452	4	2	2	..	200
San Francisco Hospital—(University of California Service) [1-3]	San Francisco	S. Olsen	296	6	1	2	..	200
University of California Hospital [1-3]	San Francisco	D. R. Smith	444	3	..	3	..	191
Santa Clara County Hospital [1]	San Jose, Calif.	E. W. McElligott	374	11	1	1	..	200
University of Colorado Medical Center								
Colorado General Hospital [1-3]	Denver	D. R. Higbee	300	9	1	3	3	160
Denver General Hospital [1-3]	Denver	D. Newland	211	7	..	..	3	157
Grace-New Haven Community Hospital [1-3]	New Haven, Conn.	B. M. Harvard	872	9	1	3	3	50
Hospital of St. Raphael [3]	New Haven, Conn.	L. Maurer	493	3	1	2	3	125
Waterbury Hospital [1]	Waterbury, Conn.	C. H. Neuswanger	437	..	1	2	2	225
Delaware Hospital [1-3]	Wilmington, Del.	B. S. Vallett	548	11	1	3	3	180
District of Columbia General Hospital [1-3]	Washington, D. C.	L. Culbertson-R. Baker	335	5	1	3	3	153
Duval Medical Center [1-3]	Jacksonville, Fla.	R. B. McIver	311	12	..	1	2	150
St. Vincent's Hospital [1-3]	Jacksonville, Fla.	R. B. McIver	601	2	1	2	2	225
Jackson Memorial Hospital [1-4]	Miami, Fla.	M. M. Coplan	1,254	17	2	5	3	75
Orange Memorial Hospital [1-3]	Orlando, Fla.	L. B. Orr-F. J. Pyle	1,112	11	1	3	3	150
Grady Memorial Hospital [1]	Atlanta, Ga.	M. K. Bailey	619	8	2	6	3	20
St. Joseph's Infirmary [1-3]	Atlanta, Ga.	H. P. McDonald	943	4	1	2	3	165
University Hospital	Augusta, Ga.	J. R. Rinker	503	7	..	6	3	200
Cook County Hospital [1-3]	Chicago	W. J. Baker	1,259	30	1	4	3	75
Mercy Hospital [1-3]	Chicago	H. E. Landes	845	8	1	3	3	100
Michael Reese Hospital [1-3]	Chicago	I. Shapiro	909	14	1	3	3	75
Mount Sinai Hospital [1-3]	Chicago	J. M. Glasser	473	7	1	1	2	100

Numerical and other references will be found on pages 387 through 390.

325. N. C. Sanatorium, Black Mountain, N. C.;
Guilford County *Sanatorium, Jamestown,* N. C.
326. *North Carolina Sanatorium, Black Mountain,* N. C.
327. Children's Hospital, Akron, Ohio
328. Chicago Lying-in Hospital, Chicago, Ill.
329. Veterans Admin. Hospital, Cincinnati, Ohio
330. *Drake Hospital,*
Veterans Admin. Hospital,
Holmes Hospital,
Dunham Hospital, Cincinnati, Ohio
331. Drake Hospital,
Children's Hospital,
Holmes Hospital,
Dunham Hospital,
Veterans Admin. Hospital, Cincinnati, Ohio
332. Good Samaritan Hospital,
Christ Hospital,
Veterans Admin. *Hospital, Cincinnati,* Ohio
333. Child Guidance Home,
Jewish Hospital,
Longview State Hospital,
Veterans Admin. *Hospital,* Cincinnati, Ohio
334. *Cincinnati General Hospital,*
St. Mary's Hospital, Cincinnati, Ohio
335. Cincinnati General Hospital, Cincinnati, Ohio
336. Mother Margaret Hall, Mt. St. Joseph, Ohio
337. Longview State Hospital, Cincinnati, Ohio
338. Sunny Acres, Cleveland, Ohio
339. Cleveland City Hospital,
Veterans Admin. Hospital, Cleveland, Ohio
340. Cleveland C [illegible] C[illegible]land, Ohio
341. University [illegible] Ohio
342. Veterans A[illegible] ksville, *Ohio*
343. City Hospital,
University Hospital, Cleveland, Ohio
344. Florence Crittenton Home, St. Ann's Hospital for Women,
Columbus, Ohio
345. Children's Hospital, Columbus, Ohio
346. Juvenile Diagnostic Center, Columbus, Ohio
347. Mount Carmel Hospital, Columbus, Ohio
348. Columbus Receiving Hospital, Columbus, Ohio
349. Ohio Tuberculosis Hospital, Columbus, Ohio
350. Maumee Valley Hospital, Toledo, Ohio
351. Central State *Hospital, Norman,* Okla.;
University Hospitals,
Veterans Admin. Hospital, Oklahoma City, Okla.
352. University Hospitals,
Veterans Admin. Hospital, *Oklahoma City, Okla.*
353. *Mercy Hospital, Oklahoma* City, Okla.
354. University Hospitals
Wesley Hospital, Oklahoma City, Okla
355. Central State Hospital, Norman, Okla.;
University Hospitals, Oklahoma City, Okla.
356. University of *Oklahoma Hospitals, Oklahoma* City, Okla.
357. *St. Vincent's Hospital, Portland, Oregon*
358. Oregon State Hospital,
Fairview Home, Oregon State Penitentiary Infirmary, Salem, Ore.
359. Good Samaritan Hospital, Portland, Ore.
360. *Veterans Administration Hospital, Portland,* Ore
361. *City of Portland Isolation Hospital, Portland,* Ore
362. University of Oregon Medical School Hospital & Clinics,
Portland, Ore.
363. Providence Hospital, Portland, Ore
364. *Norristown State Hospital, Norristown, Pa.*
365. *Children's Hospital,*
Institute of the Pennsylvania Hospital,
University of Pennsylvania Hospital,
Veterans Administration Mental Hygiene Clinic, Philadelphia, Pa.
366. Children's *Service Center of Wyoming Valley,* Wilkes-Barre, Pa.;
Governor Bacon Health Center, Delaware City, Delaware;
Delaware State Hospital, Farnhurst, Delaware
367. Graduate Hospital of the University of Pennsylvania,
Philadelphia General Hospital, Philadelphia, Pa.
368. Children's *Hospital, Philadelphia, Pa*
369. Our Lady of Lourdes Hospital, Camden, N. J.;
Lankenau *Hospital, Philadelphia,* Pa.
370. Jefferson Hospital, Municipal Hospital, Philadelphia, Pa.
371 Hospital of the University of Pennsylvania, Philadelphia, Pa.
372. Philadelphia General Hospital, Philadelphia, Pa.
373 Hahnemann Medical College Hospital,
Jefferson Medical College Hospital,
Hospital of the University of Pennsylvania,
Temple University Hospital,
Pennsylvania Hospital,
Woman's Medical College Hospital, *Philadelphia,* Pa.
374. Children's *Hospital, Philadelphia General Hospital, Philadelphia,* Pa.
375. *Hospital of the University of Pennsylvania,*
St. Christopher's Hospital for Crippled Children, *Philadelphia,* Pa.
376. Shriners Hospital for Crippled Children, Philadelphia, Pa.
377. Western Pennsylvania Hospital, Pittsburgh, Pa.
378. Allegheny General Hospital,
Children's Hospital, Pittsburgh, Pa.
379. Western P[illegible] Institute & Clinic, Pittsburgh, Pa.
380. Boston [illegible]
Boston [illegible] Boston, Mass.
381. Boston Children's Hospital, Boston, Mass;
Emma Pendleton Bradley Home,
Providence Lying-in Hospital, Providence, R. I.
382. Boston City Hospital,
Massachusetts Memorial Hospital, Boston, Mass.
383. Charleston *County Tuberculosis* Hospital, **Charleston, S. Car.**
384. Roper Hospital, Charleston, S. Car.
385. East Tennessee T. B. Hospital, Knoxville, Tenn.
386. East Tennessee Children's Hospital,
Knoxville General Hospital, Knoxville, Tenn.
387. Gailor Psychiatric Hospital,
West Tennessee T. B. Hospital, Memphis, Tenn.
388. *Crippled Children's* Hospital School, Hospital **for**
Crippled Adults.
John Gaston Hospital, Memphis, Tenn.
389. John *Gaston Hospital, Memphis, Tenn.*
390. West Tennessee T. B. Hospital,
West Tennessee *Cancer* Clinic, Memphis, Tenn.
391. Le Bonheur Children's Hospital, Memphis, Tenn.
392. Methodist Hospital, Memphis, Tenn.
393. Vanderbilt University Hospital, Nashville, Tenn.
394. State Hospital, Austin, Texas
395. Baylor *University Hospital,* Dallas, Texas
396. Gaston Hospital, Dallas, Texas
397. *Children's Medical* Center, Dallas, Texas
398. *Parkland* Memorial Hospital, Dallas, Texas
399. Southern Pacific Hospital,
University of Texas M. D. Anderson Hospital & Tumor Institute,
Houston, Texas
400. *Houston Tuberculosis* Hospital, Houston, Texas
401. Jefferson Davis Hospital,
Veterans Administration Hospital, Houston, Texas
402. Hermann *Hospital, Houston, Texas*
403. St. Joseph's *Hospital,* Houston, Texas
404. University of Texas M. D. *Anderson* Hospital & Tumor Institute,
Houston, Texas
405. *Gaston Hospital,*
Parkland Memorial Hospital, *St. Paul Hospital,*
Texas Children's Hospital, Dallas, Texas
406. Crippled Children's Hospital, Oklahoma City, Okla
407. San Antonio State Tuberculosis Hospital, San Antonio, Texas
408. *Salt Lake County General Hospital,* Salt Lake City, Utah
409. Salt Lake General Hospital,
Veterans Administration Hospital (Fort Douglas Division),
Salt Lake City, Utah
410 *Holy Cross Hospital,* Salt Lake City, Utah
411. Salt Lake *County General Hospital,*
Veterans Admin. Hospital *(12th Street Division),*
Salt Lake City, Utah
412. DeGoesbriand Memorial Hospital, Burlington, Vermont
413. Children's Medical Center, Boston, Mass.;
DeGoesbriand Memorial Hospital, Burlington, Vt.
414. Children's Orthopedic Hospital, *Seattle, Washington*
415. Sheltering Arms Hospital, Richmond ,Va.
416. Veterans Admin. Hospital, Richmond, Va.
417. Veterans Admin. Hospital, Roanoke, Va.
418. *Piedmont Sanatorium,* Burksville, Va.;
Catawba Sanatorium, Catawba, Va.;
Blue Ridge Sanatorium, C[illegible] Va.
419. *University of Virginia* [illegible] Va.
420 Medical College of Virg[illegible] Richmond, V
421. *Louise Obici Memorial Hospital,* Suffolk, Va.
422. Children's Orthopedic Hospital, Seattle, Washington
423. Children's Orthopedic Hospital,
Child Health Center, Univ. of Washington, Seattle, Wash
424. Firland Sanatorium, Seattle, Washington
425. *Chicago Lying-In Hospital, Chicago, Ill.*
426. Veterans Admin. Hospital, Madison, Wis
427. Wisconsin [illegible] son, Wis.
428. Mount Sin [illegible] Wis.
429 Columbia [illegible] spital,
Veterans Admin. [illegible] Wisconsin
430 Veterans Admin. [illegible] s.
431. Milwaukee County General Hospital, Milwaukee, Wis
432 Columbia Hospital,
Muirdale Sanatorium, Milwaukee, Wis.
433 *Milwaukee Hospital, Milwaukee,* Wis.
434. Milwaukee Children's Hospital, Milwaukee, Wis.
Veterans Admin. Hospital, Wood, Wis.
435 Milwaukee Children's Hospital, Milwaukee, Wis.
436 *Columbia Hospital,*
Milwaukee Children's Hospital, Milwaukee, Wis.
437 Milwaukee County Hospital,
Milwaukee County Dispensary, Milwaukee, Wis.
438. Milwaukee Children's Hospital.
Columbia Hospital,
Milwaukee Hospital, Milwaukee, Wis.
439. Leahi Hospital, Honolulu, T. H.
440. Territorial Hospital, Kaneohe, T. H.
441. An additional one year of fellowship *training in cardio* pulm
laboratory is available.
442. This one year of training is equivalent to one year of basic s
as a part of an approved three year program.
443 Approved for affiliate training only.
444. May include one year fellowships in the *Department of*
Cardiology.
445. Lallie Kemp Charity Hospital, Independence, La.
446 Huey P. Long Charity Hospital, Pineville, La.
447. Georgia Warm Springs *Foundation,* Warm *Springs,* Ga
448 Southeast Louisiana Hospital, *Mandeville,* La.
449. *Veterans Admin* Hospital, New *Orleans,* La.
450 Shriners Hospital for Crippled Children,
Veterans Admin Hospital, Minneapolis, Minn ;
Ancker Hospital, Gillette Hospital for Crippled
Children, St. Paul, Minn.
451. Veterans Admin. Rese[illegible] Chicago, Ill
452 Illinois Eye and Ear [illegible]
John A. Andrew Mem[illegible] Institute,
Alabama.
453 Veterans *Admin. Hospital, Ann Arbor, Michigan*
454. Milwaukee County General Hospital, Wauwatosa, Wis ;
Milwaukee County Hospital Dispensary Service,
Milwaukee Children's Hospital, Milwaukee County Hospital for Mental Diseases and Muirdale (T. B)
Sanatorium, Milwaukee, Wis.
455 *May include* one year fellowship in cardio-pulmonary
laboratory work
456. St Agnes Hospital, White Plains, New York.
457. St. Francis General Hospital, Veterans Admin. Hospital,
Western Pennsylvania Hospital, Pittsburgh, Pa.
458. Formerly New York City Hospital, New York, N. Y.
459. *Kaiser Foundation* Hospital, San Francisco, Calif.
460. Combined integrated program—Bellevue Div. II
(Cornell and Memorial Cancer Center)
461. Training limited to contagious diseases.
462. Emergency, Episcopal and Garfield Hospitals are
moving into one new hospital on 5/1/57 which will
be the Washington Hospital Center.
463. Apply: Chief of Clinical Service at Colorado
General Hospital, University of Colorado Medical
Center, 4200 East 9th Avenue, *Denver* 20, Colo.
464. Univ. of Texas coordinates *program* of three years'
duration.
465. Baltimore City Hospital, Baltimore, Md.
466. *Lutheran* Hospital, Omaha, Nebr.
467. Hastings State Hospital, Hastings, Minn.
468. Rochester State Hospital, Rochester, Minn.
469. Veterans [illegible] Battle Creek, Mich.
470. Nopeming [illegible] Minn.
471. *Veterans* [illegible] Ill.;
Chicago S[illegible] Ill

HOSPITALS APPROVED FOR RESIDENCY TRAINING

Number of Hospitals, 1,211, Number of Programs, 5,186

Name of Hospital	Location	Approved Residencies
Birmingham Baptist Hospital ★	Birmingham, Ala.	Path., Rad.
Carraway Methodist Hospital ★	Birmingham, Ala.	Int. Med., Obst., Path., Surg., Urol.
Children's Hospital	Birmingham, Ala.	Ped.
University Hospital and Hillman Clinic★	Birmingham, Ala.	Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Birmingham, Ala.	Int. Med., Ophth., Ortho. Surg., Path., Rad., Surg., Urol.
Lloyd Noland Hospital ★	Fairfield, Ala.	Anes., Derm., Syph., Int. Med., Ob.-Gyn., Ortho, Surg., Path., Ped., Surg.
Mobile County Hospital ★	Mobile, Ala.	Int. Med., Ortho. Surg., Path., Ped., Surg.
Veterans Admin. Hospital	Tuskegee, Ala.	Int. Med., Ophth., Psych., Rad., Surg.
Good Samaritan Hospital ★	Phoenix, Ariz.	Gen'l Pract., Ob.-Gyn., Surg.
Maricopa County General Hospital ★	Phoenix, Ariz.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Pul. Dis., Surg.
St. Joseph's Hospital ★	Phoenix, Ariz.	Int. Med., Ob.-Gyn., Ped., Surg.
St. Mary's Hospital and Sanatorium ★	Tucson, Ariz.	Gen'l Pract., Int. Med., Surg.
Tucson Medical Center ★	Tucson, Ariz	Int. Med., Surg.
Arkansas Baptist Hospital ★	Little Rock, Ark.	Ophth., Path., Surg.
Arkansas Children's Hospital	Little Rock, Ark.	Ortho. Surg
Arkansas State Hospital	Little Rock, Ark.	Psych
St. Vincent Infirmary ★	Little Rock, Ark	Anes.
University Hospital ★	Little Rock, Ark.	Anes., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
Veterans Admin. Hospital	Little Rock, Ark.	Int. Med., Path., Surg.
Veterans Admin. Hospital	North Little Rock, Ark	Psych.
St. Michael's Hospital	Texarkana, Ark.	Gen'l Pract.
Agnews State Hospital	Agnew, Calif	Psych.
General Hospital of Riverside County ★	Arlington, Calif.	Gen'l Pract., Int. Med., Surg.
Kern General Hospital	Bakersfield, Calif.	Gen'l Pract., Int. Med., Path., Ped., Rad., Surg.
Herrick Memorial Hospital ★	Berkeley, Calif	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg.
St. Joseph Hospital	Burbank, Calif	Path.
Camarillo State Hospital	Camarillo, Calif.	Psych.
Compton Sanitarium	Compton, Calif.	Psych.
U. S. Naval Hospital ★	Corona, Calif	Ob.-Gyn
City of Hope Medical Center	Duarte, Calif	Int. Med., Mal. Dis., Path., Pul. Dis., Thor. Surg.
San Joaquin General Hospital ★	French Camp, Calif	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
General Hospital of Fresno County ★	Fresno, Calif	Int. Med., Ob.-Gyn., Ophth , Ped., Rad., Surg.
Glendale Sanitarium and Hospital ★	Glendale, Calif	Int. Med., Ob.-Gyn., Path., Surg.
Napa State Hospital	Imola, Calif.	Psych.
Arroyo-Del Valle Sanatorium	Livermore, Calif.	Pul. Dis.
Loma Linda Sanitarium and Hospital ★	Loma Linda, Calif	Path.
St. Mary's Long Beach Hospital ★	Long Beach, Calif.	Gen. Prac.
Seaside Memorial Hospital ★	Long Beach, Calif	Int. Med., Obst., Path., Ped., Rad., Surg.
Veterans Admin. Hospital ★	Long Beach, Calif	Allergy, Card. Dis., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Barlow Sanatorium	Los Angeles	Pul. Dis.
California Babies' and Children's Hospital	Los Angeles	Ped.
California Hospital ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Surg.
Cedars of Lebanon Hospital ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Children's Hospital ★	Los Angeles	Ortho Surg., Path., Ped.
Hospital of the Good Samaritan ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Kaiser Foundation Hospital	Los Angeles	Ob.-Gyn., Rad.
Los Angeles County General Hospital ★	Los Angeles	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Los Angeles Eye and Ear Hospital	Los Angeles	Ophth., Otol.
Orthopedic Hospital	Los Angeles	Ortho. Surg.
Presbyterian Hospital-Olmsted Memorial ★	Los Angeles	Int. Med., Mal. Dis., Ob.-Gyn., Rad., Urol.
Queen of Angels Hospital ★	Los Angeles	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Vincent's Hospital ★	Los Angeles	Int Med., Path., Surg.
Santa Fe Coast Lines Hospital ★	Los Angeles	Surg.
Shriners Hospital for Crippled Children	Los Angeles	Ortho. Surg.
University of California Medical Center ★	Los Angeles	Anes., Int Med., Neur., Neuro Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital ★	Los Angeles	Anes., Derm. Syph., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg. Otol., Path., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
White Memorial Hospital ★	Los Angeles	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Proct., Rad., Surg., Urol.
Contra Costa County Hospital	Martinez, Calif.	Gen'l Pract.
Bret Harte	Murphys, Calif.	Pul. Dis.
Metropolita	Norwalk, Calif.	Psych.
Children's Hospital of the East Bay	Oakland, Calif.	Ortho. Surg., Ped.
Highland-Alameda County Hospital ★	Oakland, Calif.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Kaiser Foundation Hospital ★	Oakland, Calif	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Surg.
Samuel Merritt Hospital	Oakland, Calif.	Anes., Ortho. Surg., Path. Surg.
U. S. Naval Hospital ★	Oakland, Calif.	Anes., Int. Med., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Administration Hospital	Oakland, Calif.	Neur , Path.
Veterans Admin. Hospital	Palo Alto, Calif.	Psych.
Collis P. and Howard Huntington Memorial Hosp. ★	Pasadena, Calif	Int. Med., Mal. Dis., Neuro. Surg., Ob -Gyn., Path , Rad., Surg.
Patton State Hospital	Patton, Calif.	Psych.
Pacific State Hospital	Pomona, Calif	Psych.
Sequoia Hospital	Redwood City, Calif.	Gen'l Pract.
Sacramento County Hospital ★	Sacramento, Calif.	Gen'l Pract., Path
Sutter General Hospital	Sacramento, Calif.	Rad.
Monterey County Hospital	Salinas, Calif	Gen'l Pract.
San Bernardino County Charity Hospital ★	San Bernardino, Calif.	Int. Med., Path., Surg.
Mercy Hospital ★	San Diego, Calif	Int. Med., Ob.-Gyn. Path., Surg.
San Diego County General Hospital ★	San Diego, Calif.	Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Pul. Dis., Rad., Surg., Urol.
U. S. Naval Hospital ★	San Diego, Calif.	Allergy, Anes., Derm., Syph., Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., Otol., Path., Rad., Surg., Thor. Surg., Urol.
Children's Hospital ★	San Francisco	Ob.-Gyn., Otol., Ortho. Surg., Ped., Rad., Surg.,
Franklin Hospital ★	San Francisco	Int. Med., Ortho. Surg., Path., Plas. Surg., Urol.
French Hospital ★	San Francisco	Int. Med., Path., Surg.
Kaiser Foundation Hospital ★	San Francisco	Allergy, Anes., Ob.-Gyn., Path., Psych.
Langley Porter Clinic-Hospital	San Francisco	Psych.
Letterman Army Hospital ★	San Francisco	Anes., Card. Dis., Derm.-Syph., Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Mary's Help Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Surg.
Mount Zion Hospital ★	San Francisco	Anes., Int. Med., Path., Ped., Psych., Rad., Surg.
St. Francis Memorial Hospital	San Francisco	Anes., Ob.-Gyn., Path., Plas. Surg., Rad.
St. Joseph's Hospital	San Francisco	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
St. Luke's Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Path., Surg.
St. Mary's Hospital ★	San Francisco	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
San Francisco Hospital ★		
Stanford University Service	San Francisco	Int. Med, Ob-Gyn, Otol, Ortho Surg, Path, Ped, Pul Dis, Rad, Surg, Urol
University of California Service	San Francisco	Int Med, Ob-Gyn, Otol, Ortho Surg, Path, Ped Pul Dis, Rad, Surg, Urol
Shriners Hospital for Crippled Children	San Francisco	Ortho Surg
Southern Pacific General Hospital ★	San Francisco	Int Med Surg, Urol
Stanford University Hospital ★	San Francisco	Anes Derm Syph, Int Med, Neur, Ob-Gyn, Ophth, Otol, Ortho Surg, Path Ped, Psych, Rad, Surg Urol
U S Public Health Service Hospital ★	San Francisco	Int Med, Surg
University of California Hospital ★	San Francisco	Derm Syph, Gastro, Int Med Neur, Neuro Surg, Ob-Gyn, Ophth, Ortho Surg, Otol, Path Ped, Rad Surg, Urol
Veterans Admin Hospital	San Francisco	Int Med, Neur, Ophth, Otol, Ortho Surg, Path, Rad, Surg, Urol
O'Connor Hospital	San Jose Calif	Path
Santa Clara County Hospital ★	San Jose Calif	Anes Int Med, Ob-Gyn, Path, Ped, Pul Dis, Rad, Surg, Urol
Fairmont Hospital of Alameda County	San Leandro, Calif	Pul Dis
Community Hospital of San Mateo County	San Mateo Calif	Gen'l Pract, Int Med, Path, Surg
Santa Barbara Cottage Hospital ★	Santa Barbara, Calif	Int Med, Path, Surg
Santa Barbara General Hospital	Santa Barbara, Calif	Surg
St John's Hospital ★	Santa Monica Calif	Ob-Gyn Path Ped Rad, Surg.
Sonoma County Hospital	Santa Rosa, Calif	Gen'l Pract
Veterans Administration Hospital	Sepulveda, Calif	Psych
Tulare-Kings Counties Joint Tuberculosis Hospital	Springville Calif	Pul Dis
Harbor General Hospital ★	Torrance Calif	Anes Int Med Ob-Gyn, Ophth. Otol., Path, Ped, Rad, Surg, Thor Surg, Urol
Tulare County General Hospital	Tulare, Calif	Gen'l Pract
Kaiser Foundation Hospital (California Rehabilitation Center)	Vallejo Calif	Physical Med
Glockner-Penrose Hospital ★	Colorado Springs Colo	Gen'l Pract, Path Rad
St Francis Hospital	Colorado Springs Colo	Gen'l Pract
Children's Hospital	Denver	Ortho Surg, Path Ped Surg
Fitzsimons Army Hospital ★	Denver	Anes Card Dis, Int Med, Neur Ob-Gyn, Ortho Surg, Path, Ped Phys Med, Psych Pul Dis, Rad, Surg, Thor Surg, Urol
General Rose Memorial Hospital ★	Denver	Path Rad
Mercy Hospital ★	Denver	Int Med Path, Surg
National Jewish Hospital	Denver	Pul Dis Thor Surg
Porter Sanitarium and Hospital ★	Denver Colo	Path
Presbyterian Hospital ★	Denver	Int Med Ob-Gyn, Path, Rad Surg
St Anthony Hospital ★	Denver	Int Med, Surg
St Joseph's Hospital ★	Denver	Int Med, Ob-Gyn, Path, Rad Surg
St Luke's Hospital ★	Denver	Int Med, Path Rad, Surg
University of Colorado Medical Center		
Colorado General Hospital ★	Denver	Anes, Derm Syph, Gen'l Pract, Int Med Neur, Neur Surg, Ob-Gyn, Ophth, Otol, Ortho Surg Path, Ped, Phys Med, Rad, Surg, Urol
Colorado Psychopathic Hospital	Denver	Psych
Denver General Hospital ★	Denver	Anes, Gen'l Pract, Int Med, Neur, Neur Surg, Ob-Gyn, Ophth, Ortho Surg, Otol, Path, Ped Rad, Surg, Urol
Veterans Admin Hospital	Denver	Anes, Int Med Neur, Neuro Surg, Ortho Surg, Path, Phys Med, Psych, Rad, Surg
Colorado State Hospital	Pueblo Colo	Int Med, Path, Psych, Surg
orwin Hospital	Pueblo Colo	Surg
idgeport Hospital ★	Bridgeport, Conn	Anes, Int Med, Obst, Path, Rad, Surg
St Vincent's Hospital ★	Bridgeport, Conn	Int Med, Obst, Path, Rad, Surg
Danbury Hospital ★	Danbury, Conn	Path
Greenwich Hospital ★	Greenwich, Conn	Gen'l Pract, Int Med Path, Surg
Hartford Hospital ★	Hartford, Conn	Anes, Int Med, Neuro Surg, Ob-Gyn, Ortho Surg, Path, Ped, Rad, Surg
Hartford Municipal Hospital and Health Center ★	Hartford, Conn	Int Med, Surg
Institute of Living	Hartford, Conn	Psych
St Francis Hospital ★	Hartford, Conn	Anes, Int Med Neuro Surg, Ob-Gyn Path, Ped, Surg
eriden Hospital ★	Meriden, Conn	Path Surg
nnecticut State Hospital	Middletown, Conn	Psych
dlesex Hospital ★	Middletown, Conn	Path
Britain General Hospital ★	New Britain, Conn	Int Med, Ob-Gyn Path, Surg
i Hill Foundation	New Canaan, Conn	Psych
e-New Haven Community Hospital ★	New Haven, Conn	Anes, Int Med, Neur, Neuro Surg, Ob-Gyn, Ophth, Ortho Surg, Otol, Path, Ped, Phys Med, Psych, Rad, Surg Thor Surg, Urol
ospital of St Raphael ★	New Haven, Conn	Anes Int Med Ob-Gyn, Ortho Surg, Path, Ped, Rad, Surg, Urol
daicrest Hospital	Newington, Conn	Pul Dis, Thor Surg
ewington Home and Hospital for Crippled Children	Newington, Conn	Ortho Surg
awrence and Memorial Associated Hospitals ★	New London, Conn	Int Med, Ob-Gyn Surg
Fairfield State Hospital	Newtown, Conn	Psych
Norwalk Hospital ★	Norwalk, Conn	Int Med Obst, Path, Surg
Norwich State Hospital	Norwich, Conn	Psych
Norwich State Tuberculosis Sanatorium	Norwich, Conn	Pul Dis, Thor Surg
Laurel Heights State Tuberculosis Sanatorium	Shelton, Conn	Pul Dis
Stamford Hospital ★	Stamford, Conn	Path
Charlotte Hungerford Hospital	Torrington, Conn	Gen'l Pract
St Mary's Hospital ★	Waterbury, Conn	Int Med, Path, Rad Surg
Waterbury Hospital ★	Waterbury Conn	Int Med, Path, Ped, Rad, Surg, Urol
Veterans Administration Hospital (Newington Division)	West Haven, Conn	Int Med Path Rad, Surg
Veterans Admin Hospital (West Haven Division)	West Haven Conn	Card Dis Gastro, Int Med, Neuro Path, Psych Pul Dis, Rad Surg
Delaware State Hospital	Farnhurst, Del	Psych
Alfred I duPont Institute of Nemours Foundation	Wilmington, Del	Ortho Surg
Delaware Hospital ★	Wilmington Del	Int Med Ob-Gyn, Path, Ped, Rad, Surg, Urol
Memorial Hospital ★	Wilmington, Del	Int Med, Path, Surg
Wilmington General Hospital ★	Wilmington Del	Gen'l Pract, Int Med, Path
Armed Forces Institute of Pathology	Washington, D C	Path
Army Medical Center ★	Washington, D C	Allergy Anes, Card Dis, Derm Syph Gastro, Int Med Neur Neuro Surg, Ob-Gyn, Ophth, Ortho Surg, Otol, Path, Ped, Phys Med Psych Rad Surg Thor Surg Urol
Central Dispensary and Emergency Hospital ★	Washington, D C	Int Med, Ortho Surg Path, Rad, Surg
Children's Hospital	Washington, D C	Path, Ped
Columbia Hospital for Women and Lying-In Asylum	Washington D C	Ob-Gyn
District of Columbia General Hospital ★	Washington D C	Anes, Int Med, Neur Ob-Gyn, Ophth, Ortho Surg Otol Path Ped Phys Med Psych Pul Dis, Rad, Surg, Urol
Doctors Hospital ★	Washington, D C	Anes Int Med, Ob-Gyn Path Rad, Surg
Eastern Dispensary and Casualty Hospital	Washington, D C	Gen'l Pract
Episcopal Eye, Ear and Throat Hospital	Washington, D C	Ophth, Otol
Freedmen's Hospital ★	Washington, D C	Derm Syph, Int Med, Neur, Ob-Gyn Ophth, Ortho Surg Otol Ped Psych, Pul Dis, Rad, Surg, Urol
Garfield Memorial Hospital ★	Washington, D C	Anes, Int Med, Ob-Gyn, Path Rad, Surg
Georgetown University Hospital ★	Washington, D C.	Anes, Derm Syph Int Med, Neur, Neuro Surg, Ob-Gyn, Path, Ped, Phys Med, Psych, Rad, Surg
George Washington University Hospital ★	Washington D C	Anes, Card Dis, Int Med, Neur, Neuro Surg, Ob-Gyn, Path Phys Med, Psych, Rad, Surg, Thor Surg
Providence Hospital ★	Washington, D C	Int Med, Ob-Gyn, Path, Ped, Surg
St Elizabeth's Hospital ★	Washington, D. C.	Neur., Psych
Sibley Memorial Hospital ★	Washington, D. C	Ob-Gyn, Path, Surg
Tuberculosis Sanatorium (Glendale, Md.)	Washington, D C.	Pul Dis
Veterans Adm. Hospital	Washington, D. C.	Int Med, Neur, Path, Rad, Surg, Urol.
Veterans Adm Hospital	Coral Gables, Fla.	Int Med, Path., Surg

---

★ Indicates hospitals approved for training interns

Name of Hospital		Approved Residencies
Halifax District Hospital	Daytona Beach, Fla.	Gen'l Pract.
Duval Medical Center *	Jacksonville, Fla.	Int. Med., Ob.-Gyn., Path., Ped., Psych., Surg., Urol.
Hope Haven Hospital	Jacksonville, Fla.	Ortho. Surg.
Riverside Hospital	Jacksonville, Fla.	Int. Med., Surg.
St. Luke's Hospital *	Jacksonville, Fla.	Gen'l Pract., Int. Med., Ob.-Gyn., Rad., Surg.
St. Vincent Hospital *	Jacksonville, Fla.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Surg., Urol.
Jackson Memorial Hospital *	Miami, Fla.	Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Mount Sinai Hospital	Miami Beach, Fla.	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Francis Hospital *	Miami Beach, Fla.	Int. Med., Path., Surg.
Orange Memorial Hospital	Orlando, Fla.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg., Urol.
Baptist Hospital	Pensacola, Fla.	Gen'l Pract.
Sacred Heart Hospital *	Pensacola, Fla.	Gen'l Pract.
American Legion Hospital for Crippled Children	St. Petersburg, Fla.	Ortho. Surg.
Mound Park Hospital *	St. Petersburg, Fla.	Gen'l Pract., Int. Med., Ob.-Gyn., Surg.
Tampa Municipal Hospital *	Tampa, Fla.	Int. Med., Ob.-Gyn., Otol., Surg.
Crawford W. Long Memorial Hospital *	Atlanta, Ga.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Georgia Baptist Hospital *	Atlanta, Ga.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Grady Memorial Hospital *	Atlanta, Ga.	Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Henrietta Egleston Hospital for Children	Atlanta, Ga.	Ped.
Piedmont Hospital *	Atlanta, Ga.	Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
St. Joseph's Infirmary *	Atlanta, Ga.	Card. Dis., Int. Med., Ob.-Gyn., Path., Ped., Surg.
Veterans Admin. Hospital *	Atlanta, Ga.	Int. Med., Ophth., Path., Rad., Surg., Urol.
Eugene Talmadge Memorial Hospital	Augusta, Ga.	Surg.
University Hospital *	Augusta, Ga.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Veterans Adm. Hospital	Augusta, Ga.	Int. Med., Psych., Rad., Surg.
Columbus City Hospital *	Columbus, Ga.	Gen'l Pract.
Scottish Rite Hospital for Crippled Children	Decatur, Ga.	Ortho. Surg.
Emory University Hospital *	Emory University, Ga.	Anes., Int. Med., Neuro. Surg., Ortho. Surg., Path., Phys. Med., Rad., Surg.
Macon Hospital *	Macon, Ga.	Gen'l Pract.
Georgia Warm Springs Foundation	Warm Springs, Ga.	Phys. Med.
MacNeal Memorial Hospital *	Berwyn, Ill.	Gen'l Pract., Surg.
Alexian Brothers Hospital	Chicago	Path.
American Hospital *	Chicago	Anes., Path., Surg.
Augustana Hospital *	Chicago	Int. Med., Obst., Path., Rad., Surg.
Chicago Eye, Ear, Nose and Throat Hospital	Chicago	Ophth.
Chicago Maternity Center	Chicago	Obst.
Chicago State Hospital	Chicago	Psych.
Chicago State Tuberculosis Sanitarium	Chicago	Pulm. Dis., Thor. Surg.
Chicago Wesley Memorial Hospital *	Chicago	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Children's Memorial Hospital	Chicago	Card. Dis., Ortho. Surg., Path., Ped., Surg., Thor. Surg.
City of Chicago Municipal Tuberculosis Sanatorium	Chicago	Pul. Dis., Thor. Surg.
Columbus Hospital *	Chicago	Int. Med.
Cook County Hospital *	Chicago	Con. Dis., Derm. Syph., Gastro., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
Englewood Hospital *	Chicago	Obst., Path., Rad., Surg.
Frank Cuneo Memorial Hospital	Chicago	Ob.-Gyn.
Grant Hospital *	Chicago	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Henrotin Hospital	Chicago	Obst., Surg.
Hospital of St. Anthony de Padua *	Chicago	Obst., Surg.
Illinois Central Hospital *	Chicago	Int. Med., Rad., Surg
Illinois Eye and Ear Infirmary	Chicago	Ophth., Otol.
Illinois Masonic Hospital *	Chicago	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Lewis Memorial Maternity Hospital	Chicago	Ob.-Gyn.
Loretto Hospital *	Chicago	Psych.
Lutheran Deaconess Home and Hospital *	Chicago	Obst.
Mercy Hospital *	Chicago	Int., Med., Neuro. Surg., Ob.-Gyn., Path., Ped., Psych., Rad., Surg., Urol.
Michael Reese Hospital *	Chicago	Anes., Card. Dis., Derm. Syph., Int. Med., Mal. Dis., Ob-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Mount Sinai Hospital *	Chicago	Anes., Int. Med., Ob.-Gyn., Path., Ped., Psych., Rad., Surg., Urol.
Northwestern University Medical Center	Chicago	Allergy, Derm. Syph., Neur., Neuro. Surg., Phys. Med., Psych.
Norwegian-American Hospital *	Chicago	Int. Med., Path., Surg.
Passavant Memorial Hospital *	Chicago	Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Rad., Surg.
Presbyterian Hospital *	Chicago	Int. Med., Neuro. Surg., Ob-Gyn., Ophth., Otol., Path., Ped., Rad., Surg., Urol.
Provident Hospital *	Chicago	Int. Med., Ob.-Gyn., Ophth., Ped., Surg.
Ravenswood Hospital *	Chicago	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Anne's Hospital *	Chicago	Obst., Path., Surg.,
St. Elizabeth Hospital *	Chicago	Ob.-Gyn., Ortho. Surg.
St. Joseph Hospital *	Chicago	Int. Med., Ob.-Gyn., Path., Ped., Surg.
St. Luke's Hospital *	Chicago	Anes., Int. Med., Neur., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
St. Mary of Nazareth Hospital *	Chicago	Gen'l Pract., Int. Med., Path., Surg.
Shriners Hospital for Crippled Children	Chicago	Ortho. Surg.
South Shore Hospital *	Chicago	Gen'l Pract.
Swedish Covenant Hospital *	Chicago	Obst.
University of Chicago Clinics *	Chicago	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Rad., Surg., Urol.
University of Illinois Neuropsychiatric Institute	Chicago	Neur., Neuro. Surg., Psych.
University of Illinois Research and Educational Hospitals *	Chicago	Allergy, Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. Research Hospital	Chicago	Allergy, Gastro., Int Med., Neuro. Surg., Ophth., Otol., Path., Phys. Med., Rad., Surg., Thor. Surg.
Veterans Admin. (West Side) Hospital	Chicago	Int. Med., Psych., Surg.
Woodlawn Hospital *	Chicago	Ophth., Surg.
Decatur and Macon County Hospital *	Decatur, Ill.	Gen'l Pract.
Veterans. Admin. Hospital	Downey, Ill.	Psych.
Elgin State Hospital	Elgin, Ill.	Psych.
Evanston Hospital *	Evanston, Ill.	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
St. Francis Hospital *	Evanston, Ill.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg.
Little Company of Mary Hospital *	Evergreen Park, Ill.	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Galesburg State Research Hospital	Galesburg, Ill.	Psych.
U. S. Naval Hospital *	Great Lakes, Ill.	Int. Med., Ob.-Gyn., Surg.
Veterans Admin. Hospital	Hines, Ill.	Anes., Card. Dis., Derm. Syph., Int. Med., Mal. Dis., Neur., Ophth., Ortho. Surg., Otol., Path., Plas. Surg., Psych., Rad., Surg., Thor. Surg., Urol.
St. Joseph's Hospital	Joliet, Ill.	Anes.
West Suburban Hospital *	Oak Park, Ill.	Ob.-Gyn., Ortho. Surg.
Methodist Hospital of Central Illinois *	Peoria, Ill.	Gen'l Pract., Obst., Path., Surg.
Peoria Municipal Tuberculosis Sanitarium	Peoria, Ill.	Pul. Dis.
St. Francis Hospital *	Peoria, Ill.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
U. S. Air Force Hospital	Rantoul, Ill.	Surg.
Rockford Memorial Hospital *	Rockford, Ill.	Path.
St. Anthony's Hospital *	Rockford, Ill.	Ob.-Gyn., Path., Surg.
Swedish-American Hospital *	Rockford, Ill.	Gen. Pract., Rad.
Carle Memorial Hospital	Urbana, Ill.	Rad.
Lake County Tuberculosis Sanatorium	Waukegan, Ill.	Pul. Dis.

* Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
North Shore Health Resort	Winnetka, Ill.	Psych.
St. Francis Hospital	Beach Grove, Ind.	Gen'l Pract.
Clinic Hospital	Bluffton, Ind.	Int. Med., Rad., Surg.
St. Joseph's Hospital ★	Fort Wayne, Ind.	Path., Rad.
Methodist Hospital ★	Gary, Ind.	Gen'l Pract., Path.
St. Margaret Hospital ★	Hammond, Ind.	Gen'l Pract.
Central State Hospital	Indianapolis	Psych.
Indianapolis General Hospital ★	Indianapolis	Anes., Card. Dis., Derm. Syph., Int. Med., Neur., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Pul. Dis., Rad., Surg., Urol.
Indiana University Medical Center ★	Indianapolis	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Methodist Hospital ★	Indianapolis	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Urol.
Norways Foundation Hospital	Indianapolis	Psych.
St. Vincent's Hospital ★	Indianapolis	Card. Dis., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Surg.
Sunnyside Sanatorium	Indianapolis	Pul. Dis.
Veterans Admin. Hospital	Indianapolis	Int. Med., Neuro. Surg., Ortho. Surg., Path., Psych., Rad., Surg.
St. Elizabeth Hospital ★	Lafayette, Ind.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Logansport State Hospital	Logansport, Ind.	Psych.
Ball Memorial Hospital ★	Muncie, Ind.	Path., Surg.
Healthwin Hospital	South Bend, Ind.	Pul. Dis.
Memorial Hospital ★	South Bend, Ind.	Gen'l Pract., Path.
South Bend Medical Foundation	South Bend, Ind.	Path.
Dr. Norman M. Beatty Memorial Hospital	Westville, Ind.	Psych.
St. Luke's Methodist Hospital ★	Cedar Rapids, Iowa	Gen'l Pract., Path.
Mental Health Institute	Cherokee, Iowa	Psych.
Broadlawns Polk County Hospital ★	Des Moines, Iowa	Gen'l Pract., Surg.
Iowa Methodist Hospital ★	Des Moines, Iowa	Int. Med., Path., Ped., Rad., Surg.
Mercy Hospital ★	Des Moines, Iowa	Path.
Veterans Admin. Hospital	Des Moines, Iowa	Anes., Int. Med., Ortho. Surg., Path., Rad., Surg., Urol.
Iowa State Psychopathic Hospital	Iowa City	Psych.
Mercy Hospital ★	Iowa City	Ortho. Surg., Surg.
University Hospitals ★	Iowa City	Anes., Derm. Syph., Gen'l Pract., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Iowa City	Anes., Int. Med., Path., Rad., Surg.
St. Margaret Hospital ★	Kansas City, Kan.	Surg.
University of Kansas Medical Center ★	Kansas City, Kan.	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Phys. Med., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
C. F. Menninger Memorial Hospital	Topeka, Kan.	Psych.
Topeka State Hospital	Topeka, Kan.	Psych.
Veterans Admin. Hospital	Topeka, Kan.	Int. Med., Neur., Psych.
Veterans Admin. Hospital	Wadsworth, Kan.	Int. Med., Ophth., Otol., Ortho. Surg., Path., Rad., Surg., Urol.
St. Francis Hospital ★	Wichita, Kan.	Gen'l Pract., Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Veterans Admin. Hospital	Wichita, Kan.	Surg.
Wesley Hospital ★	Wichita, Kan.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Wichita St. Joseph Hospital ★	Wichita, Kan.	Path.
U. S. Army Hospital	Fort Campbell, Ky.	Surg.
U. S. Army Hospital	Fort Knox, Ky.	Surg.
Central State Hospital	Lakeland, Ky.	Psych.
Good Samaritan Hospital ★	Lexington, Ky.	Int. Med., Ortho. Surg., Surg.
St. Joseph Hospital ★	Lexington, Ky.	Int. Med., Ob.-Gyn., Ortho. Surg., Surg., Urol.
U. S. Public Health Service Hospital	Lexington, Ky.	Psych.
Veterans Admin. Hospital	Lexington, Ky.	Psych.
Children's Hospital	Louisville, Ky.	Path., Ped.
Kosair Crippled Children's Hospital	Louisville, Ky.	Ortho. Surg.
Louisville General Hospital ★	Louisville, Ky.	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Norton Memorial Infirmary ★	Louisville, Ky.	Psych., Surg.
St. Anthony's Hospital ★	Louisville, Ky.	Gen'l Pract.
St. Joseph Infirmary ★	Louisville, Ky.	Int. Med., Ob.-Gyn., Ped., Rad., Surg.
Veterans Admin. Hospital	Louisville, Ky.	Int. Med., Neur., Neur. Surg., Ophth., Otol., Ortho. Surg., Path., Psych. Rad., Surg., Urol.
Baton Rouge General Hospital ★	Baton Rouge, La.	Gen'l Pract., Path.
Lafayette Charity Hospital	Lafayette, La.	Gen'l Pract., Surg.
St. Patrick's Hospital	Lake Charles, La.	Gen'l Pract.
Charity Hospital of Louisiana ★	New Orleans	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
DePaul Hospital	New Orleans	Psych.
Eye, Ear, Nose and Throat Hospital	New Orleans	Ophth., Otol.
otel Dieu, Sisters Hospital ★	New Orleans	Ob.-Gyn., Path., Ped., Surg.
hsner Foundation Hospital ★	New Orleans	Anes., Gastro., Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Proct., Rad., Surg., Urol.
ithern Baptist Hospital ★	New Orleans	Int. Med., Ob.-Gyn., Path., Ped., Rad.
uro Infirmary ★	New Orleans	Gastro., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Path., Rad., Surg.
. S. Public Health Service Hospital ★	New Orleans	Int. Med., Ophth., Path., Rad., Surg.
Veterans Admin. Hospital	New Orleans	Derm. Syph., Int. Med., Ophth., Ortho. Surg., Path., Psych., Rad., Surg., Urol.
Huey P. Long Charity Hospital	Pineville, La.	Gen'l Pract.
Confederate Memorial Hospital ★	Shreveport, La.	Int. Med., Ob.-Gyn., Ortho. Surg., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Shriners Hospital for Crippled Children	Shreveport, La.	Ortho. Surg.
Eastern Maine General Hospital ★	Bangor, Maine	Anes., Path., Rad.
Central Maine Sanatorium	Fairfield, Maine	Pul. Dis.
Central Maine General Hospital ★	Lewiston, Maine	Anes., Int. Med., Path., Ped., Rad., Surg.
Maine General Hospital ★	Portland, Maine	Anes., Int. Med., Path., Rad., Surg.
Baltimore City Hospitals ★	Baltimore	Int. Med., Neur., Ob.-Gyn., Ortho. Surg., Path., Ped., Pul. Dis., Rad., Surg.
Baltimore Eye, Ear and Throat Charity Hospital	Baltimore	Ophth., Otol.
Bon Secours Hospital ★	Baltimore	Gen'l Pract., Ob.-Gyn., Surg.
Children's Hospital School	Baltimore	Ortho. Surg.
Church Home and Hospital ★	Baltimore	Int. Med., Obst., Surg.
Franklin Square Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Surg.
Hospital for Women ★	Baltimore	Ob.-Gyn., Path.
James Lawrence Kernan Hospital for Crippled Children	Baltimore	Ortho. Surg.
Johns Hopkins Hospital ★	Baltimore	Int Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Lutheran Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.
Maryland General Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Surg.
Mercy Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Otol., Path., Ped., Rad., Surg.
Provident Hospital and Free Dispensary ★	Baltimore	Int. Med., Obst., Surg.
St. Agnes Hospital ★	Baltimore	Int. Med., Ob.-Gyn.
St. Joseph's Hospital ★	Baltimore	Ob.-Gyn., Surg.
Seton Institute	Baltimore	Psych.
Sinai Hospital ★	Baltimore	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., Urol.
South Baltimore General Hospital ★	Baltimore	Int. Med., Obst., Otol., Surg.
[illegible] Hospital ★	Baltimore	Int. Med., Ob-Gyn., Path., Ped., Surg.
[illegible] Service Hospital ★	Baltimore	Int. Med., Opth., Path., Rad., Surg.
[illegible] ★	Baltimore	Anes., Derm., Syph., Gen'l. Prac., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
National Institutes of Health—Clinical Center	Bethesda, Md	Int Med, Neuro, Path, Psych., Rad
Suburban Hospital ★	Bethesda Md	Gen'l Pract
U S Naval Hospital ★	Bethesda Md	Anes, Card Dis, Int Med, Neur, Ob-Gyn, Ophth, Otol, Ortho Surg Path, Ped, Psych, Rad, Surg, Urol
Spring Grove State Hospital	Catonsville, Md	Psych
Prince George's General Hospital ★	Cheverly, Md	Int Med, Ob-Gyn, Path, Surg
Crownsville State Hospital	Crownsville Md	Psych
Veterans Admin Hospital	Fort Howard, Md	Derm Syph, Int Med, Ophth, Surg, Urol
Washington County Hospital	Hagerstown Md	Rad
Veterans Admin Hospital	Perry Point, Md	Int Med, Psych, Surg
Chestnut Lodge Sanitarium	Rockville, Md	Psych
Springfield State Hospital	Sykesville, Md	Psych
Sheppard and Enoch Pratt Hospital	Towson, Md	Psych
Veterans Admin Hospital	Bedford, Mass	Psych
Beverly Hospital ★	Beverly, Mass	Int Med, Path, Surg
Beth Israel Hospital ★	Boston	Card Dis, Gastro Int Med, Obst Otol Path, Psych, Rad, Surg Urol.
Boston City Hospital ★	Boston	Anes, Derm Syph, Int Med, Neur Neuro. Surg, Ob-Gyn Ophth, Ortho Surg, Otol, Path, Ped, Rad Surg, Thor Surg, Urol
Boston Floating Hospital	Boston	Ped
Boston Lying-In Hospital	Boston	Obst, Path
Boston Sanatorium	Boston	Pul Dis, Thor Surg
Boston State Hospital	Boston	Psych
Carney Hospital ★	Boston	Int Med, Ob-Gyn, Path, Surg
Children's Medical Center ★	Boston	Neuro Surg, Ortho Surg, Path Ped, Rad
Faulkner Hospital	Boston	Int Med, Path, Rad
Lahey Clinic	Boston	Anes, Gastro, Int Med Neuro Surg, Ortho Surg, Rad
Lemuel Shattuck Hospital	Boston	Int Med, Path
Massachusetts Eye and Ear Infirmary	Boston	Ophth, Otol
Massachusetts General Hospital ★	Boston	Allergy, Anes, Derm Syph, Int Med, Neur, Neuro Surg, Ortho Surg, Path, Ped Phys Med, Psych, Rad, Surg, Urol
Massachusetts Memorial Hospitals ★	Boston	Anes. Con Dis, Derm Syph, Gastro, Int Med, Ob-Gyn, Ophth, Ortho Surg, Path, Psych, Rad, Surg, Urol
Massachusetts Mental Health Center	Boston	Psych
New England Center Hospital ★	Boston	Anes, Int Med, Neur, Neuro Surg, Path, Psych Rad, Surg, Urol
New England Deaconess Hospital	Boston	Anes Int Med, Path, Rad Thor Surg
New England Hospital ★	Boston	Anes, Gen'l Pract, Obst, Surg
Peter Bent Brigham Hospital ★	Boston	Anes, Card Dis, Int Med, Neuro Surg, Ortho Surg, Path, Rad Surg, Urol
St Elizabeth Hospital ★,	Boston	Anes, Int Med, Ob-Gyn Path, Psych, Surg
St Margaret's Hospital	Boston	Ob-Gyn
U S Public Health Service Hospital ★	Boston	Int Med, Surg
Veterans Admin Hospital	Boston (Jamaica Plain)	Int Med, Neur Ortho Surg, Otol Path, Phys Med, Psych, Rad, Surg Urol
Veterans Admin Hospital	Boston (West Roxbury)	Rad, Urol
Veterans Admin Hospital	Brockton, Mass	Psych
Booth Memorial Hospital and Home	Brookline, Mass	Obst
Free Hospital for Women	Brookline, Mass	Gyn
Cambridge City Hospital ★	Cambridge Mass	Anes, Int Med, Ob-Gyn, Path, Rad, Surg
Cambridge Sanitarium	Cambridge, Mass	Pul Dis
Mount Auburn Hospital ★.	Cambridge, Mass	Anes, Int Med Path, Rad, Surg
Massachusetts Hospital School	Canton, Mass	Ortho Surg
Lawrence F Quigley Memorial Hospital	Chelsea, Mass	Int Med, Surg
U S Naval Hospital ★.	Chelsea, Mass	Anes, Gen'l Pract, Int Med, Ob-Gyn, Ortho Surg Ped, Rad, Surg
St Anne's Hospital	Fall River, Mass	Gen'l Pract, Ob Gyn
Truesdale Hospital ★	Fall River, Mass	Int Med, Path
Burbank Hospital	Fitchburg, Mass	Path, Surg
Foxboro State Hospital	Foxboro, Mass	Psych
Danvers State Hospital	Hathorne, Mass	Psych
Lawrence General Hospital ★	Lawrence, Mass	Path, Rad
Lowell General Hospital ★	Lowell, Mass	Path.
Lynn Hospital ★	Lynn, Mass	Int Med, Ortho Surg, Path Rad, Surg
Malden Hospital	Malden, Mass	Int Med Path, Surg
Medfield State Hospital	Medfield, Mass	Psych
St Luke's Hospital ★	New Bedford, Mass	Path.
Newton-Wellesley Hospital ★	Newton, Mass	Int Med, Path Rad, Surg
Cooley Dickenson Hospital	Northhampton Mass	Gen'l Pract
Quincy City Hospital ★	Quincy, Mass	Int Med Ob-Gyn, Path, Surg
Veterans Admin Hospital	Rutland Heights, Mass	Pul Dis, Thor. Surg
Salem Hospital ★	Salem, Mass	Int Med, Path, Rad
Shriners Hospital for Crippled Children	Springfield Mass	Ortho Surg
Springfield Hospital ★	Springfield, Mass	Anes, Int Med Path Rad Surg
Austen Riggs Foundation	Stockbridge Mass	Psych
Taunton State Hospital	Taunton, Mass	Psych
Pondville Hospital	Walpole Mass	Int Med Path Surg
Metropolitan State Hospital	Waltham, Mass	Psych
Middlesex County Sanatorium	Waltham, Mass	Pul Dis
McLean Hospital	Waverly, Mass	Psych
Westboro State Hospital	Westboro, Mass	Psych
Westfield State Sanatorium	Westfield, Mass	Pul Dis, Surg
Memorial Hospital ★	Worcester Mass	Int Med Path Rad Surg
St Vincent's Hospital ★	Worcester, Mass	Anes, Int Med., Surg
Worcester City Hospital ★.	Worcester Mass	Anes, Con Dis, Int Med Ortho Surg Path Ped Pul Dis Surg
Worcester State Hospital	Worcester Mass	Psych
St Joseph Mercy Hospital ★	Ann Arbor, Mich	Int Med Ob Gyn, Rad Surg
University Hospital ★	Ann Arbor Mich	Allergy, Anes Derm Syph Int Med Neur Neuro Surg Ob-Gyn, Ophth, Otol, Ortho Surg Path, Ped, Phys Med Psych, Rad, Surg, Thor Surg, Urol
Leila Y Post Montgomery Hospital ★	Battle Creek Mich	Int Med, Path Rad Surg
Oakwood Hospital ★	Dearborn Mich	Gen'l Pract
Veterans Admin Hospital	Dearborn Mich	Int. Med, Neur Ophth Path Psych Rad Surg Urol
Alexander Blain Hospital.	Detroit	Int Med Surg
Brent General Hospital	Detroit	Gen'l Pract
Children's Hospital	Detroit	Ortho Surg, Ped Rad
Detroit Memorial Hospital ★	Detroit	Int Med Ob Gyn Path Surg
Evangelical Deaconess Hospital ★	Detroit	Int Med Ob Gyn
Florence Crittenton Hospital	Detroit	Ob-Gyn
Grace Hospital ★	Detroit	Int Med Neuro Surg Ob-Gyn Path Rad Surg Urol
Harper Hospital ★	Detroit	Anes, Int Med Ob Gyn Ophth Otol Ortho Surg, Path, Ped, Rad Surg Urol
Henry Ford Hospital ★	Detroit	Anes, Card Dis Derm Syph Gastro Int Med Neur, Neuro Surg, Ob-Gyn Ophth Otol Ortho Surg, Path Ped, Plas Surg, Psych, Pul. Dis, Rad, Surg Urol
Herman Kiefer Hospital	Detroit	Con Dis, Ob-Gyn Path Pul Dis Rad Thor Surg
Jennings Memorial Hospital	Detroit	Int Med Surg
Lynn Hospital	Detroit	Gen'l Pract
Mount Carmel Mercy Hospital ★	Detroit	Int Med Ob-Gyn Path, Rad Surg
Providence Hospital ★	Detroit	Anes, Int Med, Ob-Gyn Path Rad Surg
Receiving Hospital ★	Detroit	Anes, Derm Syph Int Med Ob-Gyn, Ophth Otol, Ortho Surg, Path, Psych, Rad, Surg Urol
St John Hospital ★.	Detroit	Int Med, Ob-Gyn, Surg
St Joseph Mercy Hospital ★	Detroit	Int Med Ob-Gyn, Surg

★ Indicates hospitals approved for training interns

Name of Hospital	Location	Approved Residencies
Huron Road Hospital ★	Cleveland	Anes., Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
Lutheran Hospital ★	Cleveland	Int. Med., Obst., Path., Rad., Surg.
Mount Sinai Hospital ★	Cleveland	Anes., *Int. Med., Ob.-Gyn.*, Ortho. Surg., Path., Rad., Surg.
St. Alexis Hospital ★	Cleveland	Anes., Int. Med., Obst., Surg.
St. Ann Hospital	Cleveland	*Obst.*
St. *John's Hospital* ★	Cleveland	Int. Med., Ob.-*Gyn.*, Surg.
St. Luke's Hospital ★	Cleveland	Anes., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg.
St. Vincent Charity Hospital ★	Cleveland	Int. Med., *Path.*, Rad., *Surg.*
Sunny Acres, Cuyahoga County Tuberculosis Hospital	Cleveland	Pul. Dis., Thor. Surg.
University Hospitals ★	Cleveland	Anes., Card. Dis., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Cleveland	Int. Med., Neuro. Surg., Ophth., Ortho. Surg., Otol., Path., Phys. Med., *Psych.*, Rad., Surg., Thor. Surg., Urol.
Doctors Hospital	Cleveland Heights	Surg.
Benjamin Franklin *Hospital*	Columbus, Ohio	Thor. Surg.
Children's Hospital	*Columbus, Ohio*	*Ophth., Otol.*, Ortho. Surg., Path., Ped., Surg.
Columbus State Hospital	Columbus, Ohio	Psych.
Grant Hospital ★	Columbus, Ohio	Path.
Mount Carmel Hospital ★	Columbus, Ohio	Gen'l *Pract.*, Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
Ohio State University Hospitals		
Columbus Receiving *Hospital*	Columbus, Ohio	Psych.
Ohio Tuberculosis *Hospital*	Columbus, Ohio	Pul. Dis., Thor. Surg.
University Hospital ★	Columbus, Ohio	Allergy, Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Otol., Path , Phys. Med., Plas. Surg., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
St. Ann Hospital for Women	Columbus, Ohio	Ob.-Gyn.
White Cross *Hospital* ★	Columbus, Ohio	Card. Dis., Gen'l Pract., Int. *Med.*, *Neuro.* Surg., Ob.-Gyn., Ortho. Surg., Path., Surg.
Good Samaritan Hospital ★	Dayton, Ohio	Ob.-Gyn., Surg.
Miami Valley Hospital ★	Dayton, Ohio	Gen'l Pract., Obst., Path., Rad., Surg.
St. Elizabeth Hospital ★	Dayton, Ohio	Rad., Surg.
Veterans Admin. Hospital	Dayton, Ohio	Int. Med., Path., Phys. Med., Rad., Surg., Urol.
Elyria Memorial Hospital and *Gates Hospital* for Crippled Children ★	Elyria, Ohio	Ortho. Surg., Rad.
Euclid-Glenville Hospital ★	Euclid, Ohio	Gen'l Pract.
Holzer Hospital	Gallipolis, Ohio	Surg.
Marymount Hospital ★	Garfield Heights, Ohio	Anes., Int. Med., Ob.-Gyn., Surg.
Mercy Hospital ★	Hamilton, Ohio	Path., Surg.
Lakewood Hospital ★	*Lakewood, Ohio*	*Int. Med., Ob.-Gyn.*, Surg.
Lima Memorial Hospital ★	Lima, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Surg.
St. Rita's Hospital ★	Lima, Ohio	Gen'l Pract., Int. Med., Obst., Path., Surg.
Mansfield General Hospital	*Mansfield*, Ohio	Surg.
Springfield City Hospital ★	Springfield, Ohio	Path.
Maumee Valley Hospital ★	Toledo, Ohio	Int. Med., Obst., Surg.
Mercy Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
St. Charles Hospital ★	Toledo, Ohio	Psych.
St. Vincent's Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., *Path., Surg., Urol.*
Toledo Hospital ★	Toledo, Ohio	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Ped., Rad.
Harding Sanitarium	Worthington, Ohio	Psych.
Mahoning County Tuberculosis Sanitorium	Youngstown, Ohio	Pul. Dis.
St. *Elizabeth Hospital* ★	Youngstown, Ohio	Anes., Int. Med., Ob.-Gyn., Path., Surg.
Youngstown Hospital ★	Youngstown, Ohio	Anes., Gen'l Pract., Int. Med., Ortho. Surg., Path., Proct., Rad., Surg.
Central Oklahoma State Hospital	Norman, Okla.	Psych.
Bone and Joint Hospital and McBride Clinic	Oklahoma City	Ortho. Surg.
St. Anthony Hospital ★	Oklahoma City	Int. Med., Ob.-Gyn , Ortho. Surg., Path., Surg.
University Hospitals ★	*Oklahoma City*	Anes., *Derm. Syph., Gen'l Pract.*, Int. Med., *Neuro. Surg., Ob.-Gyn., Ophth.*, Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. *Hospital* ★	Oklahoma City	Int. Med., Ortho. Surg., Phys. Med., Rad., Surg.
Wesley Hospital ★	*Oklahoma City*	*Int. Med., Ob.-Gyn., Rad.*, Surg.
Hillcrest Medical Center ★	Tulsa, Okla.	Path., Ped.
St. John's Hospital ★	Tulsa, Okla.	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg., **Urol.**
Emanuel Hospital ★	*Portland*, Ore.	*Int. Med., Ob.-Gyn., Ortho. Surg., Path.*
Good Samaritan Hospital ★	Portland, Ore.	Int. Med., Path., Surg.
Providence Hospital ★	Portland, Ore.	Int. Med., Path., Rad., Surg.
St. Vincent's Hospital ★	Portland, Ore.	*Int. Med.*, Obst., Path., Rad., Surg., Urol.
Shriners Hospital for Crippled Children	Portland, Ore.	Ortho. Surg.
University of Oregon Medical School Hospitals and Clinics ★	Portland, Ore.	Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., *Ob.-Gyn.*, Ophth., Ortho. Surg., Otol., Path., Ped., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Portland, Ore.	Int. Med., Ortho. Surg., Otol., Phys. Med., Rad., Surg., Urol.
Oregon State *Hospital*	Salem, Ore.	Psych.
Abington Memorial *Hospital* ★	Abington, Pa.	Int. Med., Ob.-Gyn., Path., Psych., Rad., Surg.
Allentown Hospital ★	Allentown, Pa.	Int. Med., Ob.-Gyn., Path., Plas. Surg., Proct., Surg., Urol.
Sacred Heart *Hospital* ★	Allentown, Pa.	Int. Med., Path., Rad., Surg.
Luke's Hospital ★	Bethlehem, Pa.	Gen'l Pract., Int. Med., Ob -Gyn., Path., Surg.
dford Hospital	Bradford, Pa.	Gen'l Pract., Surg.
Mawr Hospital ★	Bryn Mawr, Pa	Int. Med., Ob.-Gyn., Path., Rad., Surg.
ter Hospital ★	Chester, Pa.	Gen'l Pract., Path.
rans Admin. Hospital	Coatesville, Pa.	Psych.
anville State Hospital	*Danville, Pa.*	*Psych.*
George F. Geisinger Memorial Hospital ★	Danville, Pa.	Anes., Gen'l Pract., Int. Med., Ob.-Gyn., Ophth., *Ortho.* Surg., Otol., Path., Ped., Rad., Surg., Urol.
Fitzgerald-Mercy Hospital ★	Darby, Pa.	Gen'l Pract., Ob.-Gyn., Path., Rad.
Eagleville Sanatorium for Consumptives	Eagleville, Pa.	Pul. Dis.
Easton Hospital ★	Easton, Pa.	Int. Med., Surg.
State Hospital for Crippled Children	Elizabethtown, Pa.	Ortho. Surg.
Embreeville State Hospital	Embreeville, Pa.	Psych.
Hamot Hospital ★	Erie, Pa.	Int. Med., Ortho. Surg., Path., Surg.
St. Vincent's Hospital ★	Erie, Pa.	Path., Rad., Surg., Urol.
Westmoreland Hospital ★	Greensburg, Pa.	Int. Med.
Pennsylvania State Sanatorium for Tuberculosis	Hamburg, Pa.	Pul. Dis.
Harrisburg Hospital ★	Harrisburg, Pa.	Int. Med., Ob.-Gyn., Surg., Urol.
Harrisburg Polyclinic Hospital ★	Harrisburg, Pa.	Int. Med., Path., Ped., Surg.
Harrisburg State Hospital	Harrisburg, Pa.	Psych.
Hazleton State Hospital	Hazleton, Pa.	Surg.
Lancaster General Hospital ★	Lancaster, Pa.	Path.
St. Joseph's Hospital ★	Lancaster, Pa.	Gen'l Pract., Path., Surg.
Norristown State Hospital	Norristown, Pa.	Psych.
Sacred Heart Hospital ★	Norristown, Pa.	Gen'l Pract.
Albert Einstein Medical Center		
Northern Division ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Ped., Rad., Surg.
Southern Division ★	Philadelphia	Int. Med., Ob.-Gyn., *Path., Ped., Psych., Rad.*, Surg.
American Oncologic Hospital	Philadelphia	Mal. Dis., Rad.
Chestnut Hill Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Rad.
Children's Hospital	Philadelphia	Ortho. Surg., Ped., Surg.
Episcopal Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Rad., Surg., Thor. Surg., Urol.
Frankford Hospital ★	Philadelphia	Int. Med., *Ob.-Gyn.*, Path., Surg.
Friends Hospital	Philadelphia	Psych.
Germantown Dispensary and Hospital ★	Philadelphia	Int. Med., Ob.-Gyn., Path., Ped., *Rad.*, Surg., Urol.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
Graduate Hospital of the University of Pennsylvania ★	Philadelphia	Anes, Card Dis, Derm Syph, Gastro, Gyn Int Med, Neur, Neuro Surg, Ophth, Ortho Surg, Otol, Path, Ped, Plas Surg, Pul Dis, Rad Surg, Urol
Hahnemann Medical College and Hospital ★	Philadelphia	Anes, Derm Syph, Int Med Neur Surg, Ob-Gyn, Ortho Surg, Path, Ped Rad, Surg Thor Surg, Urol
Hospital of the University of Pennsylvania ★	Philadelphia	Anes, Derm Syph, Gastro, Int Med, Neur, Neuro Surg, Ob-Gyn, Ophth, Ortho Surg, Otol, Path, Ped, Phys Med, Psych, Pul Dis, Rad, Surg, Urol
Hospital of the Women's College of Pennsylvania ★	Philadelphia	Anes, Int Med Ob-Gyn Path, Ped, Rad, Surg
Institute of the Pennsylvania Hospital	Philadelphia	Psych
Jeanes Hospital	Philadelphia	Mal Dis Rad
Jefferson Medical College Hospital ★	Philadelphia	Anes, Derm Syph Gastro, Int Med Neur, Neuro Surg, Ob-Gyn, Ophth Ortho Surg, Otol, Path, Ped, Psych, Rad, Surg, Urol
Lankenau Hospital ★	Philadelphia	Int Med, Obst Path, Surg Urol
Methodist Episcopal Hospital ★	Philadelphia	Int Med, Ob-Gyn, Surg
Misericordia Hospital ★	Philadelphia	Ob-Gyn Path
Nazareth Hospital ★	Philadelphia	Rad
Pennsylvania Hospital ★	Philadelphia	Anes, Card Dis, Derm Syph, Int Med Ob-Gyn, Ortho Surg, Path, Rad, Surg, Urol
Pennsylvania Hospital-Department for Mental and Nervous Diseases	Philadelphia	Psych
Philadelphia General Hospital ★	Philadelphia	Anes, Card Dis, Derm Syph Int Med, Neur, Ob-Gyn, Ophth, Ortho Surg, Otol, Path, Ped, Phys Med., Psych, Rad, Surg, Thor. Surg, Urol
Philadelphia General Hospital—Northern Division	Philadelphia	Con Dis, Obst
Philadelphia Psychiatric Hospital	Philadelphia	Psych
Philadelphia State Hospital	Philadelphia	Psych
Presbyterian Hospital ★	Philadelphia	Anes, Int Med, Ob-Gyn Path, Rad, Surg, Urol
St Christopher's Hospital for Children	Philadelphia	Ped
St Joseph's Hospital ★	Philadelphia	Surg
St Luke's and Children's Medical Center ★	Philadelphia	Ped
St Mary's Hospital	Philadelphia	Gen'l Pract, Surg
Shriners Hospital for Crippled Children	Philadelphia	Ortho Surg
Skin and Cancer Hospital	Philadelphia	Derm Syph
Temple University Hospital ★	Philadelphia	Allergy Anes, Card Dis, Gastro, Int Med, Neuro Surg, Ob-Gyn, Ophth, Ortho Surg, Otol, Path, Ped, Proct, Psych, Rad, Surg, Urol
U S Naval Hospital ★	Philadelphia	Anes, Derm Syph, Int Med, Neur Ob-Gyn, Ophth, Ortho Surg, Otol, Path Ped, Psych Rad, Surg Urol
Veterans Admin Hospital	Philadelphia	Int Med Ortho Surg, Path, Phys Med, Psych, Rad, Surg, Urol
Wills Eye Hospital	Philadelphia	Ophth
Woman's Hospital ★	Philadelphia	Int Med, Ob-Gyn, Surg
Valley Forge Army Hospital ★	Phoenixville Pa	Int Med, Surg
Allegheny General Hospital ★	Pittsburgh	Anes, Int Med, Ortho Surg, Path, Ped, Rad, Surg, Urol
Children's Hospital	Pittsburgh	Ortho Surg, Path, Ped, Surg
Elizabeth Steel Magee Hospital	Pittsburgh	Int Med, Ob Gyn, Path
Eye and Ear Hospital	Pittsburgh	Ophth, Otol
Mercy Hospital ★	Pittsburgh	Anes Int Med, Neuro Surg Ob-Gyn, Otol, Path, Rad, Surg, Urol
Montefiore Hospital ★	Pittsburgh	Allergy Anes, Int Med Obst, Ophth, Path, Rad, Surg
Pittsburgh Hospital ★	Pittsburgh	Int Med, Ob-Gyn
Pittsburgh Medical Center	Pittsburgh	Neuro Surg, Rad, Urol
Presbyterian Hospital ★	Pittsburgh	Card Dis, Int Med, Neuro Surg, Ortho Surg, Path, Plas Surg, Proct, Surg, Urol
St Francis General Hospital and Rehabilitation Institute ★	Pittsburgh	Anes Card Dis, Int Med, Neur, Ob-Gyn, Ortho Surg, Path, Psych Rad, Surg
St John's General Hospital ★	Pittsburgh	Gen'l Pract
St Margaret Memorial Hospital ★	Pittsburgh	Int Med, Ob-Gyn, Path
Shadyside Hospital ★	Pittsburgh	Path
South Side Hospital ★	Pittsburgh	Ob Gyn, Path
Veterans Admin Hospital	Pittsburgh	Allergy Int Med Neur, Ophth, Otol, Path, Phys Med, Rad, Surg Urol
Western Pennsylvania Hospital ★	Pittsburgh	Int Med, Obst, Path, Ped, Rad, Surg
Western State Psychiatric Institute and Clinic	Pittsburgh	Psych
Community General Hospital ★	Reading, Pa	Gen'l Pract Path
Reading Hospital ★	Reading, Pa	Anes Int Med, Gyn, Ortho Surg, Path, Rad, Surg
St Joseph's Hospital ★	Reading, Pa	Int Med, Path, Rad, Surg
Robert Packer Hospital ★	Sayre Pa	Anes Int Med, Neuro Surg, Ophth, Ortho Surg, Path, Ped, Rad, Surg Urol
Scranton State Hospital ★	Scranton, Pa	Int Med, Path
Sharon General Hospital ★	Sharon, Pa	Gen'l Pract, Rad
Mont Alto State Sanatorium (Pennsylvania State Sanatorium No 1)	South Mountain, Pa	Pul Dis
Warren State Hospital	Warren, Pa	Psych
Chester County Hospital ★	West Chester Pa	Rad
Mercy Hospital ★	Wilkes-Barre Pa	Surg Urol
Wilkes-Barre General Hospital ★	Wilkes-Barre, Pa	Int Med, Path, Surg Urol
Columbia Hospital ★	Wilkinsburg Pa	Surg
Williamsport Hospital ★	Williamsport Pa	Path, Surg
Woodville State Hospital	Woodville Pa	Psych
York Hospital ★	York Pa	Int Med, Path, Surg
State Hospital for Mental Diseases	Howard R I	Psych
Memorial Hospital ★	Pawtucket, R I	Gen'l Pract
Charles V Chapin Hospital	Providence R I	Ped, Psych
Miriam Hospital ★	Providence R I	Anes
Providence Lying-In Hospital	Providence R I	Obst
Rhode Island Hospital ★	Providence, R I	Anes, Card Dis, Int Med, Gyn, Ortho Surg, Otol, Path, Ped, Rad, Surg, Urol
Roger Williams General Hospital ★	Providence, R I	Rad
Veterans Admin Hospital	Providence, R I	Int Med, Surg
Emma Pendleton Bradley Home	Riverside, R I	Psych
Roper Hospital ★	Charleston S C	Anes Int Med, Ob-Gyn, Ophth Ortho Surg, Otol, Path, Ped, Rad, Surg, Urol
Columbia Hospital ★	Columbia, S C	Ob-Gyn, Ortho Surg, Ped, Rad, Surg
Veterans Admin Hospital	Columbia, S C	Int Med, Ortho Surg, Surg
McLeod Infirmary ★	Florence, S C	Ob-Gyn
Greenville General Hospital ★	Greenville, S C	Gen'l Pract, Ob-Gyn, Ortho Surg, Path, Surg
Shriners Hospital for Crippled Children	Greenville, S C	Ortho Surg
Orangeburg Regional Hospital ★	Orangeburg, S C	Urol
Spartanburg General Hospital ★	Spartanburg, S C	Gen'l Pract, Rad
Sacred Heart Hospital ★	Yankton, S Dak	Gen'l Pract, Surg.

★ Indicates hospitals approved for training interns

Name of Hospital	Location	Approved Residencies
Baroness Erlanger Hospital ★	Chattanooga, Tenn.	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Rad., Surg.
Memorial Hospital	Chattanooga, Tenn.	Int. Med., Ob.-Gyn.
Newell Hospital	Chattanooga, Tenn.	Surg.
T. C. Thompson Children's Hospital	Chattanooga, Tenn.	Ped.
East Tennessee Baptist Hospital ★	Knoxville, Tenn.	Path.
Memorial Research Center and Hospital ★ (Knoxville General Hospital)	Knoxville, Tenn.	Ob.-Gyn.
St. Mary's Memorial Hospital ★	Knoxville, Tenn.	Gen'l Pract., Int. Med., Path., Surg.
Madison Sanitarium and Hospital	Madison College, Tenn.	Gen'l Pract.
Baptist Memorial Hospital ★	Memphis, Tenn.	Int. Med , Neuro. Surg., Ob.-Gyn., Path., Rad., Surg., Thor. Surg , Urol
Campbell Clinic Hospital	Memphis, Tenn.	Ortho. Surg.
Gailor Memorial Psychiatric Hospital	Memphis, Tenn.	Psych.
John Gaston Hospital ★	Memphis, Tenn	Int. Med., Ob.-Gyn., Ophth., Otol., Path , Ped., Rad , Surg., Urol.
LeBonheur Children's Hospital	Memphis, Tenn.	Ped.
Memphis Eye, Ear, Nose and Throat Hospital	Memphis, Tenn.	Ophth.
Methodist Hospital ★	Memphis, Tenn.	Path , Rad , Surg.
St. Joseph's Hospital ★	Memphis, Tenn.	Int. Med , Ob -Gyn., Path., Ped., Surg.
Veterans Admin. Hospital	Memphis, Tenn	Gastro., Int. Med , Neuro Surg., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
West Tennessee Tuberculosis Hospital	Memphis, Tenn.	Pul. Dis., Thor. Surg.
Baptist Hospital ★	Nashville, Tenn.	Int. Med , Ob.-Gyn., Path., Surg.
George W. Hubbard Hospital of Meharry Medical College ★	Nashville, Tenn.	Int. Med , Obst , Path., Ped., Rad., Surg.
Nashville General Hospital ★	Nashville, Tenn.	Int Med., Ob.-Gyn., Path., Surg.
St. Thomas Hospital ★	Nashville, Tenn	Int. Med , Obst , Surg.
Vanderbilt University Hospital ★	Nashville, Tenn.	Anes , Int. Med., Neuro. Surg., Ob.-Gyn., Ortho. Surg., Path., Ped , Psych., Rad., Surg., Thor. Surg., Urol.
Veterans Admin. Hospital	Nashville, Tenn	Int. Med., Path., Psych., Rad., Surg.
Oak Ridge Institute of Nuclear Studies	Oak Ridge, Tenn.	Int. Med.
Oakville Memorial Sanatorium	Oakville, Tenn.	Pul. Dis
Brackenridge Hospital ★	Austin, Texas	Ob.-Gyn., Path., Rad., Surg.
Driscoll Foundation Children's Hospital	Corpus Christi, Texas	Ped.
Baylor University Hospital ★	Dallas, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Phys. Med , Plas. Surg , Proct., Rad., Surg., Thor. Surg.
Children's Medical Center ★	Dallas, Texas	Ped.
Gaston Hospital	Dallas, Texas	Surg.
Methodist Hospital ★	Dallas, Texas	Int. Med., Ob.-Gyn., Path., Rad., Surg.
Parkland Memorial Hospital ★	Dallas, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path., Psych , Pul. Dis , Rad , Surg., Urol.
St. Paul's Hospital ★	Dallas, Texas	Int Med , Ob.-Gyn., Path., Ped., Rad
Texas Scottish Rite Hospital for Crippled Children	Dallas, Texas	Ortho. Surg.
Timberlawn Sanitarium	Dallas, Texas	Psych.
Veterans Admin. Hospital ★	Dallas, Texas	Int. Med., Ophth., Otol , Rad , Surg., Thor. Surg., Urol.
Hotel Dieu, Sisters Hospital ★	El Paso, Texas	Ob.-Gyn.
William Beaumont Army Hospital ★	El Paso, Texas	Ob.-Gyn., Surg.
All Saints Hospital	Fort Worth, Texas	Gen'l Pract.
Harris Hospital ★	Fort Worth, Texas	Anes , Int. Med., Ob.-Gyn., Path., Surg.
John Peter Smith Hospital ★	Fort Worth, Texas	Gen'l Pract.
St. Joseph Hospital ★	Fort Worth, Texas	Path.
St. Mary's Hospital	Galveston, Texas	Gen'l Pract.
University of Texas Medical Branch Hospitals ★	Galveston, Texas	Anes , Card. Dis., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob -Gyn , Ophth., Ortho. Surg., Otol , Path., Ped., Plas. Surg., Psych , Rad , Surg., Thor. Surg., Urol.
Gonzales Warm Springs Foundation for Crippled Children	Gonzales, Texas	Phys. Med.
Baylor University College Hospitals	Houston, Texas	Anes., Derm. Syph., Ped., Plas. Surg., Psych., Urol.
Hermann Hospital ★	Houston, Texas	Anes., Int. Med., Ob.-Gyn , Ortho. Surg., Path., Ped., Rad., Surg , Urol
Jefferson Davis Hospital ★	Houston, Texas	Anes., Derm. Syph., Int. Med., Ob.-Gyn., Ophth., Ortho. Surg., Otol , Path Ped., Plas. Surg., Psych., Rad , Surg., Urol.
Methodist Hospital ★	Houston, Texas	Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Path , Plas Surg , Psych., Rad.
St. Joseph's Hospital ★	Houston, Texas	Anes., Int. Med., Ob.-Gyn., Ortho. Surg., Path , Ped , Rad., Surg , Urol
Southern Pacific Hospital	Houston, Texas	Surg
Texas Children's Hospital	Houston, Texas	Derm Syph., Plas. Surg.
University of Texas M. D. Anderson Hospital for Cancer Research	Houston, Texas	Anes., Gyn., Int. Med , Mal. Dis., Path., Rad , Surg.
Veterans Admin. Hospital	Houston, Texas	Anes , Derm. Syph., Int Med., Neur., Neuro. Surg., Ophth , Ortho Surg , Otol., Path., Phys. Med , Plas Surg., Psych., Pul. Dis , Rad , Surg , Urol
Nan Travis Memorial Hospital	Jacksonville, Texas	Gen'l Pract.
Veterans Admin. Hospital ★	McKinney, Texas	Int. Med., Ortho Surg., Path., Pul. Dis., Rad., Surg.
Baptist Memorial Hospital	San Antonio, Texas	Anes., Gen'l Pract., Ob.-Gyn., Path., Rad., Surg.
Brooke Army Hospital ★	San Antonio, Texas	Anes., Card. Dis , Derm. Syph., Gastro., Int. Med., Ob-Gyn., Ophth , Ortho Surg., Otol., Path., Ped., Plas. Surg., Rad., Surg., Urol.
Robert B. Green Memorial Hospital ★	San Antonio, Texas	Gen'l Pract., Int Med , Ob -Gyn., Path., Ped., Rad., Surg.
Santa Rosa Hospital ★	San Antonio, Texas	Gen'l Pract , Int. Med., Path., Ped , Rad.
U. S. Air Force Hospital (Lackland) ★	San Antonio, Texas	Anes., Ortho Surg., Surg
Kings Daughters Hospital ★	Temple, Texas	Gen'l Pract.
Scott and White Memorial Hospital ★	Temple, Texas	Anes , Int. Med., Ophth , Ortho. Surg., Path., Rad.
U. S. Air Force Hospital	Wichita Falls, Texas	Surg.
Wichita General Hospital	Wichita Falls, Texas	Gen'l Pract.
St. Benedict's Hospital ★	Ogden Utah	Gen'l Pract., Path.
Thomas D. Dee Memorial Hospital ★	Ogden, Utah	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Surg.
Dr. W. H. Groves Latter-Day Saints Hospital ★	Salt Lake City	Int. Med , Ob.-Gyn., Ortho. Surg., Path., Rad., Surg., Thor. Surg.
Holy Cross Hospital ★	Salt Lake City	Int. Med., Ob.-Gyn., Path , Rad , Surg.
Primary Children's Hospital	Salt Lake City	Ortho Surg.
St. Mark's Hospital ★	Salt Lake City	Rad., Surg.
Salt Lake County General Hospital ★	Salt Lake City	Anes., Int. Med , Ob.-Gyn., Ortho. Surg., Path , Ped., Psych , Rad , Surg
Shriners Hospital for Crippled Children	Salt Lake City	Ortho. Surg.
Veterans Admin. Hospital ★	Salt Lake City	Int. Med., Neur., Ortho. Surg., Path., Psych., Rad., Surg.
Brattleboro Retreat	Brattleboro, Vt.	Psych.
DeGoesbriand Memorial Hospital ★	Burlington, Vt.	Anes., Gen'l Pract., Int. Med.. Ob.-Gyn , Path., Ped., Rad , Surg , Urol
Mary Fletcher Hospital ★	Burlington, Vt.	Anes., Int. Med., Ob.-Gyn., Path., Ped , Rad., Surg., Urol.
Vermont State Hospital	Waterbury, Vt.	Psych.
Veterans Admin. Hospital	White River Junction, Vt.	Anes., Int. M[illegible] Neuro Surg , Path , Plas. Surg., Rad., Surg., Urol
Alexandria Hospital ★	Alexandria, Va.	Int. Med., Ob
Arlington Hospital	Arlington, Va.	Ob.-Gyn.
Blue Ridge Sanatorium	Charlottesville, Va.	Pul. Dis.

★ Indicates hospitals approved for training interns.

Name of Hospital	Location	Approved Residencies
University of Virginia Hospital ★	Charlottesville, Va.	Allergy, Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Psych., Rad., Surg., Thor. Surg., Urol.
Chesapeake & Ohio Railway Employees Hospital ★	Clifton Forge, Va.	Int. Med., Surg.
Memorial Hospital ★	Danville, Va.	Path.
U. S. Army Hospital	Fort Belvoir, Va.	Surg.
Lynchburg General Hospital ★	Lynchburg, Va.	Obst., Path., Surg.
Riverside Hospital ★	Newport News, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path.
De Paul Hospital ★	Norfolk, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Norfolk General Hospital ★	Norfolk, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Naval Hospital ★	Portsmouth, Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ortho. Surg., Surg.
Crippled Children's Hospital	Richmond, Va.	Ortho. Surg.
Johnston-Willis Hospital ★	Richmond, Va.	Int. Med., Obst., Path., Surg.
Medical College of Virginia—Hospital Division ★	Richmond, Va.	Allergy, Anes., Derm. Syph., Int. Med., Neuro. Surg., Ob.-Gyn., Ophth., Otol., Ortho. Surg., Path., Ped., Phys. Med., Psych., Rad., Surg., Urol.
Retreat for the Sick	Richmond, Va.	Gen'l Pract.
St. Elizabeth Hospital	Richmond, Va.	Surg.
Veterans Admin. Hospital	Richmond, Va.	Anes., Card. Dis., Gastro., Int. Med., Neur., Neuro. Surg., Ophth., Ortho. Surg., Path., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Gill Memorial Eye, Ear and Throat Hospital	Roanoke, Va.	Ophth., Otol.
Jefferson Hospital ★	Roanoke, Va.	Int. Med., Surg.
Lewis-Gale Hospital ★	Roanoke, Va.	Int. Med., Surg.
Veterans Admin. Hospital	Roanoke, Va.	Psych.
Louise Obici Memorial Hospital	Suffolk, Va.	Gen'l Pract.
Eastern State Hospital	Williamsburg, Va.	Psych.
Madigan Army Hospital ★	Fort Lewis, Wash.	Int. Med., Surg.
Western State Hospital	Fort Steilacoom, Wash.	Psych.
Children's Orthopedic Hospital	Seattle	Anes., Ortho. Surg., Ped., Surg.
Doctor's Hospital ★	Seattle	Anes., Int. Med., Ob.-Gyn., Path., Surg.
Firland Sanatorium	Seattle	Pul. Dis., Thor. Surg.
King County Hospital Unit 1 (Harborview) ★	Seattle	Anes., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Surg., Urol.
Pinel Foundation	Seattle	Psych.
Providence Hospital ★	Seattle	Gen'l Pract., Int. Med., Obst., Ortho Surg., Path., Rad., Surg.
Swedish Hospital ★	Seattle	Int. Med., Ob.-Gyn., Path., Rad., Surg.
U. S. Public Health Service Hospital ★	Seattle	Int Med., Path., Surg.
Veterans Admin. Hospital	Seattle	Anes., Int. Med., Neur., Ortho. Surg., Path., Psych., Surg.
Virginia Mason Hospital ★	Seattle	Anes., Int. Med., Obst., Rad., Surg.
Central Washington Tuberculosis Hospital	Selah, Wash.	Pul Dis.
Deaconess Hospital ★	Spokane, Wash.	Path.
Sacred Heart Hospital ★	Spokane, Wash.	Gen'l Pract., Ob.-Gyn., Path., Rad.
St. Luke's Hospital ★	Spokane, Wash	Ob.-Gyn., Path., Surg.
Shriners Hospital for Crippled Children	Spokane, Wash	Ortho. Surg.
St. Joseph Hospital ★	Tacoma, Wash.	Path
Tacoma General Hospital ★	Tacoma, Wash.	Anes., Path.
Beckley Hospital	Beckley, W. Va.	Surg.
Bluefield Sanitarium	Bluefield, W. Va.	Gen'l Pract.
Charleston General Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Path., Surg.
Kanawha Valley Hospital	Charleston, W. Va.	Gen'l Pract., Surg.
Memorial Hospital ★	Charleston, W. Va.	Gen'l Pract., Int. Med., Ob.-Gyn., Ped., Surg.
St. Mary's Hospital	Clarksburg, W. Va.	Path.
Chesapeake & Ohio Hospital	Huntington, W. Va.	Int. Med., Surg.
St. Mary's Hospital ★	Huntington, W. Va.	Path., Rad., Surg.
Veterans Admin. Hospital	Martinsburg, W. Va.	Path., Rad., Surg.
Laird Memorial Hospital	Montgomery, W Va	Surg.
Camden-Clark Memorial Hospital ★	Parkersburg, W. Va.	Gen'l Pract.
Broaddus Hospital	Philippi, W. Va	Surg.
Ohio Valley General Hospital ★	Wheeling, W. Va	Anes., Gen'l Pract., Int. Med., Path., Surg.
Luther Hospital ★	Eau Claire, Wis.	Gen'l Pract.
Mercy Hospital ★	Janesville, Wis	Surg.
La Crosse Lutheran Hospital ★	La Crosse, Wis	Int. Med., Surg., Urol.
Madison General Hospital ★	Madison, Wis	Int Med., Ob.-Gyn., Path., Rad., Surg., Urol.
Mendota State Hospital	Madison, Wis	Psych.
Methodist Hospital ★	Madison Wis.	Rad., Surg
St. Mary's Hospital ★	Madison, Wis	Int. Med.
University Hospitals ★	Madison, Wis	Allergy, Card. Dis., Anes., Derm. Syph., Int. Med., Neur., Neuro. Surg., Ob.-Gyn., Ophth., Ortho. Surg., Path., Ped., Plas. Surg., Psych., Rad., Surg., Urol.
Veterans Admin. Hospital	Madison, Wis	Pul. Dis.
St. Joseph's Hospital ★	Marshfield, Wis	Int Med.
Columbia Hospital ★	Milwaukee	Int. Med., Obst., Ortho. Surg., Path., Rad., Surg.
Evangelical Deaconess Hospital ★	Milwaukee	Gen'l Pract., Rad. Surg.
Milwaukee Children's Hospital ★	Milwaukee	Ortho. Surg., Ped
Milwaukee County Hospital ★	Milwaukee	Int Med., Ob.-Gyn., Ophth., Path., Ped., Proct., Rad., Surg., Urol.
Milwaukee Hospital ★	Milwaukee	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
Mount Sinai Hospital ★	Milwaukee	Int Med., Ob.-Gyn.
Muirdale Sanitorium	Milwaukee	Pul. Dis.
St. Joseph's Hospital ★	Milwaukee	Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Luke's Hospital ★	Milwaukee	Gen'l Pract., Int. Med., Ob.-Gyn., Path., Rad., Surg.
St. Mary's Hospital ★	Milwaukee	Ob.-Gyn., Path.
St. Michael's Hospital ★	Milwaukee	Gen'l Pract.
Veterans Admin. Hospital	Milwaukee (Wood)	Anes., Derm. Syph., Gastro., Int. Med., Ophth., Ortho. Surg., Otol., Path., Phys. Med., Psych., Pul. Dis., Rad., Surg., Thor. Surg., Urol.
Milwaukee Sanitorium	Wauwatosa, Wis.	Path.
Gorgas Hospital ★	Ancon, C. Z.	Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad., Surg.
Kapiolani Maternity and Gynecological Hospital	Honolulu, T. H.	Ob.-Gyn.
Kauikeolani Children's Hospital	Honolulu, T. H.	Ped.
Leahi Hospital	Honolulu, T. H.	Pul. Dis., Thor. Surg.
Queen's Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path., Psych., Surg.
St. Francis Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path.
Shriners Hospital for Crippled Children	Honolulu, T. H.	Ortho. Surg.
Tripler Army Hospital ★	Honolulu, T. H.	Int. Med., Ob.-Gyn., Path., Rad., Surg., Urol.
Territorial Hospital	Kanoehe, Oahu, T. H.	Psych.
Bayamon District Hospital ★	Bayamon, P. R.	Int. Med., Ob.-Gyn., Path., Ped., Surg.
Hospital Hato Tejas, Inc.	Bayamon, P. R.	Psych.
San Juan City Hospital ★	San Juan, P. R.	Anes., Int. Med., Ob.-Gyn., Ophth., Path., Ped., Rad.,
Veterans Admin. Hospital	San Juan, P. R.	Int. Med., Phys. Med., Rad., Surg.

★ Indicates hospitals approved for training interns.

lished in 1955 by the A. N. Marquis Company, Chicago, contains biographic information on the educational background of each living specialist, including those retired from practice, certified by an American board.

Credit for Military Service

At the suggestion of the Joint Committee on Medical Education in Time of National Emergency, the Advisory Board for Medical Specialties conducted a survey to determine the amount of credit for service in the armed forces that would be given toward specialty board certification. The inquiry addressed to the boards contained the following questions:

> Will your specialty board give preference to those candidates wishing to be examined before going overseas or entering military service?
>
> How much, if any, credit toward your training and/or experience requirements will your board allow candidates while in military service?

In reply to the first question all boards answered in the affirmative. The specialty boards have not lowered their requirements because of military emergency, but all boards except one have indicated they will grant some credit for military service. The specialty boards have indicated such allowances as follows:

Table 2.—*Annual Specialty Board Certification, 1941-1956*

Year (Ended March)	No. of Boards in Existence	No. Certified	Cumulated Totals
1941	15	2,085	17,938
1942	15	1,756	19,694
1943	15	2,172	21,866
1944	15	1,578	23,444
1945	15	1,308	24,752
1946	15	1,320	26,072
1947	15	2,424	28,496
1948	16	3,002	31,498
1949 (June 30)	19*	4,479	35,977
1950 (June 30)	19	3,827	39,804
1951 (June 30)	19	4,552	44,346
1952 (June 30)	19	4,118	48,464
1953 (June 30)	19	4,022	52,486
1954 (June 30)	19	4,133	56,619
1955 (June 30)	19	3,843	60,644
1956 (June 30)	19	3,083	63,727

* One board, the American Board of Proctology, did not certify any candidates during this period.

Anesthesiology.—No formal training credit is granted for military service unless the physician is assigned to a service hospital with an approved residency training program. Practice time will, however, be granted for military service if the physician is assigned to the anesthesiology service.

Dermatology.—Students in training who have served as physicians in the Army, Navy, or U. S. Public Health Service may submit a supplementary application, obtainable from the executive secretary, for possible credit toward experience. This application is not obligatory, but if submitted it must be done prior to or at the time of filing application for examination. It will not be considered until the preliminary registration has been filed. Since the application must be circulated through a committee whose members may be widely separated, several months are often required for a decision. Full-time dermatological military service may be credited in some part toward training, at the discretion of the board, provided it was under the direct supervision of a recognized specialist and provided a significant portion of approved training was completed before the service concerned. The board strongly urges that the candidate supplement his military service by further approved dermatological training before examination. Medical service in the armed forces not credited as training may be credited in part toward the two years of additional dermatological experience required for certification, the amount of credit depending on the circumstances.

Internal Medicine.—Active duty as a commissioned officer in the armed forces of the United States from June 1, 1950, to July 1, 1954, may be applied as one year of residency credit or one year of practice credit regardless of assignment. Service beyond one year during this interval may only be applied as practice credit on certification by former chiefs of service that assignments of candidates were in the field of internal medicine on a full-time basis in the care of clinical patients largely on their own responsibility. Active duty in the armed forces as a commissioned officer after July 1, 1954, may not be applied as residency credit unless the candidate has served officially as a resident in a hospital approved for residency training by the Council on Medical Education in internal medicine or in the medical subspecialties recognized by this board. Active duty in the armed forces as a commissioned officer after July 1, 1954, may be applied as practice credit for one year or more on certification by present or former chiefs of service that assignments were in the field of internal medicine on a full-time basis, in the care of clinical patients largely on one's own responsibility. The requirements governing residency credit and practice credit for active duty in the armed forces from Dec. 8, 1941, to Jan. 1, 1947, will remain the same as those governing credit from June 1, 1950, to July 1, 1954, as outlined above.

Neurological Surgery.—The board makes no specific statement regarding military service. This matter is taken up individually with each applicant.

Obstetrics and Gynecology.—Credit will be given for time spent in an obstetric-gynecologic service in an Army or a Navy hospital under supervision on the same basis as a preceptorship, if these departments are supervised by diplomates of the board or recognized obstetricians-gynecologists. Full residency credit may be obtained if such hospital is approved for residency training. The board will review and give consideration to each individual case. Special request must be made for such credits.

Ophthalmology.—No stated credit. Each case is decided according to the time the candidate has spent assigned to a military hospital in ophthalmology and on other factors.

Orthopedic Surgery.—Up to one year of residency credit is given. Each case is determined on its own merits.

Otolaryngology.—Credit is given, but each case is determined on its own merits.

Pathology.—Allows liberal credit toward training when assigned to department of pathology, but candidates must first have had a minimum of one year residency in an approved civilian department of pathology.

Pediatrics.—One year of credit, regardless of assignment, toward two-year practice requirement.

Physical Medicine and Rehabilitation.—Credit is given, but each case is determined on its own merits.

Plastic Surgery.—Credit is given on individual basis, considered on candidate's merits.

Preventive Medicine.—Credit for training and experience in public health or aviation medicine while in military service will be considered on an individual basis, depending on the type of service.

Proctology.—At present no credit is granted for military service.

Psychiatry and Neurology.—For military duty after Jan. 1, 1954, only experience credit will be granted for full-time psychiatric and/or neurological duties. Training credit will be granted for residency assignments in regularly approved training programs.

Radiology.—Maximum of one year's credit if assigned to full time radiological duties.

Surgery.—If a candidate has served in a government hospital or hospitals fully approved for residency training, such training will be acceptable to the board. Military credit may be extended to those candidates who have served in nonapproved hospitals provided that the candidate has had a satisfactory surgical assignment with adequate and diversified clinical material and provided further that his work in surgery is carried out under the supervision of a surgeon acceptable to the board. Any credit extended in the latter category will be considered preceptorship credit and not residency credit.

Thoracic Surgery.—Credit for military service will be decided on an individual basis.

Urology.—No credit for training but credit for one year of practice requirement if training was complete when entering service.

Medical Officer's Professional Training Record.—The surgeons general of the armed services have distributed a booklet prepared with the assistance of the Council and the Advisory Board for Medical Specialties that is designed to help prospective candidates for certification to maintain an accurate account of work done in the military service. This record will constitute part of the credentials to be submitted to the board on application for certification. The booklet has been printed by the Office of the Secretary of Defense and is distributed by the offices of the surgeons general to the personnel of their departments. It is highly important that prospective applicants obtain a copy of the "Medical Officer's Professional Training Record" and that they submit their credentials for evaluation by the respective specialty board.

AMERICAN BOARD OF ANESTHESIOLOGY

Donald L. Burdick, New York, President
Frederick P. Haugen, Portland, Ore, Vice-President
Stuart C. Cullen, Iowa City
Albert Faulconer, Rochester, Minn.
Forrest E. Leffingwell, Pasadena, Calif.
E. M. Papper, New York
Milton C. Peterson, Kansas City, Mo.
Meyer Saklad, Providence, R. I.
Harvey C. Slocum, Washington, D. C.
Scott M. Smith, Salt Lake City
Curtiss B. Hickcox, 80 Seymour St., Hartford, **Conn.**, Secretary-Treasurer

Past Directors

John S. Lundy, Rochester, Minn.
Charles F. McCuskey, Los Angeles
E. A. Rovenstine, New York
H. Boyd Stewart, Tulsa, Okla.
Ralph M. Tovell, Hartford, Conn.
Edward B. Tuohy, La Canada, Calif.
Ralph M. Waters, Orlando, Fla.
John W. Winter, San Antonio, Texas
Paul M. Wood, New York
Philip D. Woodbridge, Greenfield, Mass.
*T. Drysdale Buchanan
*Henry S. Ruth
*Rolland J. Whitacre

REFERENCE: J. A. M. A. 159:444-445 (Oct. 1) 1955.

The major changes in requirements for certification are under Certification, paragraph 2: Requirements: Substitute following (1) and (2) under A:

2. *Requirements*

A. Each applicant, before he shall become eligible for certification in anesthesiology, must:

1. Have graduated from an approved medical school in the United States or Canada or have successfully completed the examinations of the National Board of Medical Examiners. Applicants must have completed an internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association, or its equivalent. Graduates of class B medical schools are not eligible to take the board examinations.

2. Establish in a manner satisfactory to the board that (a) he is a physician duly licensed by law to practice medicine, (b) he is of high ethical and professional standing, and (c) he has received adequate special training in anesthesiology.

Under Certification, paragraph 3, Examinations, Insert following paragraph B:

The expense of surveying and/or giving practical examinations outside of the United States will be borne by the candidate. The approximate amount of such funds to be paid by the candidate will be determined by the Secretary and must be paid in United States currency to the American Board of Anesthesiology in advance.

AMERICAN BOARD OF DERMATOLOGY

(Formerly American Board of Dermatology and Syphilology)

Arthur C. Curtis, Ann Arbor, Mich., President
John H. Lamb, Oklahoma City, Vice-President
Nelson Paul Anderson, Los Angeles
J. Lamar Callaway, Durham, N. C.
Marcus R. Caro, Chicago
Clinton W. Lane, St. Louis
Walter C. Lobitz Jr., Hanover, N. H.
Francis W. Lynch, St. Paul
Beatrice Maher Kesten, 1 Haven Ave., New York 32, Secretary-Treasurer

Advisory Members

Anthony C. Cipollaro, New York
Harold N. Cole, Cleveland
Charles C. Dennie, Kansas City, Mo.
George M. Lewis, New York
Henry E. Michelson, Minneapolis
Donald M. Pillsbury, Philadelphia
Francis E. Senear, Chicago
Bedford Shelmire, Dallas, Texas
Arthur W. Stillians, Chicago
Fred D. Weidman, Philadelphia

REFERENCE: J. A. M. A. 159:445-446 (Oct. 1) 1955.

The major changes in requirements for certification are

CHANGE IN INSTITUTIONAL STATUS

Add: (With change of directorship of dermatological training, reapplication for approval is necessary before the institution is appraised by the joint Residency Review Committee for Dermatology.)

PRECEPTORS

Add: Applications for preceptorship are submitted with the "Plan of Supervised Work" form. Approved preceptors, in conjunction with the director of training of the institution in which the candidate spends half his training time, submit an "Annual Graduate Training" form on each trainee. The preceptee files a "Preceptorship Evaluation" form following this training.

AMERICAN BOARD OF INTERNAL MEDICINE

Chester M. Jones, Chairman, Boston
Albert M. Snell, Vice-Chairman, Palo Alto, Calif.
Thomas Findley, Secretary-Treasurer, Augusta, Ga.
Wright R. Adams, Chicago
Thomas H. Brem, Los Angeles
Hugh R. Butt, Rochester, Minn.
Thomas M. Durant, Philadelphia
Claude E. Forkner, New York
Franklin M. Hanger, New York
Howard P. Lewis, Portland, Ore.
John Minor, Washington, D. C.
Victor W. Logan, Librarian, Rochester, New York
William A. Werrell, Executive Secretary-Treasurer, 1 W. Main St., Madison 3, Wis.

Former Members of Board

*Reginald Fitz
Jonathan C. Meakins
*G. Gill Richards
Ernest E. Irons
William S. Middleton
O. H. Perry Pepper
David P. Barr
Walter L. Bierring
*John H. Musser
Marion A. Blankenhorn
*LeRoy H. Briggs
Roy W. Scott
Virgil P. Sydenstricker
John S. Lawrence
William B. Porter
William J. Kerr
William S. McCann
James J. Waring
*Frederic Hanes
Cecil J. Watson
Burrill O. Raulston
Truman G. Schnabel
Hugh J. Morgan
Alex M. Burgess
*Louis Hamman
Walter L. Palmer
Ray F. Farquharson
Henry M. Thomas, Jr.

Subspecialty Boards

Allergy
Vincent J. Derbes
Samuel M. Feinberg
Theodore L. Squier
Stanley F. Hampton
William B. Sherman

Cardiovascular Disease
Paul S. Barker
Francis L. Chamberlain
J. Murray Kinsman
Charles E. Kossman
Richard H. Lyons
Howard Wakefield
Willard R. Wirth

Gastroenterology
Leon Schiff
Lowell D. Snorf
Clarence J. Tidmarsh
Henry J. Tumen
Eric E. Wollaeger

Pulmonary Diseases
Alvis E. Greer
Roger S. Mitchell Jr.
Edward S. Ray
David T. Smith
Julius L. Wilson

---

*Deceased

REFERENCE: J. A. M. A. 159:447-452 (Oct. 1) 1955.

There will be some changes in requirements for certification during the year 1956-1957. However, they are not available for inclusion at this time.

AMERICAN BOARD OF NEUROLOGICAL SURGERY

A. Earl Walker, Baltimore, Chairman
Edgar F. Fincher, Atlanta, Ga., Vice-Chairman
George S. Baker, Rochester, Minn.
E. Jefferson Browder, Brooklyn, New York
William V. Cone, Montreal, Canada
Dean Echols, New Orleans
Franc Ingraham, Boston
Edgar A. Kahn, Ann Arbor, Mich.
Frank Mayfield, Cincinnati
William T. Peyton, Minneapolis
John Raaf, Portland, Ore.
Leonard T. Furlow, Washington University Medical School, St. Louis, Secretary-Treasurer

REFERENCE: J. A. M. A. 159:452 (Oct. 1) 1955.

The major changes in requirements for certification are

SPECIAL TRAINING

Fourth sentence in the first paragraph changed to read: At least two years of this training must be had in one institution, and the board will not ordinarily approve periods of training in clinical neurological surgery of less than one year.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

F. Bayard Carter, Durham, N. C., President
Robert A. Kimbrough Jr., Philadelphia, Vice-President
Herbert E. Schmitz, Chicago, Vice-President
Walter T. Dannreuther, New York
Daniel G. Morton, Los Angeles
John L. Parks, Washington, D. C.
Conrad G. Collins, New Orleans
Robert L. Faulkner, 2105 Adelbert Rd., Cleveland 6, Secretary-Treasurer
Lawrence M. Randall, Rochester, Minn., Assistant Secretary

REFERENCE: J. A. M. A. 159:452-456 (Oct. 1) 1955.

For current requirements for certification, write to the Secretary of the American Board of Obstetrics and Gynecology.

AMERICAN BOARD OF OPHTHALMOLOGY

Brittain F. Payne, New York, Chairman
F. Bruce Fralick, Ann Arbor, Mich., Vice-Chairman
Merrill J. King, Rockland, Maine, Secretary-Treasurer
William L. Benedict, Rochester, Minn., Consultant
Conrad Berens, New York, Consultant
Frederick C. Cordes, San Francisco, Consultant
Georgiana D. Theobald, Oak Park, Ill., Consultant
Francis H. Adler, Philadelphia
James H. Allen, New Orleans
Walter S. Atkinson, Watertown, N. Y.
Alson E. Braley, Iowa City
Gordon M. Bruce, New York
Paul A. Chandler, Boston
Michael J. Hogan, San Francisco
John S. McGavic, Bryn Mawr, Pa.
Kenneth C. Swan, Portland, Ore.
Miss Lea M. Stelzer, Registrar, 56 Ivie Rd., Cape Cottage, Maine

REFERENCE: J. A. M. A. 159:457-459 (Oct. 1) 1955.

The major changes in requirements for certification are

PREREQUISITES

(Applicable to applicants who start residencies in ophthalmology after Dec. 31, 1956.)

Individuals who have completed three years of formal ophthalmological training (residency and basic science courses) may apply for the written qualifying test after completion of 12 months of practice or 12 months of institutional work, a total of 48 months. All other individuals (with less formal training) may apply for the written test after 60 months in ophthalmology or 72 months of combined ophthalmology and otolaryngology. A basic course is recognized as equivalent in time to residency training. All time requirements must be completed by the date of the written test.

GENERAL REQUIREMENTS FOR ALL CANDIDATES

Substitute following for No. 7:

7. Licensure in the state, province, or country where the candidate practices

FEES

For original written test, $100 payable with application.

For original clinical examination, $50 payable on successful completion of the written.

Repeating written test, $65.

Repeating clinical examination, $65.

Single conditions, $25.

Two or more conditions, $35.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY

Donald E. King, San Francisco, President
Willima M. Roberts, Gastonia, N. C., Vice-President
Clarence H. Heyman, Cleveland
Mather Cleveland, New York
Charles J. Frankel, Charlottesville, Va.
George J. Garceau, Indianapolis
Edwin F. Cave, Boston
William H. Bickel, Rochester, Minn.
Sam W. Banks, 116 S. Michigan Ave., Chicago 3, Secretary-Treasurer

Advisory Council to the Board

William T. Green, Boston
Hugh Smith, Memphis, Tenn.
Francis M. McKeever, Los Angeles
Harold A. Sofield, Oak Park, Ill.

REFERENCE: J. A. M. A. 159:459-461 (Oct. 1) 1955.

The major requirement changes for certification are

REQUIREMENTS OF PRECEPTORSHIP TRAINING

1. Candidates in preceptorship training, or possessing signed contracts prior to Jan. 1, 1957, will receive training credit for the entire period during which their contracts are in force. No new contracts will be accepted by the board for preceptorship training after Jan. 1, 1957.

4. Deleted: "If facilities and instruction in the related basic sciences are not available, the candidate must spend a minimum of six months as a student in an institution approved for basic science training in orthopaedic surgery."

5. Deleted: "The candidate must train as a full-time assistant to the preceptor and may not maintain a separate office or engage in individual practice."

MILITARY SERVICE

3. "Applicants who served in military hospitals not approved by the Council for resident orthopaedic training whose service is judged by the board to have been equal to that of approved resident orthopaedic training may be granted a maximum of one year of resident orthopaedic training."

4. No applicant may be granted more than one year of resident training credit for military service in installations not approved by the Council for resident orthopaedic training.

AMERICAN BOARD OF OTOLARYNGOLOGY

Officers

Gordon D. Hoople, Syracuse, N. Y., President
Bernard J. McMahon, St. Louis, Vice-President
Dean M. Lierle, University Hospitals, Iowa City, Secretary-Treasurer

Senior Counselors

George M. Coates, Philadelphia
Ralph A. Fenton, Portland, Ore.
Gordon F. Harkness, Davenport, Iowa
H. I. Lillie, Rochester, Minn.
Carl H. McCaskey, Indianapolis
Henry B. Orton, Newark, N. J.
Ernest M. Seydell, Wichita, Kan.
Frank R. Spencer, Boulder, Colo.
Fletcher D. Woodward, Charlottesville, Va.

Board of Directors

Lawrence R. Boies, Minneapolis
Louis H. Clerf, Philadelphia
Daniel S. Cunning, New York
Russell M. Decker, Pasadena, Calif.

Lyman H. Heine, Fremont, Neb.
Frederick T. Hill, Waterville, Maine
Percy E. Ireland, Toronto, Canada
Francis L. Lederer, Chicago
Francis E. LeJeune, New Orleans
John R. Lindsay, Chicago
William J. McNally, Montreal, Canada
James H. Maxwell, Ann Arbor, Mich.
Philip E. Meltzer, Boston
Lewis F. Morrison, San Francisco
Werner Mueller, Boston
C. Stewart Nash, Rochester, N. Y.
Arthur W. Proetz, St. Louis
LeRoy A. Schall, Boston
Harry P. Schenck, Philadelphia
O. E. Van Alyea, Chicago

Assistants

George F. Reed, Boston
William C. Huffman, Iowa City
Clair M. Kos, Iowa City
James A. Moore, New York
Walter P. Work, San Francisco

reference: J. A. M. A. 159:462-463 (Oct. 1) 1955.

The major changes in requirements for certification are

GENERAL REQUIREMENTS

The following requirement is deleted: 1. A candidate must be a citizen of the United States or the Dominion of Canada.

REEXAMINATION

Candidates who have failed in the examination may be accepted for reexamination upon recommendation of the Credentials Committee. Satisfactory evidence of further study and progress will be required. A new application must be filed. The fee for reexamination for such candidate is $150.

AMERICAN BOARD OF PATHOLOGY

Shields Warren, Boston, President
William B. Wartman, Chicago, Vice-President
Roger D. Baker, Durham, N. C.
Israel Davidsohn, Chicago
A. S. Giordano, South Bend, Ind.
James W. Kernohan, Rochester, Minn.
Douglas MacFadyen, Chicago
James B. McNaught, Denver
James N. Patterson, Tampa, Fla.
S. Brandt Rose, Philadelphia
John R. Schenken, Omaha
Edward B. Smith, *Secretary-Treasurer, Indiana University* Medical Center, 1040-1232 W. Michigan St., Indianapolis

reference: J. A. M. A. 159:463-467 (Oct. 1) 1955.

The major changes in requirements for certification are

APPLICATION BLANK AND FEE

Paragraph 2: The application or examination fee for candidates is $100. If the candidate fails in his examination he will be admitted to a second examination after one year. The applicant must pay an additional fee of $50 before a second examination will be given.

Paragraph 3: The application fee of $100 has been determined after careful consideration and is based on actual estimates of the expenses of examination and administration. None of the Board members receive any compensation for their services except actual expenses incurred.

AMERICAN BOARD OF PEDIATRICS

Lee F. Hill, Des Moines, Iowa, President
A. Ashley Weech, Cincinnati, Vice-President
Ralph V. Platou, New Orleans, Secretary-Treasurer
James Marvin Baty, Boston
John A. Bigler, Chicago
James G. Hughes, Memphis, Tenn.
Joseph A. Johnston, Detroit
Robert B. Lawson, Miami, Fla.
Waldo E. Nelson, Philadelphia
John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa., Executive Secretary

Members—Subspecialty Board of Pediatric Allergy

William P. Buffum, *Providence, R. I., Chairman*
William C. Deamer, *San Francisco*
Jerome Glaser, *Rochester, N. Y.*
George B. Logan, Rochester, Minn.
James Overall, Nashville, Tenn.
Bret Ratner, New York

reference: J. A. M. A. 159:467-469 (Oct. 1) 1955.

For current requirements for certification, write to the Executive Secretary of the American Board of Pediatrics.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION

Robert L. Bennett, Warm Springs, Ga., Chairman
William H. Schmidt, Philadelphia, Vice-Chairman
William Bierman, New York
Donald A. Covalt, New York
Donald L. Rose, Kansas City, Kan.
O. Leonard Huddleston, Santa Monica, Calif.
A. B. C. Knudson, Washington, D. C.
Frederic J. Kottke, Minneapolis
Arthur L. Watkins, Boston
H. Worley Kendell, Peoria, Ill.
Earl C. Elkins, 200 First, S. W., Rochester, Minn., Secretary-Treasurer

reference: J. A. M. A. 159:469-470 (Oct. 1) 1955.

No major changes were reported in the requirements for certification.

AMERICAN BOARD OF PLASTIC SURGERY

William Milton Adams, Memphis, Tenn., Chairman
Frederick A. Figi, Rochester, Minn., Vice-Chairman
Truman G. Blocker Jr., Galveston, Texas
Albert D. Davis, San Francisco
A. Milton Dupertuis, Pittsburgh
Paul W. Greeley, Chicago
James B. Johnson, Beverly Hills, Calif.
Edward A. Kitlowski, Baltimore
Robert E. Moran, Washington, D. C.
Gerald B. O'Connor, San Francisco
A. Neal Owens, New Orleans
Lyndon A. Peer, Newark, N. J.
Kenneth L. Pickrell, Durham, N. C.
Clarence R. Straatsma, New York
Frank McDowell, 100 N. Euclid Ave. at West Pine, St. Louis 8, Secretary-Treasurer

reference: J. A. M. A. 159:470-473 (Oct. 1) 1955.

No major changes were reported in requirements for certification.

AMERICAN BOARD OF PREVENTIVE MEDICINE

Walter L. Bierring, Chairman, Des Moines, Iowa
Felix J. Underwood, Vice-Chairman Emeritus for Public Health, Jackson, Miss.
V. A. Van Volkenburg, Vice-Chairman for Public Health, Albany, N. Y.
Otis O. Benson, Vice-Chairman for Aviation Medicine, Washington, D. C.
Robert A. Kehoe, Vice-Chairman for Occupational Medicine, Cincinnati
Ernest L. Stebbins, Secretary-Treasurer, 615 N. Wolfe St., Baltimore 5.
Tom Whayne, Assistant Secretary-Treasurer, Philadelphia
Gaylord W. Anderson, Minneapolis
J. H. Baillie, Toronto, Canada
Richard F. Boyd, San Francisco
LeRoy E. Burney, Washington, D. C.
A. G. Kammer, Pittsburgh
Matthew R. Kinde, Battle Creek, Mich.
Langdon C. Newman, Washington, D. C.
John J. Phair, Cincinnati
William P. Shepard, New York
Charles E. Smith, Berkeley, Calif.
James H. Sterner, Rochester, N. Y.
Jan H. Tillisch, Rochester, Minn.

Consultants

Kathleen Bain (Children's Bureau)
Theodore C. Bedwell (Air Force)
Robert L. Callison (Army)
Rufus L. Holt (Veterans Administration)
Basil C. MacLean, New York
Howard K. Sessions (Navy)
James K. Shafer (Public Health Service)

REFERENCE: J. A. M. A. 159:474-475 (Oct. 1) 1955.

SPECIAL REQUIREMENTS IN PUBLIC HEALTH

1. Successful completion (after internship) of at least one academic year of graduate study leading to the degree of Master of Public Health or an equivalent degree or diploma; or training or study deemed by the board to be substantially equivalent to such graduate study.

2. Residency (after internship) of at least two years of field experience in general public health practice, which included planned instruction, observation, and active participation in a comprehensive, organized public health program, one year of which may be an approved clinical residency in a field directly related to public health.

3. A period (after internship) of not less than three years, in addition to 1 and 2 above, of special training in or teaching or practice of public health.

4. Limitation of practice to full-time teaching or practice of public health as a specialty.

The major change in requirements for certification is

Delete section under "Certification in Occupational Medicine Without Examination (the Founders Group)."

AMERICAN BOARD OF PROCTOLOGY

Robert A. Scarborough, San Francisco, President
Harry E. Bacon, Philadelphia, President-Elect
Garnet W. Ault, Washington, D. C., Vice-President
Frederick B. Campbell, Kansas City, Mo.
Walter A. Fansler, Minneapolis
A. W. Martin Marino, Brooklyn, N. Y.
Louis E. Moon, Omaha
Hyrum R. Reichman, Salt Lake City
Robert J. Rowe, Dallas, Texas
Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y., Secretary

Advisory Council

Louis A. Buie, Rochester, Minn.
Louis J. Hirschman, Traverse City, Mich.
Curtice Rosser, Dallas, Texas
George H. Thiele, Kansas City, Mo.

REFERENCE: J. A. M. A. 159:475-476 (Oct. 1) 1955.

The major changes in requirements for certification are

Special Professional Qualifications.—They shall have completed:

2. Three years of approved general surgical residency and one year of approved proctologic residency by special arrangement with the board; or

3. Three years of approved general surgical residency and two years of approved proctologic preceptceship by special arrangements with the board; or

4. Two years of approved general surgical residency and three years of approved proctologic preceptceship.

EXAMINATIONS

Seventy-five per cent is the passing grade on all examinations. Examination papers are identified only by numbers and the examiners do not know the identity of the examinees.

Part 1.—This consists of a comprehensive written examination in the basic sciences, including anatomy, physiology, pathology, bacteriology, and biochemistry. The examination is held in the fall of the year simultaneously in several cities of the United States. Upon approval of the American Board of Proctology, candidates who have passed part 1 of the examinations of the American Board of Surgery and who have completed required training in proctology may not be required to take part 1 of the examinations of the American Board of Proctology.

Part 2.—This is a practical examination that is held in the community in which the candidate conducts his professional activities. (It may be omitted at the discretion of the board, in which case the candidate will be notified by the secretary.) It is endeavored to arrange the examination at a time suitable to both the candidate and the examiner. The examination includes inspection of: 1. surgical operations, 2. hospital rounds, 3. hospital and office records, 4. office practice.

Part 3.—This consists of comprehensive written and oral examinations on the theory and practice of proctology, and includes roentgenologic interpretation. The examination is usually held in the fall of the year in one designated city of the United States. The candidate is not admitted to part 3 of the examinations until he has completed the requirements of part 2. The oral portion of the examination is conducted by members of the board or its designated examiners. An attempt is made to ascertain the candidate's knowledge of current proctologic literature, his knowledge of the basic sciences, and the extent of his clinical experience and other qualifications.

REEXAMINATION

A candidate who fails may be reexamined after one year has elapsed. The act of filing an application for reexamination is the candidate's responsibility. Candidates who have failed a reexamination may petition the board for another examination after two years have elapsed. Acceptable evidence of additional preparation shall be submitted with this petition.

FEES AND DUES

Fees.—Application fee. A fee of $25 shall accompany the application.

Examination fee. A fee of $150 is due and payable when the candidate is notified that he has been approved for examination

Reexamination fee. A fee of $50 is due and payable when the candidate is notified that he has been approved for reexamination.

Reexamination in Part 2.—Candidates for reexamination in part 2 may be held responsible for payment of expenses incurred by the board in conducting the reexamination. No fee shall be returned to the candidate without board approval. All fees shall be made payable to the American Board of Proctology and shall be sent to the secretary.

Dues.—Each diplomate is required to pay annual dues in the amount of $10 to the board for a period of 10 years following certification. Fees and dues are utilized to defray expenses incurred by board activities.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY

Frederick P. Moersch, Rochester, Minn., President
George N. Raines, Washington, D. C., Vice-President
Harvey Bartle Jr., Philadelphia
C. H. Hardin Branch, Salt Lake City
Henry W. Brosin, Pittsburgh
Russell N. DeJong, Ann Arbor, Mich.
Knox H. Finley, San Francisco
Francis M. Forster, Washington, D. C.
Francis J. Gerty, Chicago
William Malamud, Boston
Paul I. Yakovlev, Boston
David A. Boyd Jr., Secretary-Treasurer, 102-110 Second Ave., S.W., Rochester, Minn.

REFERENCE: J. A. M. A. 159:476-478 (Oct. 1) 1955.

The major changes in requirements for certification are Specialized Training: All applicants who wish to qualify for examination for certification in psychiatry or neurology under the regulations relating to training credit and who began training on or after July 1, 1956, must show that at least 24 months of their residency training have been secured in residency training programs approved for at least two years of residency training in the specialty in which they seek certification.

TRAINING IN THE ARMED FORCES

Delete first paragraph.

PAYMENT OF FEES

The candidate upon filing his application shall accompany it with an application fee of $50, which is not returnable. If a preliminary written examination has been decreed, an additional $25 fee will be required at the time of the applicant's acceptance When notified by the secretary that he is accepted for the oral and practical examination, the candidate shall send to the secretary an examination fee of $75. A candidate who has been certified in either psychiatry or neurology and who has been admitted to supplementary examination for the other certificate shall pay an additional examination fee of $75.

A candidate who has failed in one examination is eligible for reexamination within one year upon payment of a reexamination fee of $75. After the year has elapsed, he must submit a new application and pay new application and examination fees. If he fails the reexamination, he may, after two years have elapsed, submit a new application and $50 fee, present evidence of further training, and pay an examination fee of $75.

A candidate who fails in one or two subjects is eligible for reexamination in those subjects within one year upon payment of a reexamination fee of $50. After the year has elapsed he must submit a new application and pay new application and examination fees and repeat the entire examination. If he fails the reexamination, he may apply again for the complete examination after two years upon submission of evidence of further training and upon payment of an application fee of $50. If admitted to the examination, he must pay a new examination fee of $75.

Any candidate who finds himself unable to attend an examination to which he has been admitted and does not notify the secretary at least three months before the date of the examination will forfeit his examination fee. Any candidate who fails to appear for examination within a period of three (3) years following the date of notification of eligibility for examination shall be required to submit a new application and pay the attendant fee. If a candidate dies before his certificate is issued, all fees will be returned to his estate.

AMERICAN BOARD OF RADIOLOGY

D. S. Childs, President, Syracuse, N. Y.
B. P. Widmann, Vice-President, Philadelphia
H. Dabney Kerr, St. Michaels, Md.
John D. Camp, Los Angeles
A. H. Dowdy, Los Angeles
Ross Golden, Los Angeles
E. L. Jenkinson, Chicago
Traian Leucutia, Detroit
I. H. Lockwood, Kansas City, Mo.
F. W. O'Brien, Boston
Ernest Wood, Chapel Hill, N. C.
Douglas Quick, New York
Leo G. Rigler, Minneapolis
Laurence Robbins, Boston
B. R. Kirklin, Secretary-Treasurer, Kahler Hotel Building, Rochester, Minn.

References: J. A. M. A. 159:478-479 (Oct. 1) 1955.

The major changes in requirements for certification are

CERTIFICATES

Change the second paragraph to read: 2. A certificate to the effect that the applicant has been found qualified to practice radiology in one or more of the following special fields: (*a*) diagnostic roentgenology (*b*) therapeutic radiology.

Substitute: 3. Certification in Nuclear Medicine. Certification in the handling and uses of radioactive isotopes is now offered to those candidates applying in Radiology or Therapeutic Radiology. After June 30, 1957, all candidates for Radiology or Therapeutic Radiology will be urged to seek certification in this field. As of June 30, 1960, it will be mandatory. A suitable medallion will be issued to those certified in Nuclear Medicine until June 30, 1960, after which date the certificate in Radiology or Therapeutic Radiology will include Nuclear Medicine.

DEFINITIONS

Delete: 2. Roentgenology is that branch of radiology that deals with diagnostic and therapeutic application of roentgen rays.

AMERICAN BOARD OF SURGERY

John D. Stewart, Chairman, Buffalo
Frank Glenn, Vice-Chairman, New York
William A. Altemeier, Cincinnati
Joel W. Baker, Seattle
Michael E. DeBakey, Houston, Texas
J. Englebert Dunphy, Boston
Clarence E. Gardner Jr., Durham, N. C.
William P. Longmire Jr., Los Angeles
Gustaf E. Lindskog, New Haven, Conn.
William K. Livingston, Portland, Ore.
Walter G. Maddock, Chicago
Carleton Mathewson Jr., San Francisco
H. William Scott Jr., Nashville, Tenn.
Harris B. Shumacker Jr., Indianapolis
William H. Snyder Jr., Los Angeles
John M. Waugh, Rochester, Minn.
John B. Flick, Secretary-Treasurer, 225 S. 15th St., Philadelphia 2
Cletus W. Schwegman, Associate Secretary, Philadelphia
John J. McKeown Jr., Assistant Secretary, Philadelphia

Reference: J. A. M. A. 159:479-481 (Oct. 1) 1955.

The major changes in requirements for certification are

Under group 1 there is a change in regard to candidates who complete only four years of a hospital residency program that is for a period longer than four years. It now reads: "If the hospital residency training is for a longer period than four years the candidate who completes only four years and does not assume the responsibilities of a senior year cannot be considered in the group 1 category. Such a candidate must complete a senior year in a hospital approved for four years or submit his qualifications to the examination committee of the board for their decision concerning further training requirements."

Also under group 2 it is stated: "Credit will not be granted for separate periods of time devoted exclusively to research or a preclinical discipline, although the day-to-day integration of these disciplines with clinical surgery is highly desirable. The program must have included three years of clinical surgery and the final year must have been spent in the capacity of senior or chief resident in general surgery."

BOARD OF THORACIC SURGERY

(An Affiliate of the American Board of Surgery)

William E. Adams, Chairman, Chicago
John C. Jones, Vice-Chairman, Los Angeles
O. Theron Clagett, Rochester, Minn.
Joseph W. Gale, Madison, Wis.
Julian Johnson, Philadelphia
Edward M. Kent, Pittsburgh
Herbert C. Maier, New York
Paul C. Samson, Oakland, Calif.
Robert H. Wylie, New York
Hiram T. Langston, Chicago
William M. Tuttle, Secretary-Treasurer, 1151 Taylor Ave., Detroit 2

Reference: J. A. M. A. 159:481 (Oct. 1) 1955.

The major change in requirements for certification is under Requirements: change paragraph 3 to read: "Written and oral examination."

AMERICAN BOARD OF UROLOGY

Edgar Burns, President, New Orleans
Grayson Carroll, Vice-President, St. Louis
Thomas D. Moore, Memphis, Tenn.
Rubin H. Flocks, Iowa City
Donald A. Charnock, Los Angeles
William P. Herbst, Washington, D. C.
Frank C. Hamm, Brooklyn, N. Y.
Harry Culver, Chicago
William Niles Wishard Jr., Secretary-Treasurer, Indianapolis
Mrs. Ruby L. Griggs, Executive Secretary, Minneapolis
Office of the Secretary-Treasurer, 30 Westwood Rd., Minneapolis 16

Emeritus Members

William F. Braasch, Rochester, Minn.
T. Leon Howard, Denver
Clarence G. Bandler, New York
George Gilbert Smith, Brookline, Mass.
Charles C. Higgins, Cleveland
Roger Graves, Boston
Gilbert J. Thomas, Santa Monica, Calif.
George F. Cahill, New York
A. I. Dodson, Richmond, Va.

Reference: J. A. M. A. 159:482-483 (Oct. 1) 1955.

For current requirements for certification, write to the Secretary of the American Board of Urology.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

THE STUDENT AMERICAN MEDICAL ASSOCIATION LOOKS AT INTERNSHIPS

During the course of the past year, the Student American Medical Association conducted a survey of interns with respect to the question: "Is the Intern Year Worthwhile—or Should It Be Abolished?" An analysis of a 41% return on an internship evaluation questionnaire sent to 1,450 interns representing a geographical cross section of the United States was presented at the annual meeting of the Student American Medical Association held in Chicago last May. Eighty-five per cent of the respondents were in rotating internships, 8% in straight, and 4% in mixed. This distribution according to type of internship correlates fairly well with the 89% rotating, 10% straight, and 1% mixed service representing the total of 11,616 approved internships offered last year. While the interpretation of a sampling of any group on matters of interest and concern to the group must be made with care and in its proper perspective, this particular questionnaire highlighted certain points of interest to all concerned with this phase of medical education.

Over 90% of those replying to the questionnaire felt that the internship year should be continued; while a small number suggested that a fifth year of medical school might advantageously replace it. The vast majority of the interns indicated that they did not believe the internship program in their institution was being handled with the primary purpose of teaching and that few hospitals, private or public, are offering internships designed to give adequate preparation for general practice. Private hospitals showed a much smaller percentage of satisfied interns and in this study were graded as offering poorer internships as compared to the teaching and large municipal institutions. In general, the amount of publicity a hospital receives often appeared to be in inverse proportion to the quality of the internship offered.

A large majority of the questionnaire responses indicated that the interns felt they were receiving less than the minimum time desirable under the supervision or instruction of full-time staff personnel. About two-thirds of the group felt that they were allowed adequate responsibility to gain over-all medical experience but that their total responsibilities were in excess of the degree of supervision and teaching offered to them. About 3% of the respondents felt that the intern year they were experiencing was a "farce and a waste of time" because they were doing essentially nonprofessional "scut-work."

The concern of interns over the financial problems associated with this phase of education beyond medical school was reflected in numerous ways through the questionnaire responses. For instance, over 95% of the returns from those in military internships reported favorably. Although these individuals indicated some restrictions in the type of training offered, this was offset by their freedom from financial worry, since they received the highest intern stipends. There was an almost unanimous expression to the effect that the intern pay scale is inadequate with respect to the benefits their services offer to the institutions in which they work and which they feel are not adequately counterbalanced by the educational experiences gained.

In this current report on internships and residencies it will be noted that there has been an increased recognition of the financial problems encountered during the intern year and that in recent years most hospitals have materially augmented intern stipends. Medical students recognize the importance of sound internship experiences and where finances permit will still select the internships in an institution where the teaching and supervision are known to be outstanding, even though stipends may be minimal. In recent years, many social and economic readjustments have taken place in the setting of medical education. Large numbers of medical students are married today and may have families at the time they begin internship. Many of them are already under financial burdens undertaken to complete their medical school courses and in seeking their required graduate education find it necessary to give undue weight to stipends accompanying internship appointments. This essentially means that it has become possible, in some instances, for institutions to compete for interns through the medium of attractive stipends rather than placing primary emphasis on the educational opportunity and experience that they have to offer. This could be at least partially offset if all hospitals conducting approved internships offered basic stipends in keeping with the changing economic scene.

However, in the long run, it is the experience of the intern in obtaining the supervised graduate educational experience he needs that will determine whether an institution continues to attract intern staff personnel, regardless of the remuneration it may offer. The oncoming senior medical students have their "ears to the ground," just as did those of us who graduated many years ago, and learn from their friends who are interning whether the hospital administration and staff are concerned with internships solely from the standpoint of service or whether education and service are properly balanced. As the years roll by and service needs increase, some responsible staff members seem to forget this simple fact and fail to heed it or to adequately interpret it to hospital administrators. The question as to whether internships are worthwhile becomes a direct challenge to the professional staff and administration of every hospital accepting medical school graduates for such experiences.

PROGRESS TOWARD "FULL TRAINING" REQUIREMENTS FOR RESIDENCY APPROVAL

Increasingly in recent years, attention and thought have been given to full training requirements by physicians who develop and direct residency programs in hospitals and by the examining boards in the medical specialties, colleges, and the Council, which participate in residency approvals (THE JOURNAL, September 24, 1955, page 378). Thought has been centered on how a resident upon entering a training period of several years' duration can be assured of continuity in supervision and increasing, graded responsibility. As a result of these considerations, residency review committees in several specialties have adopted policies intended to encourage educational continuity.

The same principle is applicable in all of these policies; namely, that hospitals, to qualify for continued approval, are required to provide "full training" in the specialty, either independently or in collaboration with other hospitals through integration of their programs. Approval for residency training in anesthesiology, general surgery, otolaryngology, and plastic surgery, as well as in medical subspecialties, allergy, cardiovascular diseases, gastroenterology, and pulmonary diseases has for some time been limited to hospitals offering full training, either independently or in collaboration with other hospitals. Announcement of adoption of this policy relating to residency programs in pediatrics appeared in THE JOURNAL, April 10, 1954, page 1303. Similar statements relating to residency programs in orthopedic surgery, radiology, and urology were published in THE JOURNAL, September 24, 1955, pages 382 and 383. In this issue (page 430) there is an announcement on the future policy relative to approval of residency training in ophthalmology. These policies, which have been adopted to preclude the possibility of a resident taking his training in two or three isolated programs with no assurance of continuity of supervised experience or progression of responsibility, are considered educationally sound.

ANNUAL REPORT ON INTERNSHIPS AND RESIDENCIES

The 30th Annual Report on Internships and Residencies published in this issue of THE JOURNAL presents a compilation of statistical data and information on graduate training programs for the past year and listings of hospitals approved by the Council on Medical Education and Hospitals for the training of interns and residents for the year beginning July 1, 1957. The report is based on information furnished by each hospital approved for the training of interns and/or residents in specialties and includes an analysis of the statistical tables regarding these phases of medical education.

As has been the case for several years, there was a slight increase in the number of hospitals approved for intern training and in the number of intern positions available. As of September 1, 1955, 867 hospitals were approved for 11,616 internships. Eighty-three per cent of the available positions were filled. The distribution of internships by type remained stable: rotating 89%, straight 10%, and mixed 1%. There was an appreciable increase in the stipend for interns during the year; the average cash stipend paid by affiliated hospitals was $121 per month; that paid by nonaffiliated hospitals was $169 per month.

There has been an increase of 1,030 residency positions during the year to 26,516. The occupancy rate on September 1, 1955, increased from 80% (1954) to 81%. The increased occupancy rate for both internships and residencies is attributed to the fact that there are in excess of 6,000 foreign medical school graduates serving in these positions. Resident training programs are approved in 30 fields of medicine and surgery. In 1955, there were 31,028 interns and residents on duty in approved hospitals—one out of seven physicians in this country is taking graduate medical training.

On September 1, 1955, a total of 6,123 intern and resident training programs were sponsored by 1,373 hospitals. Of this total number of hospitals, 171 were approved for intern training only; 506 were approved for the training of residents only; and 696 were approved for the training of both interns and residents.

The report includes a brief explanation of the National Intern Matching Program and the results of its 1956 operations; an explanation of the changes made in the revised "Essentials of an Approved Internship," including an interpretation of the "one-fourth rule"; information concerning the internship and the residency review committees; the plan for evaluation of foreign medical school graduates, as developed by the cooperating committee; and a statement regarding the Sears-Roebuck Foundation.

It is the sincere hope of the Council that this report will be helpful to medical students, recent medical school graduates, medical educators, and all others who are interested in medical education at the internship and residency levels.

EXPENDITURES FOR HOSPITALS AND PHYSICIANS

For the first time, the annual personal consumption expenditures of the American people for hospital services exceeded those for physicians' services. According to the July, 1956, issue of the *Survey of Current Business*,[1] personal consumption expenditures for hospital services during 1955 were 3,130 million dollars as compared with 3,070 million for physician services. Although the difference in the two amounts is not very great and both are subject to subsequent revision, these data mark 1955 as a turning point in the history of medical economics. In 1929 the estimates by the Department of Commerce of personal consumption expenditures were 959 million dollars for physician services and 403 million for hospital services; in the period 1935-1939 the average annual amounts were 821 million and 448 million; they rose to 2,435 million and 1,975 million in 1950. In other words, the physicians' share of "the medical care dollar" declined from 33 cents in 1929 to 27.2 in 1955, whereas the hospitals' share rose from 14 to 27.8 cents. Those who are disturbed about the increases in the outlays for medical care, while praising its high quality, should realize that personal consumption expenditures for the services of physicians are no longer the largest in the American family budget for medical care. Although these data, by definition, exclude expenditures by all units of government for medical care, it can now be stated that the hospital has attained its majority in the realm of medical economics. More persons are hospital patients and more babies are born in hospitals; and the range of hospital services has expanded. Without the great growth of hospital services, the rapid health progress of the past several decades could not have been achieved.

---

[1] National Income and Product of the United States 1955, Surv. Current Business 36: 21 (July) 1956.

[2] Expenditures for Hospitals and Physicians, publication M-106, Bureau of Medical Economic Research, American Medical Association, Chicago, 1956.

Another reason for the ascendency of personal consumption expenditures for hospital services is the more rapid rise in hospital prices than in physician fees. According to the Consumer Price Index and its many subindexes published by the United States Bureau of Labor Statistics, physicians' fees in 1955 were 65.8% above the 1935-1939 level as compared with increases of 237.7% in the index of hospital room rates and 91.4% in the over-all Consumer Price Index. In obtaining personnel and supplies the hospital has practically no protection against the forces of inflation; these forces, combined with the ever-increasing demand for hospital services, account for the extremely rapid rise in hospital room rates.[2]

IDENTIFICATION OF THE NEWBORN INFANT

Mix-ups involving two or more babies are quite rare in hospital nurseries, but they still can happen. In one state alone in a period of 18 months eight mix-ups or alleged mix-ups occurred. When such a mix-up, alleged or actual, does occur, a torrent of unfavorable publicity is unloosed and the parents concerned may be haunted by a lifetime doubt about their child. The confusion sometimes arises because two mothers in a hospital at the same time have the same surname; it sometimes arises because a single identification becomes detached from the baby; or it may even arise because parents get to wondering after they leave the hospital how the attendants maintained the identity of the babies. Sometimes the confusion is easily straightened out, and sometimes it leads to giving the wrong baby a harmless prescription; only rarely does it lead to an actual exchange of babies. The American Hospital Association has long been aware of this problem, and, because it has been found that photographs, footprints, handprints, and fingerprints are adjuncts but cannot yet be considered reliable as the sole means of identifying the newborn infant, the association has urged the adoption of a standard operating procedure that if applied would reduce mix-ups to the vanishing point.

The main features of this procedure are as follows: 1. Each baby should be marked in the delivery room with two items of identification. 2. The identification items should show the mother's full name, date and time of birth, and some correlation with the mother, such as her fingerprint or number. 3. Each time the baby comes to the mother, the mother should be informed that it is her responsibility to identify her baby by the marking. 4. When the baby and mother are discharged, one of the bands should be removed, preferably by the mother, and, after the mother has properly identified her baby, the removed identification should then be pasted to the baby's chart. The mother should acknowledge in writing that this is how her baby was marked and that she identified it as hers. The leaflet that gives the full procedure in detail has been available since December, 1949. Once established as a routine, this procedure, far from being a burden, would prevent a type of mistake that would otherwise be easy to make but that is nonetheless inexcusable.

MUNICIPAL SWIMMING POOLS

It is generally felt that the healthful benefits derived from a properly constructed and operated municipal swimming pool far outweigh the possible hazards. Our disgraceful record of accidents as the leading cause of death among the youth of our country obligates our communities to teach our children to swim and play safely; drownings number in the thousands annually. A supervised program at a municipal pool can do its part during the vacation periods of the year. Possible health and disease hazards are minimal where preventive measures are incorporated into the design and operation of the pool. The question of overemphasis on high diving is a real one. It should always be kept in mind that the primary purpose of the pool is for teaching children to swim and gain healthful exercise in the sun and fresh air.

According to the joint committee on swimming pools and bathing places of the American Public Health Association, about 300 sq. ft. of pool surface (10-ft. diameter) should be reserved for each diving board or platform. No platform or board at a public pool should be higher than 10 ft. above the water level. For a diving board elevated 9 or 10 ft. above the water, it is recommended that the minimum depth of the pool be 10 ft.

The types of accidents associated with high diving in properly designed pools are largely slips and falls on the board or platform and diving on top of swimmers below. These may be brought to a minimum by proper construction and supervision. Touching the bottom with any force seldom occurs in pools conforming to minimum depth requirements. A faultily executed dive from a high board may be expected to result in minor sprains and bruises. It is felt by some that excessive diving may lead to nasal and aural involvements, and the use of protective caps over ears or rubber plugs and nose clips is recommended.

ORGANIZATION SECTION

A. M. A. CLINICAL SESSION IN SEATTLE

An outstanding scientific program and excellent hotel accommodations await the nation's physicians at the A. M. A. Clinical Session in Seattle Nov. 27-30. In cooperation with the Council on Scientific Assembly, the general committee, headed by Chairman M. Shelby Jared of Seattle, has been working diligently for months and reports that plans are near completion. The center of activities will be Seattle's Civic Auditorium, where scientific sessions will be held and exhibits will be displayed. Conveniently located, the auditorium is easily accessible from downtown hotels, and transportation will be available for commuting to and from the meetings. A cafeteria will be operated in the auditorium for midday meals. The headquarters for the Clinical Session will be the Olympic Hotel, where House of Delegates sessions and meetings of the Board of Trustees, councils, and reference committees will be held.

The scientific program will be beamed at the general practitioner, and subjects have been carefully chosen to be of interest and practical value. The program will include panel discussions, individual papers, motion pictures, and closed-circuit television clinics. The panel discussions will cover such subjects as hypertension, hemolytic anemia, prenatal care, problems of aging, epilepsy, low back pain, liver disease, and vascular disorders. Twenty topics will be considered by panels of men prominent on the national scene and in the Northwest.

There will be 45 papers, considering fluid balances, urologic problems, office psychiatry, varicose veins, fractures, diabetes, heart disease, and many other subjects. Well-known medical educators and practicing physicians from all parts of the United States will participate. The television clinics will include both wet (operative) and dry (nonoperative) clinics. Talent will be drawn largely from Seattle because of the necessity of rehearsals and frequent briefing. There will be clinics on block anesthesia, treatment of burns, bleeding problems, intestinal obstruction, cesarean section, hand surgery, hysterectomy, vein stripping, and other subjects. The program for the medical motion pictures and schedule of papers, panels, and television shows will be published soon in The Journal. Scientific and technical exhibits have been arranged through the A. M. A. headquarters. They promise to be as interesting and varied as in the past.

Elaborate plans are being made for a banquet and entertainment for the House of Delegates, Board of Trustees, A. M. A. officials, and their wives, Wednesday evening, Nov. 28, in the headquarters hotel. Prepaid medical service plans of Washington, Oregon, and Idaho are planning to conduct a hospitality suite in grandiose style for three days during the session. The prepaid plans of these states will present an exhibit of their services to the public in connection with the hospitality suite. Plans also are near completion for Auxiliary activities during the Clinical Session. Sightseeing tours and other events are on the agenda. Physicians are urged to make their reservations early. A reservation form will be found in The Journal.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 55 of the Quarterly Cumulative Index Medicus, covering literature for the first half of 1954, has been mailed to subscribers and is now available for purchase from the Order Department of the American Medical Association. Preparation of Volume 56 (July-December, 1954) is under way, and this issue should be in print early in 1957.

CHARLES KETTERING RECEIVES CITATION

The American Medical Association presented a citation to Charles F. Kettering on his 80th birthday Aug. 29 for "his lifelong enthusiasm and ingenuity in charting new courses in medical research." The citation was presented to the retired vice-president of General Motors Corporation at a luncheon at the Country Club in Dayton, Ohio. As director of the Sloan-Kettering Institute for Cancer Research and as chairman of the Charles F. Kettering Foundation, Mr. Kettering has provided the opportunity for advanced study in the natural sciences, nutrition, cancer, and air pollution.

Dr. Tom D. Spies, scientific director of the nutrition clinic of the Hillman Hospital, Birmingham, Ala., presented the citation, which reads: "The American Medical Association extends its best wishes to Charles F. Kettering on the occasion of his eightieth birthday, and presents this citation as a token of its appreciation for his selfless dedication, through science, to the well-being of the American people. Charles Kettering's lifelong enthusiasm and ingenuity in charting new courses in medical research have brought about important advances in the study of cancer, industrial health, and the natural sciences. To this philanthropic man of science, the members of the American Medical Association extend a heartfelt 'thank you.'" The citation bears the signatures of the A. M. A. President, Dr. Dwight H. Murray, and Dr. Gunnar Gundersen, Chairman of the A. M. A. Board of Trustees.

ORGANIZATION SECTION

A. M. A. CLINICAL SESSION IN SEATTLE

An outstanding scientific program and excellent hotel accommodations await the nation's physicians at the A. M. A. Clinical Session in Seattle Nov. 27-30. In cooperation with the Council on Scientific Assembly, the general committee, headed by Chairman M. Shelby Jared of Seattle, has been working diligently for months and reports that plans are near completion. The center of activities will be Seattle's Civic Auditorium, where scientific sessions will be held and exhibits will be displayed. Conveniently located, the auditorium is easily accessible from downtown hotels, and transportation will be available for commuting to and from the meetings. A cafeteria will be operated in the auditorium for midday meals. The headquarters for the Clinical Session will be the Olympic Hotel, where House of Delegates sessions and meetings of the Board of Trustees, councils, and reference committees will be held.

The scientific program will be beamed at the general practitioner, and subjects have been carefully chosen to be of interest and practical value. The program will include panel discussions, individual papers, motion pictures, and closed-circuit television clinics. The panel discussions will cover such subjects as hypertension, hemolytic anemia, prenatal care, problems of aging, epilepsy, low back pain, liver disease, and vascular disorders. Twenty topics will be considered by panels of men prominent on the national scene and in the Northwest.

There will be 45 papers, considering fluid balances, urologic problems, office psychiatry, varicose veins, fractures, diabetes, heart disease, and many other subjects. Well-known medical educators and practicing physicians from all parts of the United States will participate. The television clinics will include both wet (operative) and dry (nonoperative) clinics. Talent will be drawn largely from Seattle because of the necessity of rehearsals and frequent briefing. There will be clinics on block anesthesia, treatment of burns, bleeding problems, intestinal obstruction, cesarean section, hand surgery, hysterectomy, vein stripping, and other subjects. The program for the medical motion pictures and schedule of papers, panels, and television shows will be published soon in The Journal. Scientific and technical exhibits have been arranged through the A. M. A. headquarters. They promise to be as interesting and varied as in the past.

Elaborate plans are being made for a banquet and entertainment for the House of Delegates, Board of Trustees, A. M. A. officials, and their wives, Wednesday evening, Nov. 28, in the headquarters hotel. Prepaid medical service plans of Washington, Oregon, and Idaho are planning to conduct a hospitality suite in grandiose style for three days during the session. The prepaid plans of these states will present an exhibit of their services to the public in connection with the hospitality suite. Plans also are near completion for Auxiliary activities during the Clinical Session. Sightseeing tours and other events are on the agenda. Physicians are urged to make their reservations early. A reservation form will be found in The Journal.

QUARTERLY CUMULATIVE INDEX MEDICUS

Volume 55 of the Quarterly Cumulative Index Medicus, covering literature for the first half of 1954, has been mailed to subscribers and is now available for purchase from the Order Department of the American Medical Association. Preparation of Volume 56 (July-December, 1954) is under way, and this issue should be in print early in 1957.

CHARLES KETTERING RECEIVES CITATION

The American Medical Association presented a citation to Charles F. Kettering on his 80th birthday Aug. 29 for "his lifelong enthusiasm and ingenuity in charting new courses in medical research." The citation was presented to the retired vice-president of General Motors Corporation at a luncheon at the Country Club in Dayton, Ohio. As director of the Sloan-Kettering Institute for Cancer Research and as chairman of the Charles F. Kettering Foundation, Mr. Kettering has provided the opportunity for advanced study in the natural sciences, nutrition, cancer, and air pollution.

Dr. Tom D. Spies, scientific director of the nutrition clinic of the Hillman Hospital, Birmingham, Ala., presented the citation, which reads: "The American Medical Association extends its best wishes to Charles F. Kettering on the occasion of his eightieth birthday, and presents this citation as a token of its appreciation for his selfless dedication, through science, to the wellbeing of the American people. Charles Kettering's lifelong enthusiasm and ingenuity in charting new courses in medical research have brought about important advances in the study of cancer, industrial health, and the natural sciences. To this philanthropic man of science, the members of the American Medical Association extend a heartfelt 'thank you.'" The citation bears the signatures of the A. M. A. President, Dr. Dwight H. Murray, and Dr. Gunnar Gundersen, Chairman of the A. M. A. Board of Trustees.

MEDICAL NEWS

CALIFORNIA

Postgraduate Clinics.—The University of California Extension and the division of postgraduate medical education at the University of California at Los Angeles is initiating a course on U. C. L. A. teaching clinics, to be held from 5:30 to 7 p. m. on the first and third Thursday of the month from Oct. 4 through June 20, 1957. Most of the programs, to be presented at the Medical Center, will use case material currently on its wards. The Bay District Branch of the Los Angeles County Medical Association will serve as the sponsoring agency for the program, which will be available to their own branch members as well as members of the Los Angeles County and California Medical associations. A detailed folder is available without charge on request to Dr. Thomas H. Sternberg at the University of California Medical Center, Los Angeles 24.

Mental Health Programs.—The University Extension and the School of Nursing at the University of California at Los Angeles will sponsor an all-day institute on community mental health programs Sept. 29 in the Chemistry Building. Dr. Paul V. Lemkau, commissioner of the New York City Community Mental Health Board, will speak on "How a Community Can Develop Effective Mental Health Programs." A late morning session will include a panel discussion, with invited speakers including Dr. Frank F. Tallman, head of the division of preventive psychiatry, University of California at Los Angeles School of Medicine, and Dr. Arnold D. Schwartz, director, mental health division, California State Department of Public Health. Dr. Portia Bell Hume, Berkeley, deputy director of community service, California State Department of Mental Health, and Dr. Lemkau will summarize the conference results at the afternoon session. Registration fee for the campus conference is $3.

CONNECTICUT

Anesthesia Seminar.—Beginning on Sept. 25, a seminar, "The Pharmacological Background to Anesthesia," will be offered by the department of anesthesia of the Hartford Hospital, with members of the department of pharmacology, Yale University School of Medicine, participating, on Tuesdays and Thursdays, 3 to 4:30 p. m. at the Hartford Hospital Amphitheater. The course, which covers respiration, the autonomic nervous system, body fluids, narcosis, sedatives, and hypnotics, analgesic and analeptic compounds, convulsants and anticonvulsants, volatile and gaseous anesthetics, local anesthetics, and relaxants, is designed primarily for those in anesthesia residency training but is open to interested practicing physicians. There is no fee for the seminar.

NEW YORK

Harrington Lecture.—The University of Buffalo School of Medicine announces that the Harrington Lecture, "The Metabolism of Normal and Malignant Human Cells in Tissue Culture," will be presented in Capen Hall Oct. 4, 4:30 to 5:30 p. m., by Dr. Harry Eagle, of the National Institute of Allergy and Infectious Diseases, Bethesda, Md.

Graduate Fortnight.—The 29th annual Graduate Fortnight of the New York Academy of Medicine will be presented Oct. 15-26. On Monday evening the following lectures will be given on "The Place of Hypophysectomy and Adrenalectomy in the Management of Neoplastic and Metabolic Diseases":

Hypophysectomy in Man, Rolf Luft, Karolinska Institute, Stockholm, Sweden.
The Place of Hypophysectomy and Adrenalectomy in the Complications of Diabetes, Laurance W. Kinsell, Institute for Metabolic Research, Oakland, Calif.
The Place of Adrenalectomy in the Management of Severe Hypertension, Charles C. Wolferth, University of Pennsylvania School of Medicine, Philadelphia.

During the first week the afternoon panel meeting, "The Management of Disseminated Neoplastic Diseases," will be moderated by Dr. David A. Karnofsky, Memorial Center for Cancer and Allied Diseases, New York City, and the Thursday afternoon clinical-pathological conference on hypertension by Dr. Alfred A. Angrist, Albert Einstein College of Medicine, New York City. On Wednesday evening "New Drug Therapy in Psychiatry and Hypertension" will be considered in the following presentations:

The Nature of Drugs with Mental Actions and Their Relation to Cerebral Function, Harry H. Pennes, Eastern Pennsylvania Psychiatric Institute, Philadelphia.
New Drug Therapy in Psychiatry: Clinical Uses and Abuses in Mental Disorders, Paul H. Hoch, Albany, N. Y., commissioner of mental hygiene, New York State.
A Clinical Evaluation of Hypotensive Agents, Irvine H. Page, Cleveland Clinic, Cleveland.

Friday evening the general topic "An Evaluation of the Present Status of Cardiac Surgery" will be developed in "Physiological Considerations and Clinical Indications for Cardiac Surgery" by Dr. Howard B. Burchell, Mayo Clinic, Rochester, Minn.; "Surgery of Congenital Heart Disease" by Dr. Robert E. Gross, Children's Medical Center, Boston; and "Surgery of Acquired Heart Disease" by Dr. Frank Glenn, New York Hospital–Cornell Medical Center. The second week will offer a Monday afternoon panel meeting, "Surgical Management of Cardiovascular Disease," with Dr. Ludwig W. Eichna, New York University–Bellevue Medical Center, as moderator, and a Friday afternoon panel on "Therapy of Infections" moderated by Dr. David E. Rogers of the New York Hospital–Cornel Medical Center. "The Adrenal Cortical Steroids and Their Analogues" will be discussed Tuesday evening in the following program:

Biosynthesis of Adrenal Cortical Hormones, Gregory G. Pincus, Sc.D., Worcester Foundation for Experimental Biology, Shrewsbury, Mass.
Role of the Adrenal Cortical Steroids and Their Analogues in Electrolyte and Fluid Metabolism, Louis J. Soffer, Mount Sinai Hospital, New York City.
Clinical Uses and Hazards of the Adrenal Hormones and Their Analogues in the Management of Rheumatic Diseases, Joseph J. Bunim, National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.

Dr. John G. Kidd, New York Hospital–Cornell Medical Center, New York City, will serve as moderator for the Wednesday afternoon clinical-pathological conference, "An Endocrine Problem." Thursday evening will be devoted to consideration of poliomyelitis. "The Nature of Viruses" will be presented by Mark H. Adams, Ph.D., New York University–Bellevue Medical Center, New York City; "Present Status of Attenuated Live Virus Poliomyelitis Vaccine" by Dr. Albert B. Sabin, Children's Hospital Research Foundation, Cincinnati; and "Recent Experience and Present Status of Killed Virus Poliomyelitis Vaccine" by Dr. Joseph E. Smadel, National Institutes of Health, Bethesda, Md. There will be a registration fee of $10 for nonfellows of the academy. Medical officers of the armed services, in uniform, will be admitted without charge. Interns and residents will be admitted without charge, provided they present letters from their chiefs of service. All inquiries should be addressed to: Secretary, Graduate Fortnight, New York Academy of Medicine, 2 E. 103rd St., New York 29.

OHIO

Course on Pediatric Practice.—The Frank E. Bunts Educational Institute, affiliated with the Cleveland Clinic Foundation, will present the fourth annual postgraduate continuation course in pediatrics, "Current Therapy in Pediatric Practice," Sept. 26-27 at the institute, 2020 E. 93rd St., Cleveland 6. Out-of-state guest speakers will include Drs. Lawrence K. Pickett, associate professor of surgery, State University of New York College of Medicine at Syracuse, N. Y., and James L. Wilson, professor of pediatrics and communicable diseases, University of Michigan Medical School, Ann Arbor, Mich. A symposium on the management of acute gastroenteritis in pediatric practice has been scheduled for 4:20 p. m. on Wednesday and a symposium on trauma for the same time on Thursday.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

PENNSYLVANIA

Phi Delta Epsilon Lectureship.—The Nu chapter of the Phi Delta Epsilon fraternity at the *University of Pittsburgh School of Medicine* will hold its 11th annual lectureship Oct. 4 at 4:30 p. m. in the new medical school auditorium. The guest speaker, Dr. George Crile Jr., chairman of the department of surgery, Cleveland Clinic, will discuss "Physiologic Versus Anatomic Approach to the Problem of Goiter."

Philadelphia

Rehabilitation Course.—The University of Pennsylvania announces that the favorable response to the initial presentations of the course "Principles of Rehabilitation" has resulted in future scheduling for the following dates: Oct. 8-12, and Dec. 10-14, 1956; Feb. 4-8, April 22-26, and June 17-21, 1957. The course, designed to present the basic concepts of rehabilitation in all its aspects, is open to physicians, registered nurses, occupational therapists, social workers, rehabilitation counselors, and others concerned with rehabilitation of the handicapped. Principles and methods are presented through lectures, clinical demonstrations, and group discussions. The instructional staff includes representatives from the various divisions of the University of Pennsylvania and guest lecturers. Provisions for granting a limited number of trainee stipends to eligible persons attending the course have been made by the U. S. Office of Vocational Rehabilitation. Requests for detailed information may be addressed to the Rehabilitation Center, Hospital of the University of Pennsylvania, Philadelphia 4.

TENNESSEE

Postgraduate Courses.—The University of Tennessee College of Medicine, Memphis, announces the following postgraduate courses: Obstetrics and Gynecology, Oct. 3-5; Clinical Electrocardiography, Oct. 17-19; Radiology, Nov. 14-16; Psychiatric Problems in General Practice, Jan. 16-18, 1957; Office Urology, Feb. 27-March 1; Pediatrics, March 27-29; Fractures and Dislocations, April 24-26; Selected Problems in Internal Medicine, May 22-24; and Surgical Management of Acute Injuries, July 24-26. In addition, five-day diversified courses will be offered by the divisions of pediatrics (Jan. 21-25) and radiology (March 11-15), with enrollment limited to four physicians. The programs will include ward rounds with the staff, discussion of cases, attendance at clinical conferences, and work in the outpatient department. Further information may be obtained from the Postgraduate Department, 62 S. Dunlap St., Memphis.

WEST VIRGINIA

Rural Health Conference.—Dr. Franklin S. Crockett, West Lafayette, Ind., and Mr. Aubrey D. Gates, Little Rock, Ark., field director of the A. M. A. Council on Rural Health, will be guest speakers at the ninth Annual Rural Health Conference at Jackson's Mill, Oct. 4. Dr. Jerome C. Arnett, Rowlesburg, chairman, West Virginia State Medical Association's committee on rural health, will be in charge of the meeting, which is being sponsored by the association in cooperation with the West Virginia Farm Bureau, the agricultural extension division of West Virginia University, the West Virginia Congress of Agriculture, the West Virginia Home Demonstration Council, and the state department of health. During the morning session, workshops will be conducted on the possible contributions of youth to rural health, the role of the family physician in rural health, the role of public health in rural health services, and hospital and nursing care facilities. All those attending the conference will be guests of the West Virginia State Medical Association at a luncheon, 12:30 p. m. The afternoon session will be opened at 1:30 p. m. with an address of welcome by Dr. Athey R. Lutz of Parkersburg, president of the state medical association, followed by the addresses of Dr. Crockett and Mr. Gates. A panel discussion, with Mr. Gates as moderator, will follow his address. The conference is open to members of all interested groups.

GENERAL

Conference on Recreation.—The International Recreation Congress will convene at the Bellevue-Stratford Hotel in Philadelphia, Sept. 30—Oct. 5 coincidentally with the National Recreation Congress, which will hold its 38th annual meeting and observe the 50th anniversary year of the National Recreation Association, a citizens' organization supported by voluntary contributions.

SMA Golden Anniversary.—The Southern Medical Association, which will hold its regular annual scientific session, Nov. 12-15 in Washington, D. C., will celebrate its golden anniversary with a special program at the Read House, Chattanooga, Tenn., Oct. 2-3. Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will represent the A. M. A. at the celebration. After a dinner meeting Tuesday evening, Dr. Robert L. Sanders, Memphis, immediate past-president of the Southern Medical Association, will have as his subject "Fifty Years of Medicine in the South." A feature of the Wednesday morning session will be the unveiling of a plaque to be placed on the Read House.

Outbreak of Typhoid.—According to the U. S. Public Health Service, a number of cases of typhoid have occurred among persons who attended a church convention in Monarch Springs, Mo., July 20-29. A total of 170 families, comprising about 400 persons from 14 states, are reported to have attended the convention of the Church of God. By Aug. 25 two confirmed and three suspect cases with one death had been discovered in Louisiana among persons who had returned. There was a fatal suspect case and a reported case in Oklahoma, two reported cases in California, and one in Missouri. A subsequent report (Aug. 30) from the Missouri Division of Public Health noted that seven suspect cases had been found in Newton County among 25 of the camp meeting attendants. Preliminary investigation revealed that a well used by those at the convention was contaminated. A phage type C_2 organism has been isolated in one case.

Philippine Hospital Director on Tour.—Dr. Jose R. Reyes, past-president of the Manila Medical Society and the Philippine Obstetrical and Gynecological Society, is on a three to six months' travel grant in the United States to study the operation of selected teaching hospitals connected with university medical schools. Dr. Reyes is the director of the North General Hospital in Manila, a newly constructed 350-bed hospital of the department of health, the first official training hospital of the department wherein both pre-service and in-service training will be offered to many categories of health personnel and where refresher courses for doctors, nurses, dietitians, and others are being made available. Dr. Reyes, a graduate of the University of the Philippines College of Medicine, Manila, is a professor of gynecology at the Far Eastern University Institute of Medicine and an associate clinical professor of the University of Santo Tomas Faculty of Medicine and Surgery, both in Manila. Information may be obtained from Dr. John J. Hanlon, Chief, Public Health Branch, International Cooperation Administration, Washington 25, D. C.

Clinical Congress of Surgeons in San Francisco.—The 42nd annual Clinical Congress of the American College of Surgeons will convene in San Francisco, Oct. 8-12, under the presidency of Dr. Warren H. Cole, Chicago. Headquarters will be at the Civic Auditorium; some of the scientific sessions are scheduled for the Fairmont and Mark Hopkins hotels. For the first time, student representatives from 16 medical schools will attend the clinical congress, at college expense. The program will include eight postgraduate courses, 27 panel discussions, color television from the Herbert C. Moffitt Hospital, 17 cine clinics, motion pictures, surgical forum sessions, scientific and technical exhibits, and symposiums on trauma, cancer, graduate training in surgery and the surgical specialties, and mobilization of the stapes in otosclerosis, as well as a motion picture symposium on new or unusual problems in surgery. Major addresses will be presented by Dr. Daniel C. Elkin, Lancaster, Ky., incoming president of the college, and by Vannevar Bush, Sc.D., Washington, D. C., who will deliver the Martin Memorial Lecture. Dr. Michael L. Mason, Chicago, secretary of the college, will give the annual oration on trauma, speaking on "The Treatment of Open Wounds." The annual business meeting of the American branch of the International Society of Surgery will be held on Oct. 9 at 4 p.m. in the Nob Hill Room at the Fairmont Hotel.

Anesthesiologists Meet in Kansas City.—The annual meeting of the American Society of Anesthesiologists will convene in Kansas City, Mo., Oct. 8-12, under the presidency of Dr. Scott M. Smith, Salt Lake City. The general scientific sessions will be held in the Municipal Auditorium and, concurrently, another educational program, "Work in Progress," in the Little Theater of that building. The general sessions will include a panel discussion, "Anesthesia for Cardiac Catheterization," Wednesday, 2-3:30 p. m., moderated by Dr. Howard A. Bennett, Tulsa, Okla., and a panel discussion, "Pain Control in Terminal or Inoperable Carcinoma," at the same time on Thursday afternoon, with Dr. Richard H. Barrett, Hanover, N. H., as moderator. The general sessions will open Wednesday, 9 a. m., with "Chemical Rhizotomy in Management of Intractable Pain" by Dr. Louis W. Lewis, Ann Arbor, Mich., and will close with a debate, "Resolved That, Purism is Preferable to Poly-Pharmacy in the Practice of Anesthesia." The affirmative will be presented by Drs. O. Sidney Orth, Madison, Wis., and Perry P. Volpitto, Augusta, Ga., and the negative by Drs. M. Jack Frumin, New York, and Heber H. Ryan, Glendale, Calif. "Work in Progress" will begin with a panel discussion Wednesday, "The Performance of Equipment in Inhalation Anesthesia," moderated by Dr. Emanuel M. Papper, New York. The Tuesday morning session will open with panel discussion on pulmonary edema, for which Dr. Charles R. Stephen, Durham, N. C., will serve as moderator, and the Friday morning session with a panel discussion, "Anesthesia for Intracardiac Surgery," with Dr. Frederick H. Van Bergen, Minneapolis, as moderator. Monday and Tuesday will be devoted to the seventh annual refresher course, sponsored by the committee on medical schools and postgraduate education.

Tennessee Valley Medical Assembly.—The fourth annual Tennessee Valley Medical Assembly will be held at the Read House, Chattanooga, Tenn., Oct. 1-2. The registration fee ($15) includes the banquet Monday evening, at which Dr. Frederick C. Schwarz, Sydney, Australia, will present "Diagnosis, Prognosis and Treatment of Communism." At the scientific session Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association, will consider "The Role of the A. M. A. in Improving and Increasing Scientific Programs Throughout the Country." Other guest speakers and their subjects include:

alter C. Alvarez, Chicago, New Observations on Little Strokes.
hilip S. Hench, Rochester, Minn., Treatment of Rheumatoid Arthritis.
J. P. Greenhill, Chicago, What's New in Obstetrics.
Guy W. Horsley, Richmond, Va., Carcinoma of the Colon and Rectum.
Eugene P. Pendergrass, Philadelphia, Responsibility of the General Practitioner and the Radiologist in Diagnosis of Curable Cancer of the Lung.
Tom D. Spies, Birmingham, Ala., Recent Advances in Treatment of Nutritional Disorders.
Francis E. Senear, Chicago, Diagnosis and Treatment of the Bullous Dermatoses.
James L. Poppen, Boston, Indications for Sympathectomy.
Henry W. Cave, New York, Ulcerative Colitis
Russell J. Blattner, Houston, Texas, Encephalitis.
J. Hartwell Harrison, Boston, Clinical States Due to Abnormal Adrenocortical Function.
Henry L. Bockus, *Philadelphia*, Chronic Regional Enteritis The Acute Abdomen.
Robert E. Gross, Boston, Surgical Treatment for Interauricular Septal Defects.
John S. Lundy, Rochester, Minn., Pain Relief
T. Campbell Thompson, New York, Orthopedic Conditions of Special Interest to the Pediatrician and General Practitioner.
Michael E. DeBakey, Houston, Texas, Surgical Treatment of Diseases of the Aorta.

Congress on Medical Records.—The second International Congress on Medical Records will convene at the Shoreham Hotel, Washington, D. C., Oct. 1-5, under the joint sponsorship of the American Association of Medical Record Librarians, the Association of Medical Record Officers of the United Kingdom, the Canadian Association of Medical Record Librarians, and the Australian Federation of Medical Record Librarians. The opening address, "Establishing Standards and Evaluating Patient Care," will be delivered Monday morning by Dr. Mindel C. Sheps, department of preventive medicine, Harvard Medical School, Boston. The Monday sessions will close with "World Health Problems and Programs" by Howard M. Kline, Ph.D., chief, education and training branch, division of international health, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C. Tuesday afternoon Dr. Gordon A. Winfield, director, medical research statistics, development and planning, Department of Veterans Affairs, Ottawa, Canada, will moderate a panel in which principles of selection and use of morbidity and mortality classifications will be presented (1) in vital and health statistics by Dr. Halbert L. Dunn, chief, National Office of Vital Statistics, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C.; (2) in clinical medicine by Dr. George Baehr, New York City, chairman, Editorial Advisory Board, A. M. A. Standard Nomenclature of Diseases and Operations; and (3) in industrial medicine by Dr. Jean S. Felton, associate professor of medicine and of preventive medicine and public health, University of Oklahoma School of Medicine, Oklahoma City. Wednesday afternoon will be devoted to tours of these local hospitals: National Naval Medical Center and Clinical Center, National Institutes of Health, Public Health Service, Department of Health, Education, and Welfare in Bethesda, Md., and Johns Hopkins Hospital and U. S. Public Health Service Hospital in Baltimore. (Only one tour may be taken by any individual). The Thursday morning program will conclude with "The Need for Research in Mental Health Problems" by Dr. Richard L. Jenkins, director, Psychiatric Evaluation Project, Veterans Administration Hospital, Washington, D. C. The Sister Patricia Memorial Lecture, "Changing Concepts of Treatment," will be delivered Friday morning by Dr. William S. Middleton, chief medical director, Veterans Administration, Washington, D. C.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated:

	Aug. 25, 1956		
Area	Paralytic *Type*	Total Cases *Reported*	Aug. 27, 1955 *Total*
New England States			
Maine	1	1	18
New Hampshire	..	..	27
Vermont	..	..	13
Massachusetts	2	6	300
Rhode Island	..	1	30
Connecticut	..	7	56
Middle Atlantic States			
New York	11	51	238
New Jersey	4	15	51
Pennsylvania	..	13	68
East North Central States			
Ohio	10	46	191
Indiana	12	26	31
Illinois	90	167	111
Michigan	17	42	11
Wisconsin	10	39	36
West North Central States			
Minnesota	8	15	40
Iowa	1	68	41
Missouri	9	31	17
North Dakota	..	2	3
South Dakota	..	1	11
Nebraska	2	12	11
Kansas	3	18	21
South Atlantic States			
Delaware	1	1	3
Maryland	6	6	27
District of Columbia	..	.	4
Virginia	11	13	25
West Virginia	7	9	14
North Carolina	10	19	38
South Carolina	4	6	21
Georgia	4	13	11
Florida	3	10	16
East South Central States			
Kentucky	3	10	7
Tennessee	10	12	16
Alabama	..	15	10
Mississippi	14	21	1
West South Central States			
Arkansas	8	9	17
Louisiana	24	31	11
Oklahoma	7	19	15
Texas	23	50	80
Mountain States			
Montana	..	1	3
Idaho	5	10	10
Wyoming	1	4	.
Colorado	2	9	10
New Mexico	1	2	10
Arizona	3	7	3
Utah	..	8	4
Nevada	..	..	1
Pacific States			
Washington	2	9	16
Oregon	1	3	18
California	45	85	86
Territories and Possessions			
Alaska	1	1	4
Hawaii	1	2	3
Puerto Rico	..	..	.
Total	377	946	2,291

Fellowship in Hematology.—A fellowship in hematology, with emphasis on the study of leukemia, has been created in the University of Cincinnati College of Medicine by friends of the late Mrs. A. Burton Closson. The Lucinda Closson Memorial Fellowship in the Laboratory of Hematology and Cellular Metabolism at the Cincinnati General Hospital will be under the direction of Dr. Richard W. Vilter. A stipend of $3,500 will be paid to first-year appointees and $4,500 to second-year appointees. An internship and one or more years of residency training in internal medicine are required. Openings are available beginning July, 1957. Applications should be directed to Dr. Richard W. Vilter, Director, Laboratory of Hematology, Cincinnati General Hospital, Cincinnati 29.

FOREIGN

Geriatric Symposium.—A symposium on the biology of aging will be held in the Anatomy Theatre, University College, Gower Street, London, W. C. 1, Sept. 27-28. Subjects for discussion will include Aging and Metabolism, The Aging of Mammalian Cells, Endocrinology and Aging, Functional Changes with Age in Relation to the Employment of the Elderly, Psychological Changes with Age, Nutrition and Aging, and Genetic Variations in Aging.

Congress on History of Pharmacy.—The International Society for the History of Pharmacy will hold its annual congress Oct. 4-8 at Lucerne, Switzerland. On Saturday an excursion to the Lake Valley has been arranged, with reception at Heidegg Castle. Sunday there will be a session on Buergenstock, commemorating 30 years of the International Society for the History of Pharmacy, the centenary of Prof. Alexander Tschirch, and the memory of Prof. Josef A. Haefliger, president of the society till 1954. A visit to the Swiss Museum for the History of Pharmacy has been planned for Monday. Registration forms can be obtained from Dr. Albert Schubiger, Kapellplatz 5, Lucerne, Switzerland.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Various Centers. September 4-5 (Part I). Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made. New candidates should apply by formal registration; registered candidates may notify the board, indicating desired location, date and candidate number. Ex. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 18-20. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery 4.

Arizona:* *Examination and Reciprocity.* Phoenix, Oct. 17-19. Ex. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

Arkansas:* *Examination and Reciprocity.* Little Rock, Nov. 8-9. Sec., Dr. Joe Verser, Harrisburg.

Colorado:* *Reciprocity.* Denver, Oct. 9. Final date for filing application was Sept. 10. *Examination.* Denver, Dec. 4-5. Final date for filing application is Nov. 2. Sec., Dr. Samuel H. Brown, 831 Republic Bldg., Denver 2.

Connecticut:* *Examination.* Hartford, Nov. 13-15. Sec., Dr. Creighton Barker, 160 St. Roman St., New Haven.

Delaware: *Examination.* Dover, Jan. 8-10. *Reciprocity.* Dover, Jan. 17. Sec., Dr. Joseph S. McDaniel, 225 So. *State St., Dover.*

District of Columbia:* *Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

Florida:* *Examination.* Miami Beach, Nov. 25-27. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Georgia: *Examination and Reciprocity.* Atlanta, Oct. 9-11. Sec., Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

Idaho: *Examination and Reciprocity.* Boise, Jan. 7-9. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Illinois: *Examination.* Chicago Sept. 24-27. Supt. of Regis., Mr. Fredric B. Selcke, Capitol Bldg., Springfield.

Kansas: *Examination and Endorsement.* Topeka, Dec. 12-13. Sec., Dr. Lyle F. Schmaus, 872 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 10-12. Sec., Dr. Russell Teague, 620 South Third St., Louisville 2.

Louisiana: *Homeopathic.* Subject to call. Sec., Dr. F. H. Hardenstein, 903 Pere Marquette Bldg., New Orleans 12.

Maine: *Examination and Reciprocity.* Portland, Nov. 13-14. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Examination.* Baltimore, Dec. 11-14. Sec., Dr. Lewis P. Gundry, 1211 Cathedral St., Baltimore 1.

Michigan:* *Examination.* Lansing, Oct. 10-12. Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., West Michigan Ave., Lansing 8.

Minnesota:* *Examination and Reciprocity.* Minneapolis, Oct. 16-18. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 12.

Mississippi: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson.

Missouri: *Examination and Reciprocity.* Kansas City, Oct. 25-27. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Montana: *Examination and Reciprocity.* Helena, Oct. 2-3. Sec., Dr. S. A. Cooney, 7 West 6th Ave., Helena.

Nebraska:* *Examination.* Omaha, June 17-19. Director, Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

Nevada:* *Examination and Reciprocity.* Reno, Oct. 2. Sec., Dr. G. H. Ross, 112 No. Curry St., Carson City.

New Jersey: *Endorsement.* Trenton, Sept. 12. *Examination.* Trenton, Oct. 16-19. Sec., Dr. Patrick H. Corrigan, 28 West State St., Trenton.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 19-20. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 16-19. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Carolina: *Examination and Reciprocity.* Raleigh, Sept. 24. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: Examination and Reciprocity. Grand Forks, Jan. 2-5. Sec., Dr. C. J. Glaspel, Grafton.

Oregon:* *Reciprocity.* Portland, Oct. 19-20. *Examination.* Portland, January. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

Rhode Island:* *Examination.* Providence, Oct. 4-5. Admin. of Professional Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Dakota:* *Examination.* Sioux Falls, Jan. 21-22. Ex. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Tennessee:* Examination. Memphis, Sept. 26-27. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis 3.

Texas:* *Examination and Reciprocity.* Fort Worth, Dec. 6-8. Applications for reciprocity must be complete and on file at least thirty days prior to the December meeting, and applications for examination must be complete and on file at least ten days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah. *Reciprocity.* Salt Lake City, Nov. 20. *Examination.* Salt Lake City, July 11-13. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: *Examination and Reciprocity.* Richmond, Dec. 5-7. Address: Secretary to the Board, 631 First St., S.W., Roanoke.

Washington:* *Examination and Reciprocity.* Seattle, Jan. 14-16 and Jan. 12. Sec., Mr. Edward C. Dohm, Olympia.

West Virginia: *Reciprocity.* Charleston, Oct. 8. *Examination.* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Building No. 3, Charleston 5.

Wisconsin:* *Reciprocity.* Madison, Oct. 19 and Jan. 9. *Examination.* Madison, Jan. 8-10. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., 1 West Wilson St., Madison.

Wyoming: *Examination and Reciprocity.* Cheyenne, Oct. 1. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

Alaska:* On application in Anchorage, Fairbanks, Juneau and *other towns. Sec., Dr. W. M. Whitehead.* 172 South Franklin St., Juneau.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arkansas: *Examination and Reciprocity.* Little Rock, Oct. 1-2. Sec., Mr. S. C. Dellinger, Zoology Department, University of Arkansas, Little Rock.

Colorado: *Examination and Reciprocity.* Dec. 5-6, Lincoln and Denver. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

Connecticut: *Examination.* New Haven, Oct. 13. Exec. Asst., Miss Regina G. Brown, 258 Bradley St., New Haven 10.

District of Columbia: *Examination.* Washington, Oct. 22-23. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington.

Michigan: *Examination and Reciprocity.* Ann Arbor and Detroit, Oct. 12-13. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., Lansing.

Minnesota: *Examination and Reciprocity.* Minneapolis, Oct. 2-3. *Sec.,* Dr. Raymond N. Bieter, 105 Millard Hall, University of Minnesota, Minneapolis.

New Mexico: *Reciprocity.* Santa Fe, Oct. 2. Examination. Santa Fe, Oct. 21. Sec., Mrs. Marguerite Cantrell, Box 1522, Santa Fe.

Oklahoma: *Examination and Reciprocity.* Oklahoma City, Sept. 28-29. Sec., Dr. E. F. Lester, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, Dec. 1. Dr. Earl M. Palett, Sec., State Board of Higher Education, Eugene.

South Dakota. *Examination.* Vermillion, Dec. 7-8. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: Reciprocity. Dallas, Sept. 29. *Examination.* Dallas, Oct. 19-20. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Washington: *Examination.* Seattle, Jan. 9-10. Sec., Mr. Edward C. Dohm, Olympia.

Wisconsin: *Examination.* Milwaukee, Dec. 1. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: *Examination and Reciprocity.* Anchorage and Juneau, first week of February, April, June, August and November. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

---

*Basic Science Certificate required.

GOVERNMENT SERVICES

ARMY

First-Aid Training.—Today's soldier for the first time is getting extensive indoctrination in the basic medical essentials for saving his own life and that of his fellow soldier in mass destruction warfare. More than a year ago the Army Medical Service began establishing standards of proficiency to be reached by nonmedical soldiers that would enable them to assist the injured and save their own lives when faced with overwhelming casualties. Recognizing that recent changes in weapons and the advent of nuclear arms had made necessary an increase in the amount of self-aid and first aid being taught the average soldier, the surgeon general suggested such indoctrination be given by Army Medical Service personnel stationed at each training center. A class of 10 officers and 30 enlisted men, selected to carry out the objective of the new program, took five days of intensive training at the Army Medical Service School, Fort Sam Houston, Texas, in April. When graduated, they were organized into six groups of officers and enlisted men and sent to Fort Dix, N. J.; Fort Jackson, S. C.; Camp Chaffee, Ark.; Fort Leonard Wood, Mo.; Fort Knox, Ky.; and Fort Bliss, Texas.

The amount of instruction in the principles of self-aid and first aid needed by the combat soldier for future wars is just about twice the training he has needed for the conventional warfare of the past. The medical training now being inaugurated at the training centers is based on the assumption that in the future nonmedical military personnel will have to bear far greater responsibility for first-aid treatment for themselves and their colleagues than previously. These persons will be equipped by the new program of instruction to assist the supporting medical units and will significantly bring about conservation of manpower. The broadened concept of soldier first aid and self-aid includes the control of hemorrhage; the prevention and treatment of shock; patient positioning and care in the treatment of fractures; the care of open wounds and burns; artificial respiration; treatment of casualties with wounds in chest, head, neck, extremities; and a working knowledge of the screening and sporting of the wounded.

Medical Aspects of World War II.—The growth of the Army Medical Service during World War II to an organization that was able to treat almost 9 million patients in the United States is described in a new volume of the Army *Historical Series* entitled "The Medical Department: Hospitalization and Evacuation, Zone of Interior," which was published in July. The book was written by Clarence McK. Smith, formerly a member of the historical division, Office of the Army Surgeon General. This new volume may be purchased for $4 from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Personal.—Brig. Gen. Sam F. Seeley, M. C., U. S. Army, for nearly three years chief consultant in surgery to the U. S. Army in Europe, has assumed command of the 1,000-bed Valley Forge Army Hospital, succeeding Brig. Gen. Mack M. Green, M. C., who retired on June 30.

NAVY

Medical Student Ensigns.—One hundred fifty-five selected senior students enrolled in 57 medical schools throughout the United States and Puerto Rico will enter on active duty as medical ensigns, U. S. Naval Reserve, and participants in the Navy's senior medical student program when school opens in the fall. These students will receive the full pay and allowance of their rank while enrolled on active duty, and on completion of medical school and internship they will be commissioned in the medical corps of the regular Navy. This program is open to qualified students enrolled at medical schools accredited by the Council on Medical Education and Hospitals of the American Medical Association. Students who have completed their second year of medical school may make application for this training at any office of naval officer procurement. Active duty commences and continues while the students are in attendance during their senior academic year. To be eligible for participation, the student must be a medical ensign, U. S. Naval Reserve, or agree to accept such an appointment if selected. A board convened in the bureau of medicine and surgery selects the candidates for participation in this program. Because an average of four months is required to process each application completely, those desiring to participate in this training during fiscal year 1958 must forward completed applications by Feb. 1, 1957, to the Bureau of Personnel, Department of the Navy, Washington, D. C.

VETERANS ADMINISTRATION

Personal.—Dr. Ivan F. Bennett has been appointed chief of psychiatric research in the psychiatry and neurology service of the Veterans Administration Central Office, Washington, D. C. He succeeds Dr. Richard L. Jenkins, who has been reassigned as director of the VA's psychiatric evaluation project, with headquarters in Mount Alto Hospital in Washington.—Dr. Marjorie P. Wilson has been appointed chief of the Veterans Administration residency and internship division in the education service of the *Department of Medicine and Surgery* at Washington, D. C. She succeeds Dr. J. H. Friedlander, who has been reassigned as manager of the VA hospital in Big Springs, Texas.—The highest honor in the physical medicine and rehabilitation medical service, the John E. Davis plaque, has been awarded to Dr. Louis B. Newman, chief of physical medicine and rehabilitation at the Chicago north side VA Research Hospital.

PUBLIC HEALTH SERVICE

Research Fellowships.—A Senior Research Fellowship program, administered by the *National Institutes of Health*, Public Health Service, is now in operation. During the first year, this program will provide for a total of 40 to 50 awards to the nation's medical schools, dental schools, and schools of public health. These awards will be increased by a like number each year for five years until a total of 200 to 250 fellowships is awarded annually. The awards will be for a maximum of $10,000 a year and may be retained as long as five years. Only three applications may be made per year by each school. The program is designed to attract and hold able investigators in the preclinical sciences. Requests for information concerning this program should be addressed to the Chief, Research Fellowship Program, Division of Research Grants, *National Institutes* of Health, Bethesda 14, Md.

Postgraduate Courses.—The Graduate School of the U. S. Department of Agriculture, in cooperation with the National Institutes of Health in Bethesda, Md., has been offering a series of postgraduate courses for physicians. Some of these courses are unusual, for example, there is a series of courses entitled "Improving Professional Speaking" that has been constructed and oriented specifically for physicians. An article entitled "Speech Education for Physicians and Dentists" is scheduled for publication in the January, 1957, issue of *Today's Speech.*

FOOD AND DRUG ADMINISTRATION

Personal.—Dr. Peter J. Farago has been appointed deputy medical director of the Food and Drug Administration, Department of Health, Education, and Welfare. The administration's Bureau of Medicine is responsible for advising the administration on all medical questions involved in enforcement of the Federal Food, Drug, and Cosmetic Act. The bureau also assists in the development of medical evidence in court cases involving adulterated and misbranded products and administers the new-drug provisions of the act that require review of safety data on all new drugs prior to marketing. Dr. Farago comes to the Food and Drug Administration from the Abbott Laboratories, North Chicago, where he has been a member of the medical department doing clinical investigative work on new drugs for the past three years.

DEATHS

Carlson, Anton Julius, formerly professor and chairman of the department of physiology at the University of Chicago, and in 1946 recipient of the Distinguished Service medal of the American Medical Association, died Sept. 2 in Albert Merritt Billings Hospital, of cancer. Dr. Carlson was born in Sweden Jan. 29, 1875, and came to America in 1891. He received the bachelor of science degree from Augustana College in 1898 and the Ph.D. from Stanford University in 1903. He served as research assistant in physiology at Stanford and then became associated with the Carnegie Institution. In 1904 he joined the faculty of the University of Chicago, where in 1929 he became Frank P. Hixon Distinguished Service Professor. He was Secretary of the Section on Pathology and Physiology of the American Medical Association from 1912 to 1914, when he became Chairman, serving until 1915. He received the Distinguished Service Citation of the Minnesota State Medical Association and in 1953 was voted humanist of the year. He was president of the American Physiological Society, the Institute of Medicine of Chicago, American Association of University Professors, Federation of American Societies for Experimental Biology, the Gerontological Society, American Biological Society, American Association for the Advancement of Science, National Society for Medical Research, Research Council on Problems of Alcohol, and the Chicago Committee on Alcoholism. During World War I he was assigned to the Sanitary Corps as a lieutenant colonel in the U. S. Army and worked with the American Relief Expedition in Europe. He was awarded honorary degrees (M.D., LL.D., and Sc.D.) by eight universities and colleges.

Fulton, Clifford Cannon ⊕ Oklahoma City; Rush Medical College, Chicago, 1929; professor of surgery at the University of Oklahoma School of Medicine; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; veteran of World War II; on the staffs of St. Anthony and Wesley hospitals; died June 22, aged 53, of cancer of the liver.

Grimm, Benjamin Hayes ⊕ Sidney, Neb.; University of Nebraska College of Medicine, Omaha, 1936; interned at the Presbyterian Hospital in Denver; on the faculty of his alma mater; member of the American Academy of General Practice; on the staff of the Cheyenne County Memorial Hospital, where he died May 31, aged 46, of coronary occlusion.

Horvath, Louis Oliver ⊕ Detroit; Wayne University College of Medicine, Detroit, 1938; interned at the Grace Hospital; on the staffs of the Delray and William Booth Memorial hospitals; died June 13, aged 51, of coronary thrombosis.

Hurley, Douglas Chester ⊕ Elgin, Ill.; Northwestern University Medical School, Chicago, 1925; veteran of World Wars I and II, died July 15, aged 57.

Jacobsen, Frederick Charles, Palos Heights, Ill.; Jenner Medical College, Chicago, 1907; veteran of the Spanish-American War, retired chief surgeon for Armour and Company in Chicago, served on the staff of the Mercy Hospital in Chicago, where he died March 5, aged 80, of uremia due to carcinoma.

Johnson, Frederick A., New York City; Columbia University College of Physicians and Surgeons, New York City, 1906; died May 28, aged 82, of arteriosclerotic heart disease.

Kimmel, Richard Klais, St. Louis; Washington University School of Medicine, St. Louis, 1925; died in De Paul Hospital June 3, aged 55, of hypertensive arteriosclerotic cardiovascular disease.

Krieger, Jacob, Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1913; member of the Medical Society of the State of New York; member of the staff of the Beth-El Hospital, where he died June 26, aged 65, of acute myocardial infarction and arteriosclerotic heart disease.

Lanza, Nicola, New York City; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1898; died in the Flower and Fifth Avenue Hospitals June 9, aged 83, of bronchogenic carcinoma.

Lloyd, John Robert ⊕ Washington, D. C.; Indiana University School of Medicine, Indianapolis, 1925; veteran of World War I; on the staff of the Episcopal Eye, Ear and Throat Hospital; died in Chevy Chase, Md., July 3, aged 57, of coronary occlusion.

Love, Andrew Alexander ⊕ North Hollywood, Calif.; University of Minnesota Medical School, Minneapolis, 1930; also a graduate of a dental school; certified by the National Board of Medical Examiners; fellow of the American College of Surgeons; veteran of World War I; industrial surgeon at Lockheed Aircraft Corporation at Burbank; on the courtesy staff of St. Joseph Hospital in Burbank, where he died June 12, aged 57, of generalized peritonitis and pneumonia.

Lucas, Charles, Los Angeles; Georgetown University School of Medicine, Washington, D. C., 1893; died April 11, aged 89, of cancer of the lung.

McCall, Cummings Herrington ⊕ Gulfport, Miss.; Rush Medical College, Chicago, 1928; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; past-president of the Mississippi State Medical Association and the Coast Counties Medical Society; on the staff of the Memorial Hospital; died July 2, aged 59.

McKinley, Walter Etna ⊕ Gardner, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; member of the American Psychiatric Association; served on the staff of the Osawatomie (Kan.) State Hospital; died July 12, aged 88, of left ventricular failure, arteriosclerosis, and hypertension.

McLaughlin, Bernard Gill, Manchester, N. H.; Georgetown University School of Medicine, Washington, D. C., 1951; interned at the Georgetown University Hospital in Washington, D. C., where he served a residency; served a residency at the New England Deaconess Hospital in Boston and the Veterans Administration Hospital in Washington, D. C.; certified by the National Board of Medical Examiners; died in the Sacred Heart Hospital March 18, aged 29, of chronic glomerulonephritis, hypertensive cardiovascular disease, and diabetes mellitus.

Maloney, Robert Lee ⊕ McMinnville, Tenn.; Atlanta (Ga.) College of Physicians and Surgeons, 1903; chairman of the Magness Memorial Library Board; a director of the First National Bank of McMinnville and the First Federal Bank of Nashville; died July 8, aged 81, of heart disease.

Martinolich, Betty Joyce Drury, Byhalia, Miss.; University of Tennessee College of Medicine, Memphis, 1953; served on the staff of North Mississippi Hospital in Holly Springs; interned at St. Joseph's Hospital in Memphis, Tenn.; died July 7, aged 29, of cerebrovascular accident.

Mount, Garry, Rochester, N. Y.; Cleveland Homeopathic Medical College, 1899; an associate member of the American Medical Association; served on the staff of the Genesee Hospital; died July 8, aged 79, of coronary disease.

Paster, Alexander Zus ⊕ New York City; Universita Karlova Fakulta Lékařská, Praha, Czechoslovakia, 1929; died in the Flower and Fifth Avenue Hospitals June 17, aged 55, of cirrhosis of the liver.

Plummer, Grover Cleveland ⊕ Buffalo, Mo.; University College of Medicine, Richmond, Va., 1909; member of the American Academy of General Practice; died in the Springfield (Mo.) Baptist Hospital, May 17, aged 70, of coronary thrombosis and arteriosclerosis.

Reynolds, Ralph Arthur ⊕ San Francisco; University of California Medical School, San Francisco, 1925; member of the Endocrine Society; died June 25, aged 63, of coronary thrombosis.

Rodman, George Teeter, Hawley, Pa.; University of the City of New York Medical Department, 1886; past-president of the Wayne County Medical Society; secretary of the first local board of health, which he helped to organize; died June 13, aged 91, of arteriosclerosis.

⊕ Indicates Member of the American Medical Association.

Rupp, John Jacob ⊕ Marlboro, Mass.; Washington University School of Medicine, St. Louis, 1944; interned at the University Hospitals in Cleveland; formerly a resident at the Albany (N. Y.) Hospital and the Massachusetts General Hospital in Boston; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiologists; and the Arizona State Medical Association; died June 15, aged 37.

St. George, Archibald, South Swansea, Mass.; College of Physicians and Surgeons, Baltimore, 1895; served as a member of the board of health; died June 16, aged 88.

Saidman, Maurycy ⊕ New York City; Universität Basel Medizinische Fakultät, Switzerland, 1907; fellow of the International College of Surgeons; died in the Maimonides Hospital in Brooklyn June 27, aged 71, of arteriosclerotic heart disease.

Salvati, Carlo, New York City; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1893; died May 31, aged 90, of arteriosclerotic heart disease.

Shelley, Robert Alexander J. ⊕ Coldwater, Kan.; University of Tennessee Medical Department, Nashville, 1903; died in the Comanche County Hospital July 3, aged 81, of cancer.

Simmons, James I., Dallas, Ga.; Atlanta (Ga.) College of Physicians and Surgeons, 1909; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1910; died June 15, aged 75.

Skern, Abraham Marcus, Yonkers, N. Y.; Cornell University Medical College, New York City, 1902; an associate member of the American Medical Association; died in New York City July 8, aged 75, of coronary arteriosclerosis.

Skiff, Stuart Ernest ⊕ New Haven, Conn.; Hahnemann Medical College and Hospital of Philadelphia, 1903; one of the founders of the Grace-New Haven Community Hospital, where he was on the staff for many years; died June 3, aged 77, of cerebral hemorrhage.

Smith, Frederick Cleveland ⊕ Marion, Ohio (licensed in Ohio in 1917); served as Republican congressman from the Eighth Ohio Congressional District; formerly mayor of Marion; died in the Marion General Hospital July 16, aged 72.

Solomonica, Julius, New York City; Medizinische Fakultät der Universität, Vienna, Austria, 1901; died in the Mount Sinai Hospital June 11, aged 82, of congestive heart disease and myocardial infarct.

Stack, Leonard Anthony ⊕ Lorain, Ohio; University of Cincinnati College of Medicine, 1923; fellow of the American College of Surgeons; past-president of the Lorain County Medical Society; veteran of World Wars I and II; past-president of the staff and member of the board of directors of St. Joseph's Hospital, where he died June 19, aged 57, of brain tumor.

Stafford, Samuel Patterson, St. Louis; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died in the Homer G. Phillips Hospital July 1, aged 84, of heart disease.

Stephens, John Arch ⊕ Paris, Texas; Baylor University College of Medicine, Dallas, 1929; member of the American Academy of General Practice; died June 29, aged 51, of coronary thrombosis.

Stevens, Franklin Augustus, Jr., New York City; State University of Iowa College of Medicine, Iowa City, 1915; served as an associate in medicine at Columbia University College of Physicians and Surgeons; later assistant attending physician at the Vanderbilt Clinic and Presbyterian Hospital, where he died June 20, aged 64, of carcinoma of the lung.

Stevens, George Alfred ⊕ Sioux Falls, S. D.; Creighton University School of Medicine, Omaha, 1909; on the staff of the Sioux Valley Hospital; died June 20, aged 71, of a heart attack.

Sudler, Mervin Tubman ⊕ Lawrence, Kan.; College of Physicians and Surgeons, Baltimore, 1901; instructor in surgery at the Cornell University Medical College in New York City, 1902-1903; professor of anatomy at the University of Kansas School of Medicine, Kansas City, from 1906 to 1912 when he became dean and professor of surgery, serving until 1924; fellow of the American College of Surgeons; on the staff of the Lawrence Memorial Hospital; consultant, Watkins Memorial Hospital; died June 22, aged 80, of coronary occlusion.

Tappan, Russell G. ⊕ Knoxville, Tenn.; St. Louis College of Physicians and Surgeons, 1922; died in Fort Sanders Presbyterian Hospital June 15, aged 59.

Teifer, Charles Aloyscious ⊕ Muskegon, Mich.; Detroit College of Medicine and Surgery, 1916; past-president of the Muskegon County Medical Society; member of the Industrial Medical Association; at one time a member of the Michigan State Board of Registration in Medicine; for many years physician for Muskegon High School football teams and other high school athletes; died in the Mercy Hospital June 6, aged 64, of acute posterior myocardial infarction.

Thomas, John Willard, New Orleans; Harvard Medical School, Boston, 1900; served on the faculty of Flint Medical College of New Orleans University; on the staff of the Flint-Goodridge Hospital of Dillard University; died June 21, aged 96.

Thornton, Robert Amos ⊕ Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1912; veteran of World War I; on the staffs of St. Anthony and White Cross hospitals; died May 20, aged 67, of coronary thrombosis.

Thorpe, Eugene Davis, Madison, Fla.; Tulane University School of Medicine, New Orleans, 1920; veteran of World War I; died May 16, aged 61, of a heart attack.

Trudeau, Francis Berger ⊕ Saranac Lake, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1913; member of the American Trudeau Society and the American Clinical and Climatological Association; consultant, member and past-president of the board of the Trudeau Sanatorium in Trudeau; honorary staff member of General Hospital; died July 19, aged 69, of arteriosclerotic heart disease.

Van Haltern, Harold Leslie ⊕ Pontiac, Mich.; University of Texas School of Medicine, Galveston, 1933; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; radiologist at the Pontiac General Hospital, where he died June 23, aged 48, of coronary thrombosis.

Welch, Francis William, Buffalo; University of Buffalo School of Medicine, 1914; served on the staff of the Lafayette General Hospital; died in the Edward J. Meyer Memorial Hospital July 2, aged 64.

Welch, John Gober ⊕ Port Neches, Texas; Southern Methodist University Medical Department, Dallas, 1914; died in St. Mary's Hospital, Port Arthur, June 3, aged 63.

Weldon, Thomas Franklin, Major, U. S. Army, retired, Hicksville, N. Y.; Long Island College Hospital, Brooklyn, 1914; entered the Medical Corps of the U. S. Army on July 1, 1920; retired Dec. 31, 1939; died in the Veterans Administration Hospital in Brooklyn, June 28, aged 64, of bronchopneumonia and glioblastoma multiforme.

Wertheim, Leopold Leo, Philadelphia; Columbia University College of Physicians and Surgeons, New York City, 1905; member of the Medical Society of the State of New York; died in the Hospital of the University of Pennsylvania, April 6, aged 70, of myocardial infarction.

White, Charles Peyton, Birmingham, Ala.; Memphis (Tenn.) Hospital Medical College, 1910; died in the Carraway Methodist Hospital June 17, aged 78, of cerebral thrombosis and cerebral arteriosclerosis.

White, Edwin Clay ⊕ Kansas City, Mo.; Rush Medical College, Chicago, 1913; veteran of World War I; member of the state board of medical examiners; twice served terms as president of the medical staff at St. Joseph Hospital and was on the staff of St. Luke's Hospital when it opened; served as a staff member of the Kansas City General Hospital; associate editor of the *Weekly Bulletin of the Jackson County Medical Society;* died June 20, aged 68, of acute inflammation of the pancreas.

Wood, Maurice Tilghman ⊕ Eugene, Ore.; University of Oregon Medical School, Portland, 1940; died in San Francisco May 24, aged 46.

Yocum, Lincoln Abraham, Wooster, Ohio; Marion-Sims College of Medicine, St. Louis, 1895; for 21 years a member of the board of health; on the staff of the Wooster Community Hospital; died May 21, aged 89, of infirmities of age.

FOREIGN LETTERS

ISRAEL

Blood Lipid Levels.—Daniel Brunner reported at a meeting of the Jewish Medical Association in Tel Aviv in July that a fine opportunity exists in Israel for research on blood lipid levels among various communities, because, as a sequel to the enormous immigration, Jews from the western world mix with those who have immigrated from backward areas of North Africa, Iraq, and Yemen. All brought with them the characteristic life habits of the lands of their origin. Jews from the Ashkenazic community are distinguished by high morbidity and mortality rates due to myocardial infarction and arteriosclerosis, but practically no cases of myocardial infarction can be found among Jews from Africa and Asia, particularly in those from Yemen. Yemenites have a low blood cholesterol level (average, 148 mg. per 100 cc.), while the Ashkenazim have an average of 231 mg. per 100 cc. In order to determine the influence of age on the lipid levels, matched controls for 25 patients with myocardial infarction were observed. The difference was statistically significant. The cholesterol level in the group with arteriosclerosis was 299 mg. per 100 cc., and the phospholipid factor was 0.915. The corresponding values in the controls were 228 and 0.746. These values were identical with those of the Ashkenazic group in the previous study, although the average age of the Ashkenazim in this study was 53, compared with 44 in the earlier study. In the order of ascending levels were newly immigrated Yemenites, Arabs, older residents of Yemenite origin, Ashkenazim, and patients with myocardial infarction. In order to discover which lipid level curves might be pathognomonic, paper electrophoretic examinations were made. In every test the protein fractions of the phospholipids were determined as well as the lipoproteins. It was found that of 52 patients suffering from myocardial infarction in the age group 35-60, only 3 showed a value of β-cholesterol above 180 mg. per 100 cc.

Another survey was carried out on 20 men who regularly perform hard physical labor and who also take a high caloric diet that is rich in fats. Only three of them had a β-cholesterol level of more than 180 mg. per 100 cc. In a group of 15 young physicians with an average age (35) less than that of the laborers, only 3 had a β-cholesterol level less than 180 mg. per 100 cc. It may thus be assumed, from the electrophoretic readings at least, that the absolute amount of cholesterol bound to the β-lipoprotein is the most important value and that 180 mg. per 100 cc. approximates the border line between those who are likely to get myocardial infarction and those who are not. Of 52 patients with myocardial infarction, 24 had a total cholesterol level below 250 mg. per 100 cc. or within the normal range. A few of them even had a low total cholesterol level (about 210 mg. per 100 cc.), but, as they had a β-cholesterol level of above 90%, their β-cholesterol level was above 180 mg. per

JAPAN

Boric Acid Poisoning: Hundreds of Babies Die.—A large number of school children were recently stricken with a form of food poisoning. The cause was traced to a certain brand of dry milk, which was found to have a high bacterial count, mainly Micrococcus pyogenes var. aureus. In the milk-processing firm it was discovered that in the middle of the evaporating process the vats were idle for 24 hours because the current was shut off due to a shortage of electricity. To counteract the bacterial havoc, the firm had used boric acid as a bacteriostatic agent. As a result, hundreds of babies died. The responsible officials were brought to trial for homicide, and many damage suits were brought against the company.

Boycott on Milk.—Recently the housewives in a city staged a boycott because of the high price of milk. As a result the price was reduced to 14 cents a quart. As yet no uniform standards exist for grading milk. Much of the milk sold in Japan is partially skimmed, and some milk is being sold sweetened with sucrose.

SWITZERLAND

Conference on Malaria.—At an interregional conference on malaria held in Athens in June under the sponsorship of the World Health Organization, it was brought out that southern Europe, from Spain to Bulgaria, has achieved remarkable progress in reducing the incidence of malaria. Before the introduction of spraying of DDT, there were about 4 million cases of malaria a year in this area, but now the figure is less than 10,000. Progress has also been made in the eastern Mediterranean countries, a reservoir of malaria throughout the ages. About 100 million of some 170 million inhabitants of this region live in malarious areas. As late as 1949, about 40 million people regularly suffered attacks of malaria. Since malaria campaigns have been extended, this figure has been reduced to about 14 million. According to Dr. Paul Russell of the United States, the solving of administrative and financial problems is the key to success in eradication of malaria. In spite of the resistance to modern insecticides manifested by some of the malaria-carrying mosquitoes, an optimistic view was taken of the possibility of eliminating the disease, because resistance to insecticides in mosquitoes is becoming better understood. Prof. G. Macdonald of London stated that resistance in mosquitoes is inherited according to Mendelian laws. Although resistance to insecticides does occur, it is not as serious as originally was feared. No definite connection has been noted as yet between the development of resistance in the mosquito and the increase in cases of malaria. In regions where DDT and other insecticides of the chlorinated hydrocarbon group have lost their efficacy, success can be achieved, although for a shorter length of time, with insecticides of the chlordane group. Before World War II there were between 1 and 2 million cases of malaria in Greece annually, but in 1952 there were only 408 cases. This has permitted an increase in agricultural activity to the point that Greece is now a rice exporter instead of an importer and wheat production has been raised to a level that is almost sufficient for the country's needs. A similar situation exists in Italy, where malaria today is practically eradicated. The number of cases has dropped from about 400,000 in 1945 to 3 new cases of local origin last year.

Since last year, Iran, Iraq, Israel, Jordan, Lebanon, and Syria have initiated programs to eradicate malaria. Total eradication has already been achieved in Cyprus, but special difficulties exist in the eastern Mediterranean region that make international cooperation imperative. One of the most important is the result of the nomadic life of millions of people whose seasonal or annual migrations, often across national borders, expose them to malaria-carrying mosquitoes. In Iran, about 23% of the population are nomads. There are many others in Pakistan, Iraq, Syria, Lebanon, Jordan, and Saudi Arabia. Studying the habits of these wandering peoples in order to be able to protect them against the disease is an arduous business for the malaria worker. The conference asked that migrations and other mass population movements such as the Mecca pilgrimage be studied with a view to malaria control. WHO is coordinating the efforts of adjacent countries that are attempting malaria eradication.

The WHO Expert Committee on Malaria believes that eradication of malaria is the only rational policy to adopt. The sums required to achieve eradication within a definite time, although substantial, are much less than the cost of continued malaria control of a less intensive character on a long-term basis. Moreover, at present several international agencies, such as United Nations International Children's Emergency Fund, United Nations Technical Assistance, and the United States International Cooperation Administration, are ready to assist governments that

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

embark on such a program. The members of the committee, pooling experience gained in such widely separated areas as Taiwan, Italy, India, and Venezuela, recognized that one of the most urgent reasons for carrying out eradication of malaria with the least possible delay was the growing resistance of the mosquito carriers of malaria to modern insecticides. Other kinds of resistance could also be foreseen, including that of the public, which, finding insecticides less and less effective against other insect pests, would object to continued spraying of their living quarters. There was also the resistance of public officials to continued annual expenditures for such spraying.

Suicide Rate.—A study published by the World Health Organization (*Epidemiol. & Vital Statist. Rep.* 9:243, 1956) states that the proportion of deaths from suicide that have not been attributed to that cause, owing to failure to recognize it or reluctance to certify a death as suicide in view of the stigma attached to this act, should be kept in mind in interpreting statistics on the suicide rate. The highest reported rates in both sexes are seen in Japan, Denmark, Austria, and Switzerland, and the lowest were seen in Ireland, Northern Ireland, Chile, Scotland, and Spain. In the United States the rate for the white population is almost three times that of the nonwhite population. Because the crude death rates are influenced by the age composition of the population as well as by the actual incidence by age and sex, the age-specific death rates for each sex, as shown in the WHO study, are better suited for comparative purposes than the crude rates. In all of the countries included in the study the suicide rate was higher for men than for women. In men the highest suicide rate occurred in those over 70 and in women in those in the fifth and sixth decades. In the United States the peak rates occurred at a younger age in the nonwhite population than in the white population.

UNITED KINGDOM

Mental Hospitals.—In the House of Commons Dr. D. Johnson stated that 20,000 persons were put into mental hospitals against their will every year; of these, 17,000 are detained on what is known as a summary reception order for periods up to a year, solely on the opinion of two or three persons empowered to sign certificates. Dr. Johnson said that mental hospitals were overcrowded to the extent of 15.6%. This would not be so if more discrimination were exercised over admissions. This could be done by establishing observation wards in general hospitals, in which patients would be away from the atmosphere of mental illness. Under these conditions a patient might recover more rapidly and without the stigma of having been a patient in a mental hospital. Figures were quoted from London County Council records to the effect that 4,746 persons were admitted to observation wards in 1955, and, of these, 1,274, or nearly 25%, were discharged after a 17-day observation period and a further 25% transferred to mental hospitals as voluntary patients rather than under an order. Dr. Johnson said that the 25% discharged would probably not have left the hospital so quickly if they had gotten entangled in the mental hospital machine.

This statement was criticized by the secretary to the Ministry of Health. The substantial increase in the number of voluntary patients from 51% in 1946 to 75% in 1955 showed that there was a new outlook. In cases of emergency there had to be prompt removal of a patient, and that was what the summary reception order was for. Before the National Health Service in 1948, these patients were sent to public-assistance institutions, then known as mental asylums. But by 1955 there were 71 mental hospitals, 43 mixed hospitals, and 26 general hospitals to which persons could be compulsorily sent, and 24,470 patients were admitted to them. Of those sent to mental hospitals 82% remained, but only 25% were certified insane. There was no lack of sympathy with these patients. Domiciliary work by local authorities had been extended so that they would obtain early psychiatric treatment.

Wage Claim by Physicians Rejected.—Medical practitioners employed under the National Health Service and hospital medical staff have advanced a claim to the Minister of Health for increased pay. This was asked for owing to the rise in the cost of living, to which salaries were geared by the Spens Committee in 1948. The Minister of Health, Mr. Turton, has rejected the claim, stating that, under the present economic circumstances, with industry being asked to freeze wages and banks to restrict credit, he was not justified in considering any increase in remuneration for physicians. According to the recommendations of the Spens Committee, accepted by the government in 1946 and 1948, the remuneration of physicians in the health service should have been increased by 24% as of April 1, 1956. Physicians were enticed into the health service in 1948 by the terms offered by the Spens Committee, which was accepted by the government. The *British Medical Journal*, in commenting on the situation, says: "The Minister should at least recognize the legal force of a contract. Doctors coming unwillingly into the N. H. S. in 1948 because Parliament, Press and people bludgeoned them into it, nevertheless thought that the people through Parliament would keep their word. The Minister and Secretary of State for Scotland . . . say they do not accept the premises on which the memorandum is based. Does this mean that they repudiate the reports of the two Spens Committees?"

The negotiating committee acting for the physicians has made the following statement: "The doctors of the country will be astonished by the flat rejection of a claim which in justice and logic cannot seriously be challenged. The medical profession have borne without complaint the steady decline in the real value of their incomes during the past five years. . . . This year the profession were at last driven to request an adjustment. The Minister's curt dismissal of that request will shock the profession, and will be regarded as a poor recognition of the restraint they have shown. The claim in no way runs counter to the recent plea by the Chancellor of the Exchequer for a halt in new wage and salary claims, for the simple reason that the claim is merely one for the implementation of a contractual obligation already in existence and which has been so since 1948."

Headquarters for College of General Practitioners.—A large sum of money has been given to the College of General Practitioners to build a new headquarters in London to serve its 3,660 members and associates in Great Britain and overseas. The gift, which is anonymous, is from a layman. At present the college has its offices in Chelsea and hold its meetings in the hall of the Society of Apothecaries. The new site will be on the south side of Lincolns Inn Fields, adjacent to the Royal College of Surgeons, which has agreed to lease the college a site. The donor's generous financial support will cover not only the cost of construction of the building but part of its maintenance. The sum involved has not been mentioned, but is probably between $300,000 and $500,000. Three houses owned by the Royal College of Surgeons will have to be demolished before the new building is erected The secretary of the College of General Practitioners, which was founded in 1952, described the building of the new headquarters as "a most important step towards the integration of British medicine and for the academic future of family doctors."

Blindness.—The Ministry of Health has issued a report on blindness in England, prepared by Prof. Arnold Sorsby (Blindness in England, 1951-1954, London, Her Majesty's Stationery Office, 1956). The major causes of blindness are the degenerative changes of old age. Cataract accounts for 26% of the total number of cases, senile macular lesions for 22%, and glaucoma for 14%. There was an increase in the total number of blind from 86,389 in 1952 to 93,622 in 1954, but practically the whole of this increase is confined to persons over 70 years old. There are more women than men among the aged blind. The commonest cause of blindness in the old is still cataract, and, although half the cases respond to treatment, 82% of those afflicted with it are not treated, chiefly because of fear or ignorance. A number of the aged also buy their glasses from the unqualified in stores, and the condition therefore often goes undiagnosed and untreated. The number of registered blind under 60 is decreasing, probably because treatment is sought more often by the younger age group. The reduced incidence of sympathetic ophthalmitis may be due to the use of cortisone. There has been a great increase in blindness in the very young, probably as a result of the increase in retrolental fibroplasia, which is the cause in over 50% of the blind children under a year old and in 25% of those aged 1 to 4 years. Now that the cause of retrolental fibroplasia is known and the oxygenation of premature babies has been drastically reduced, the disease should practically disappear.

CORRESPONDENCE

INTRABRONCHIAL BLEEDING

To the Editor:—I have read with interest an article in the June 9, 1956, issue of The Journal, page 525, entitled "Massive Hemorrhage Occuring During Bronchoscopy" by William K. Hamilton and Samuel H. Walker. Although I do not wish to indicate that any form of treatment could have guaranteed a favorable outcome in the case reported, I should like to report that I have recently successfully treated a patient with similar intrabronchial bleeding following bronchoscopic biopsy by packing the involved bronchus with a long strip of narrow gauze through the bronchoscope. It was necessary to maintain both the gauze and the bronchoscope in place for about one-half hour, during which time the bleeding ceased. The patient tolerated the procedure very well and experienced no respiratory embarrassment. Bleeding did not recur. The postoperative course was uncomplicated. This method has been successfully employed by others. I would like to suggest that it be used more often, as it is simple and effective.

David V. Pecora, M.D.
Ray Brook State Tuberculosis Hospital
Ray Brook, N. Y.

CONCENTRATED ERYTHROCYTES FOR TRANSFUSION

To the Editor:—Liber and Kramer, in their article "New Method of Preparing Concentrated Erythrocytes for Transfusion" (*J. A. M. A.* 161:862 [June 30] 1956), advocate centrifuging the inverted bottle of blood, thus transferring the red blood cell layer to the outlet end of the bottle, whereby the red blood cells can be given to the patient and the remaining plasma discarded, thus eliminating the dangerous method of aspirating the supernatant plasma from an upright bottle of blood, which is in common use today. Most centrifuges are not equipped with cups large enough to hold blood bottles; hence the adapter cup described, which prevents crushing of the bottle neck during centrifugation, is not likely to find wide use. An effective method that requires no unusual equipment, mentioned but not emphasized in the authors' article, consists of storing a supply of blood of assorted types with the bottles upside down, held in any suitable rack. Two such racks can be kept in the blood bank refrigerator, each rack selected to hold as many bottles of packed blood cells as the hospital finds it needs to keep on hand. When a new shipment of blood arrives from the collecting center, the "new" rack is filled and the red blood cells allowed to settle and, when this is complete, the bottles in the "old" rack are turned right-side up and used as whole blood; the label "old" is transferred to the recently sedimented bottles, and the "new" empty case awaits the next shipment. Thus a supply of fresh red blood cells is kept available for patients who need fresh blood cells most, and waste through expiration is minimized. A separate refrigerator, to avoid jarring of the sedimented red blood cells, is desirable but not necessary.

Capt. Jesse Bryant (MC), U. S. A. F.
U. S. Air Force Hospital
Stephenville, Newfoundland.

MUMPS ORCHITIS TREATED WITH CORTISONE

To the Editor:—The most dreaded diseases associated with recruiting in armies from time immemorial have been measles and mumps. In World War II, due to the use of anti-infective drugs, the complications of measles were largely overcome, and mumps, because of its complications, became the most dreaded disease of recruits. Nothing that I have tried in the past for the relief of mumps orchitis has given the slightest benefit, except surgical relief of pressure. For that reason, I believe that the dramatic relief of pain and symptoms in mumps orchitis now achievable with cortisone should be made known. Patients with mumps rarely are hospitalized until after the orchitis has occurred, so that there is little chance for prophylaxis. In running a 500-bed mumps hospital in the military service several years ago, I found that suspending the scrotum in a well-fitting suspensory and preventing the patient from leaving his bed until all parotid swelling was gone markedly reduced the incidence of orchitis. It is a mistake to allow these patients up to go to the toilet. Estrogens were tried but were of no value. The one thing that seemed to be useful in saving these testes after orchitis had occurred was to slit the tunica vaginalis surgically and relieve the pressure that would otherwise cause atrophy. The procedure never became popular and was done too infrequently to be of real value in the approach to the problem.

About three years ago, I started adding cortisone therapy to the other supportive measures used in treating mumps orchitis. The drug was given by mouth with an initial dose of 300 mg. preferred, followed by 100 mg. every six to eight hours for two to four days. The results were dramatic. Pain disappeared in 6 to 12 hours as a rule, and the swelling was gone in two to four days. Cortisone is a valuable drug in treating mumps orchitis. Subjective relief and cessation of fever are obtained within a matter of hours, and objective relief within two to four days. It has replaced all other therapy in this hospital. Experience has shown that the initial dose should be at least 300 mg. by mouth, followed by 100 mg. at six-to-eight-hour intervals, depending on the size of the patient and the response obtained.

Albert G. Bower, M.D.
Chief Physician
Communicable Disease Hospital
Los Angeles County Hospital
Los Angeles 33.

ROENTGENOGRAPHY FOR RETROPERITONEAL TUMORS

To the Editor:—The paper of Evans and Poker entitled "Newer Roentgenographic Techniques in the Diagnosis of Retroperitoneal Tumors" (*J. A. M. A.* 161:1128 [July 21] 1956) perpetuates a number of fallacies regarding retroperitoneal pneumography requiring clarification. 1. The presacral route of injecting gases into the retroperitoneal space has not abolished the danger of gas embolism. Although only two deaths and one severe nonfatal reaction from use of this technique have been reported thus far, we have learned of 24 additional fatalities and 33 additional severe nonfatal reactions. This information was obtained in response to a questionnaire sent to more than 1,700 urologists throughout the United States. 2. Oxygen is no safer than air as far as the danger of gas embolism is concerned. Five of the 24 deaths we have gathered occurred in cases in which oxygen was used, certainly not proportionately less than those due to air, in consideration of the relative frequency with which these gases were used. This fact was well established by Harkins and Harmon in 1934 (*Proc. Soc. Exper. Biol. & Med.* 32:178) and by many others. Helium, if anything, is more dangerous than air or oxygen. Carbon dioxide is the only really safe gas. The safety of gases is proportional to their solubility. Carbon dioxide is 20 times more soluble than oxygen at body temperature. The safety of carbon dioxide has been dramatically demonstrated recently by the work of Durant, Stauffer, and Oppenheimer of Temple University, who have injected as much as 150 cc. of carbon dioxide intravenously in one second. The gas fills the chambers of the right side of the heart and acts as a contrast medium for cardiac roentgenography, yet no sign of gas embolism follows this procedure. The results of our survey and an analysis of the 58 deaths and 64 severe nonfatal reactions due to gas embolism resulting from retroperitoneal pneumography (presacral and flank routes) are to be published shortly in the *Journal of Urology*.

Charles L. Ransom, M.D.
Ralph R. Landes, M.D.
Robert McLelland, M.D.
776 Main St.
Danville, Va.

MISCELLANY

This is the second part of a two-part article. The first part appeared in The Journal, *Sept. 15.*—Ed.

SOCIAL IN-SECURITY—THE TRAP AWAITING THE YOUNG M.D.

DON'T MISDIAGNOSE THIS SOCIAL DISEASE, IT'S CATCHING!

Richard C. Webster, M.D.
and
Richard J. Coffey, M.D., Brookline, Mass.

In deciding what to buy, you want to know the price or cost and you want some idea of the use or value to you of the object being purchased. When what you are buying with dollars spent by you today is a promise to pay to you or your loved ones certain amounts of money in the future, you are likely to be interested in the integrity and solidarity of the person you are giving your money to.

If you must promise to pay or "lend" your money to someone over an extended period in the future in order to get future benefits from that person, you also want to know how much your payments will be and how long you will have to keep making them. You certainly will want to know that the person your today's money is going to will be able to pay his obligations to you or your loved ones in the future. You certainly will want to know what that person's future obligations to you and your family will be. If you have any sense at all, you will not give your today's dollars to someone when the very process of giving tends to make it more difficult for him ever to repay you. If, today, he, in turn, spends the money you give him and "covers" his debt to you with I. O. U.'s written to someone else guaranteeing future payment to that person, with interest, aren't you likely to be concerned about the future return of your dollars to you and your loved ones?

Suppose the person you are giving your today's dollars to cannot be a producer of income. His only source of income is taxation. Can he ever pay you or the other person with the I. O. U. back unless he first takes in the income from you and/or the other person by increasing your taxes or those of your children?

Let us see how we can judge the wisdom and the integrity of the "system" you have been asked to pay toward. The U. S. Department of Health, Education, and Welfare, in May, 1955, put out a booklet entitled "Your Social Security" to explain Old-Age and Survivors Insurance under the social security law. We quote from it: "The schedule of tax rates given above is designed to meet the future obligations of the program and keep it on a self-supporting basis." Wouldn't you think that these words would mean that the schedule of tax rates (the one mentioned early in part 1 of this article) is now set high enough so that the social security taxes you and others pay will cover all the expenses of the social security system, including benefits already promised? As you will see later, the statement going out to the American public and just quoted by us is a downright lie or it is in error.

Many of the proponents of social security have been claiming for years that the tax rate schedule was high enough to cover the future obligations of the program and keep it on a self-supporting basis. If their claim was valid, why was the schedule revised upward in 1954? Did someone goof? Or is this all part of a master scheme to increase the power of the government at the expense of the initiative of the individual? Wouldn't you more readily accept this plan if you thought that the tax rate schedule would remain fixed at its present (or, even better, at its old) level? Wouldn't you be happier about the system if you could count on its being truly self-supporting, so that it would never dictate the need for increases in other taxes? Many other Americans have taken the words quoted at face value. Apparently, not too many have learned yet that they have been hoaxed or, at least, misled.

Only a few months after the booklet just mentioned was distributed, the House of Representatives rushed the Cooper bill through by a huge majority. Public hearings were denied. You've guessed it! This bill would further raise the schedule just a few months after it was touted to the voters as being "designed to meet the future obligations of the program." Can you make plans for your retirement or family security intelligently with this kind of performance in the background?

Words can be potent tools for good or evil. "Federal Old-Age and Survivors Insurance Trust Fund" is a title loaded with words semantically designed to create confidence and an aura of respectability. In fact, we must admit that we would never have questioned what happens to the money entrusted to the government had we not heard a representative of the Social Security Administration outline the workings of the fund. Some things he said made us a little suspicious of what the Social Security Adminstration means by the words it uses. Since then, we have taken the time to dig out some facts that indicate the enormous dangers to all Americans, not just the physicians, in the social security program.

It is absolutely necessary for you to understand that the words so glibly and repetitively used by advocates of social security have been corrupted and distorted to the extent that they have no validity as employed. We will leave it to you to decide for yourself whether those using these words in such fashions are doing so through ignorance or in a deliberate attempt to propagandize our citizens—and us—into taking actions, or allowing actions to be taken, to further their purposes.

We cannot overemphasize your need to understand that social security is not insurance! If it is insurance you have contractual rights. These are enforceable in the courts. But in social security you have nothing but statutory rights to statutory benefits. You are left completely at the mercy of Congress; for it is Congress that, at any time, can change the amounts that you must pay in taxes, the benefits that may be paid you or your loved ones, or even the classifications of those who will be paid. In fact, Congress could decide that no benefits whatsoever will be paid. Your rights under title 2 of the Social Security Act are neither natural, constitutional, nor contractual. Have you ever read in the publications of the Social Security Administration or heard in the speeches of its officials the following reservation of power (sec 1104): "The right to alter, amend, or repeal any provision of this act is hereby reserved to the Congress"? It is there and has been ever since the beginning of the act.

Once you are forced into the system, can you decide not to pay the tax because Congress votes changes you don't like in your benefits or eligibility or taxes? You cannot. This is a one-way street, pure and simple, and it does not go your way.

To understand the corruption of the term "insurance," you have to go back a bit. We quote from "Social Security After 18 Years," a report released in December, 1954, by the Committee on Ways and Means of the House of Representatives. "Insurance terms were first employed, and liberally so, in the Social Security Act when amended in 1939. The then Chairman of the Social Security Board urgently pressed for the inclusion of such terminology. The basic substance of the act, however, was not changed by the mere insertion of the word 'insurance'."

In 1937, the United States government, as defendant before the Supreme Court, stated in its brief: "The act cannot be said to constitute a plan for compulsory insurance within the accepted meaning of the term 'insurance.'" In a press conference the next day, however, the former chairman of the Social Security Board announced, "The decisions handed down yesterday by the United States Supreme Court completely validate the unemployment compensation and Federal old-age insurance provisions of the Social Security Act." Not once in its decision did the Supreme Court refer to title 2 and title 8 as "insurance"!

From that time on, "various insurance terms were liberally employed in publicizing the program under title II. And by 1939, the reverse side of the social-security cards carried by individuals referred to the title II program as 'Federal old-age insurance.'" In a press conference in 1939, the former commissioner said: "Think of it! It is just as if you had written a group insurance policy, covering 45 million people." A 1940 Social Security Board publication observed, "The tax is a sort of premium on what might be called an insurance policy."

In 1944 the former commissioner testified before a congressional committee, "The result of that [1939 amendments], as I said, was to put into effect overnight about $50 billion face value of what is really life insurance." In 1948, a former Federal Security Administrator stated, "Old-age and survivors insurance and unemployment insurance are insurance." A publication of the Social Security Administration in 1951 reads, "Treat this card like an insurance policy." Another in 1952 says, "Your card is the symbol of your insurance policy under the Federal social-security law."

A 1955 booklet scatters the following insurance terms, among others, throughout its contents for the people to read: "becoming insured," "fully insured," "currently insured," "insured status," "insurance payments," "old-age insurance benefit," "beneficiary," "spouse of an insured worker," and "insured person."

Why should the proponents of social security want the American public to think of social security as insurance? Can you think of a better way to sell a paternalistic or socialistic scheme of compulsory taxation to a traditionally independent and democratic people than to make its title and terminology synonymous in the peoples' minds with insurance, one of our oldest and most honored institutions?

That their advertising, propagandizing, or educational campaign over all these years has been successful is attested to by the following facts and quotations:

1. "Many of the letters received from people throughout the country indicate clearly that their complaints arise from their belief that the program under title II of the Social Security Act is insurance" (From the House Committee on Ways and Means 1954 report).

2. "Members of Congress have also been misled. A committee minority report stated with respect to the proposed amendments (1939): 'It puts the Government in the position of changing the terms of a contract'" (same report).

3. "Some people in labor have also been misled. For example, in a recent article in the *Machinist's Monthly Journal* (International Association of Machinists, AFL) the author stated: 'I believe that OASI is insurance and that payroll deductions are the same as premiums and, further, feel strongly that there is a definite contractural relation between the individual and the Federal Government'" (same report).

4. In the 1956 edition of the "Family Success Book" published by *Changing Times,* the Kiplinger magazine, the section on social security begins with a statement that you carry an insurance policy around in your pocket, referring to the social security card. They do qualify the statement in the substance of the article and list some of the ways that social security differs from real insurance.

5. A post card poll of the members of the Massachusetts Medical Society showed a 68% response (4,554 out of 6,693 members) as of Dec. 9, 1955. Seventy-one per cent had voted for inclusion of physicians under social security. We have talked with several hundred physicians about this subject. Almost all who wanted to have compulsory inclusion of physicians in social security thought that it would provide them with wonderfully inexpensive life insurance. Most of those we have talked with were men below age 50. The *Newsletter* (Jan. 13, 1956) distributed to the members of the Massachusetts Medical Society remarks about this preliminary poll that "it was apparent that the younger men, particularly veterans of World War II (and this includes the vast majority of our membership), were more outspoken in their desire to be included under the Social Security program than the older men." Most of the younger men we have talked with have been told about "social security insurance" in such glowing terms that they intensely resented the older physicians' opposition to inclusion in what the younger men thought was an unbeatable opportunity to get insurance.

May we pause here for one moment? Before reading this article, had you thought of social security as insurance? Did the relation of it in your mind to insurance make it more acceptable to you? If you had accepted it, had you done so because someone told you it was "cheap insurance" or "better insurance than you can buy anywhere else"? Did you have access to the figures mentioned in the first part of this article, or was your acceptance on the basis of faith in the "insurance value" you had heard or read about? If the scheme had been titled "Compulsory Taxation on Your Earnings to Allow Past, Present, and Future Payments to Some Survivors of Those Who Could or Would Not Protect Themselves and to Those Who Are Not or Will Not Be Working Beyond a Certain Age—a Method of Paying Other Present Government Expenses with What Is Left over at Present—a Device to Pay for Your Generation's Improvidence by Writing I. O. U.'s That Your Children and Their Children Must Pay"—if the plan had had that title, would you have accepted it? Yet that is what it is. If you, one of the most highly educated men in society, had swallowed it, how about those whose trainings have not taught them not to accept things on faith or hope, as yours has done—wouldn't they be "naturals" for such propaganda? Ask your next 10 or 20 patients if they know whether there are any differences between social security and insurance. Ask them what the differences are. Then ask them if they like social security. Compare the number of those who say "yes" with the number who would vote for the plan more accurately labeled with our title. Can you see why the advocates of social security would be interested in this old propaganda technique?

We can assure you that social security is not insurance. You can have no idea what your future social security taxes will be or how long you will have to pay them. How many insurance policies of any kind have you bought or heard of where your premiums or the premium-paying period can be raised against your wishes at any time by the insurance company? You have no conceivable way of determining what your social security benefits will be. Do you know of any life insurance policies where the amount of the payments to your beneficiaries or the method of deriving the amount is not spelled out by contract? Do you know of any insurance company that can change the amounts owed in the future to the policy-holders in order to please the stockholders or the management? You cannot know what changes will be made in eligibility requirements or in criteria to determine who will or will not receive benefits under social security. Do you know of any life insurance companies where management can change or eliminate the beneficiaries of your policies against your will? Under social security, a change made against your will by Congress must be acceded to by you. You can't even quit and stop paying. With insurance, you can enforce your contractual rights in court, for one thing; and you certainly can terminate your premiums and your contract when you are displeased or when it is no longer of any use to you. You can see the importance of contractual rights!

American courts have consistently held that "insurance" involves a contract. Can't you imagine the round robin you could get into trying to "insure" against breach of faith on the part of the "insurer" if there were no contracts? The federal government has established several programs, such as national service life insurance, that truly constitute insurance. The Supreme Court has held that these true government insurance contracts cannot be abrogated by Congress. This decision, delivered by Justice Brandeis, said that "war-risk policies, being contracts, are property and create vested rights." But social security is not on this list, and it certainly is not insurance! There is no contract! There are no protecting guarantees!

Now back to integrity. Since you have no contractual rights, you can only have faith in the integrity of those administering social security and those setting up its provisions. With what we have said about the corruption of words, as just one example, just how much faith in administration do you have? We will say more about this later. How much faith do you have in the present Congress? In all future Congresses to come? They legislate the provisions. Can you be sure that they are as interested in your personal welfare and that of your family as you are? In order to write laws applying to millions, can they, even in good faith to you, a physician, legislate plans that will absolve you of your peculiar responsibilities to yourself and your dependents? Can they not, in bad faith to you, legislate you, with your small number of votes, into unfavorable situations to please the larger number of less hardworking and more improvident voters? Doctor draft is an example of what they can do.

To give you an idea of the solidarity of the "institution" you are being asked to join, let us explore the workings of what is pleasantly cloaked with the name "F[illegible]ge and [illegible]vivors Insurance Trust Fund." Again [illegible]g to fi[illegible] the propaganda mills have [illegible] w[illegible] [illegible]tors' hours [illegible]

The Social Security Administration promises: "The social security taxes collected by the Internal Revenue Service are deposited in the Federal Old-Age and Survivors Insurance Trust Fund and are used to pay all the benefits and administrative expenses of the program. They may be used for no other purpose. The reserve portion of the trust fund—that is, the part not required for current disbursement—is invested in interest-bearing United States Government Securities" (From the social security booklet of May, 1955).

You hear talk about this "insurance trust fund" and how it protects you. Have you analyzed the real meaning of the words "The reserve portion of the trust fund—that is, the part not required for current disbursement—is invested in interest-bearing United States Government Securities"? This means that that portion of your today's social security tax dollar that is not immediately paid out for administrative expenses or to people already retired or collecting survivors' benefits is given by the government to the government in return for government bonds on which interest is to be paid into the "trust fund." This in turn means that the government promises to pay the government the interest and principal (redeem the bonds) in the future so that the government (social security) can pay promised benefits. When social security gives that part of your today's social security tax dollar not immediately spent by social security for today's benefits and administration to the government, what do you think happens to it? It is used for other government expenses!

Unless we plan to use the tanks and planes thus purchased to acquire other nations' wealth, there is no way that the money spent on them is going to come back to the government. Have you figured out a way to get your employees to pay you back their wages with interest? That part of your social security tax dollar going into government workers' salaries is gone—it certainly is not what many of our physician friends would call an investment. It isn't going to be earning money for them next year —or the next.

We have left out the main way the money can come back to government. Yes, by general taxation. You see the magic of social security now. Increased taxes. Unfortunately, you cannot escape the fact that the government is You!

Today, out of your right pocket you pay a lot of others who are not working and you pay for other of your "living expenses" with your social security tax dollars. To make yourself feel good, you write yourself out an I. O. U., which you put in your left pocket. Eventually you can't work and put money into your right pocket. So you reach over in your left pocket and take out the accumulated I. O. U.'s. You, who have been so interested in protecting your families before, now make a present of the I. O. U.'s to your children. You hope that they will be energetic and honest enough, and perhaps stupid enough, to take the I. O. U.'s over and put some money in your right pocket. And you hope their children will repeat the process in their turn, ad nauseum.

But if you have too large a meal before going to bed, a specter may ride in on nightmare and knock you around a bit. Suppose, some day, your children get sick of what you have done to them and tear up the I. O. U.'s?

Remember that there is only one possibility ahead if the future promises made to a noncritical public by politicians exceed our future productive capacity. The promises must be broken. Where the promises concern the economic means around which many must base their plans for family protection and their retirements, breach of faith can well be our great American tragedy.

Some ardent supporters of social security might say this is all much ado about nothing. Do you know what the promises already amount to? By 1954, the social security–accrued liability had reached the figure of 280 billion dollars. This was the amount the government would need to pay off the present social security commitments if the system were terminated and the promised benefits were paid when they fell due. The "trust fund" contains only 21 billion dollars—in I. O. U.'s from the government to the government. Which means that there is 21 billion dollars of future taxation, not counting the interest, which also can only be paid by increased taxes.

After two devastating wars, one other rather expensive one, and 20 years of the New Deal, we had managed to accumulate a government debt of 280.7 billion dollars at the end of 1955. In less than 20 years of social security, the government owed in connection with social security alone 280 + 21, or 301, billion dollars, or more of a debt than we have been able to build up in all other ways in the entire history of our country.

The interest on the national debt in 1954 was 4.6 billion dollars. The Jan. 23, 1956, issue of *Time* stated that the interest on the government debt is budgeted at 7 billion dollars.

Using the lower figure, we find that the interest on the national debt comes to about 7% of all federal expenditures. What was 7% of your total federal income tax this year? That will give you a rough idea of your payment toward the yearly interest charges on a federal debt of 280 billion dollars. What will you and your children be paying in taxes to cover the debt of the "trust fund" and the benefits already promised?

Government actuaries estimate that the Federal Old-Age and Survivors Insurance Trust Fund, under present tax collection schedules, will rise to 146.087 billion dollars by the year 2000 and to almost 500 billion by 2050, assuming demand on the fund is low. They believe it will rise to almost 63 billion dollars by 1990 if the demand is intermediate and that it will then shrink and be exhausted in 2027. If the demand is heavy, they estimate that it will be exhausted in 1995.

With Congress today romping through your and your children's future, how much do you now trust the "trust fund"? How secure do you feel about social security? Does it have the solidarity you would like in the custodian of your money? Do you think that the promise that the social security taxes collected may be used for no other purpose than the payment of benefits and the administration of the program has been or is being kept? Do you believe that the "investment" in "interest-bearing United States Government securities" is clever and cute or do you believe that it is mighty close to chicanery?

How much faith can you have in the advocates of social security? Well, for one thing, they originally promised that old age assistance would diminish as social security grew. Instead, the 1954 report of the House Committee on Ways and Means shows that old age assistance has increased by leaps and bounds And this despite the fact that social security was going to replace the need for it.

They have tried to convince you that it is "wonderfully inexpensive insurance." Not one of the three words applies Nor does "trust fund." Their record has not been one of integrity, nor have they established an institution of any solidarity.

They say that individual initiative might be stimulated if future hazards were lessened. Where does social security make any promise it can be sure of keeping? We think its very existence on such a dreadfully unsound financial and political basis constitutes one of the greatest hazards of our century.

They say private effort in the welfare field might well become less necessary if the aged were protected against penury. True, but while we are at it, let's protect everybody. Let's have a no-day work week. There are the old and the young Is it right to promise the old that from this day forward the young will keep the old from want? Do we want to encourage today's young not to try to provide for their own old age by promising them that tomorrow's young will do the job for them? Would you, an honest man, do that? And if you would, who can guarantee that someone will be around tomorrow to force your commitments down the throats of tomorrow's young?

Although many may not realize it yet, the future social war of consequence will not be between capitalist and labor, it will be between the old and the young. It is a war that to a large extent is preventable. Our generation's desire to get a "secure old age" is not designed to keep us on friendly terms with tomorrow's young

To give you an idea of what we mean, let us provide you with a few more figures. Since 1900 the population aged 65 and over has quadrupled, while the general population of the United States has doubled. In 1954 there were 13 6 million people over 65. In 1965 there will be 17.3 million. By 1980, one of every eight people will be 65 or over. Only 24% of the voters in 1900 were 50 or over, the percentage is now 37; in one generation at least 42% will be 50 or over. These people already do form a potent political block. Through their votes they can lead us into mass national dishonesty, national bankruptcy, or into a revolt of youth, overburdened by taxes inflicted on them by the old. Let "social responsibility" replace "individual responsibility" and our country's prognosis is poor indeed.

Do you know how far we have gone down this road? You, as a young physician interested in providing financial protection for your family and in putting something aside for your old age, are forced into social security. About 70 cents of each dollar you contribute goes to pay benefits of those already eligible to receive them. At the end of 1952, there were 2,644,000 persons receiving benefits. These people will receive benefits of approximately 17 billion dollars for their own contribution of a little over one-third of a billion dollars, a ratio of benefits as compared to taxes of 48 to 1. You are helping make up the difference. Total benefits to some aged couples may add up to several hundred times the amounts they paid in taxes. Yes, you are making up the difference. Today, approximately 96 to 97% of the "pension" is a gift that you and the other taxpayers are making to the oldsters. You may be willing to do this with your money, instead of putting it to your own uses; but are you willing to gamble that, with social security and other tax rates, which may be enormously high in the future, tomorrow's youth will do the same for you? If you predicate your family and personal future security on tomorrow's youth, then, the day they decide to break promises they had no part in making, you and your family have lost your security.

Doesn't this entire scheme remind you of the "chain letter" fad? For those too young to remember the details of this amusing gimmick that was so popular with the same generation that dreamed up social security, let us give you the details. You get a letter with your name at the end of a list of, say, 11 names. You are asked to send one dollar to the person whose name is first on the list. The person sending you the letter has his name next to yours at the end of the list. You are asked to send similar letters to 10 people you can trust "not to break the chain." You are not to use the name of the person to whom you sent the dollar on any of the 10 letters you send. Instead, at the end of the list, now behind your name, you put on each letter you send the name of the person to whom you send it. You are told that, "if no one breaks the chain," by the time your name comes to the top of the list, only 10 letter steps in the future, great riches await you. It is true that "if the chain were not broken" you would get 10 billion dollars.

However, a lot of people lost small amounts of money—and a few who were smart enough to get in at the beginning and who put their names early in the list got plenty of money for nothing —or for one dollar if they were "honest." The craze swept the country; pictures showing grinning parents, frolicking children, great piles of envelopes and dollar bills, and harassed postmen appeared in the papers—and then, overnight, the craze fizzled and died. People in droves were "breaking the chain." You did not see pictures of all those—in fact, we cannot remember pictures of any—who had sent in their dollars, but never got to the top of the list.

We can look back at this with tolerance and smile at the get-rich-quick mob hysteria or mass faith that produced it. We, as diagnosticians (with hindsight), can say it was just a symptom of a social disease. It certainly was not very serious, because those who got nothing in return were not hurt badly. After all, the amounts contributed by any one person were small. But we can't go along with the similar social security scheme just for laughs. The amounts involved are too large.

Let us ask those who want us to join social security how their plan differs from the chain-letter concept. Well, it involves enormous amounts of money at the beginning and the time intervals are greater. Also, with government I. O. U.'s taking the place of some of the actual dollars, we can fool ourselves into thinking the picture is rosy a while longer. However, the only real difference is that element of compulsion. You can't break the chain. Nor can your children. But can't they? Take enough of their production from them in taxes and a breaking point will be reached. And when that day comes, a lot of older hope-happy contributors are going to see their plans for security for what they were, daydreams or nightmares.

The proponents of compulsory inclusion of physicians under social security say that the taxes will not be unbearable. We say that the burden of proof is on them. We are not under social security yet; prove to us that the social security taxes will not be unbearable. Don't just predict, don't just promise, give us a guarantee that will stand up in court. Of course, they cannot do this. They glibly soothe us by saying 8% of payroll is not unbearable. We believe we have shown that their promises are—well, what would you call them? Their predictions have been anything but accurate. Their guarantees are nonexistent.

Plenty of physicians we know think their taxes are high already (Epis Taxes—they bleed you through the nose). They want tax relief, not more taxes. Our study indicates that social security taxes are going to rise, that they will rise faster than the advocates of social security will admit, that the phony "trust fund," the already promised "benefits," the politically expedient trend toward ever greater promises, and the fact that social security is not on a pay-as-you-go basis all will add up to increased taxes in our future—and our children's. Suppose we are wrong. If you predicate your inaction (staying out of social security) on our error, you will only make an error of omission. If the proponents of social security are wrong and you predicate your action (going into social security) on their error, yours will be a far more costly error of commission.

Don't think for one moment that you can buy this program piecemeal. The first step toward compulsory inclusion of all physicians would be voluntary inclusion. The only reason that we, as individuals, are out of it now is that we, as a group, are self-employed physicians and as such are not eligible. Social security history is replete with tales of groups now under compulsory coverage that started with voluntary coverage. It's like syphilis; you have it or you don't. It's like being pregnant; you are or you are not.

The advocates say that at present 7.7 million beneficiaries receive only 5.7 billion dollars in benefits each year. They say that the current social security tax can provide 8 billion dollars per year. They admit that ultimate yearly benefit payments will be higher, but go on to say that so will social security taxes, reaching 8% of payroll by 1975. Perhaps this is supposed to be an answer to soothe you. We have indicated earlier that the likely answer is anything but soothing. By 1990, the estimated costs of benefit payments will be almost 20 billion dollars. Just one year's work of Congress (Cooper bill) will raise that figure by about 5 billion dollars.

We cannot overemphasize this next statement: social security is still young; the number of people working and contributing is relatively large in proportion to those already receiving benefits. We still are in the early heyday of the chain letter. But as time passes, the number of eligible people will rise. By present figuring, in the early 1980's, the cost of benefits will exceed the income from payroll social security taxes. At this time, so say the advocates, the trust fund will level off and its earnings will fill the gap between outgo and income without any further increase in social security tax rates.

We've already given you an idea of how much you can count on their adhering to the promised social security tax rate or tax base schedules. But examine their claim that the trust fund earnings will fill the gap. The earnings they so proudly mention are from interest payments on the government securities making up the trust fund. Why sure, you pay this interest through a rise in your other taxes. You remember the right and the left pocket maneuver.

If more money is promised to the beneficiaries in the future than is taken in from them, there are just three possible courses of action open to the government. It can raise the money as it comes due by increased taxes, it can abandon the program, or it can give the beneficiaries "phony money."

Some of you have seen the post-World War I German stamps with the astronomical figures printed on them. We doubt that a German doctor, whose entire life's savings could not have bought one of these postage stamps, looks upon inflation as a good way for government to "keep the faith." To give you a quantitative idea of what the "squeeze" of increased taxation and slow inflation means, let us put at your disposal a few more figures. Take the 15-year period 1939-1954. "Taxes" include federal income jection of DPT, paralytic disease developed (within 2 weeks) in only three. The frequency with which three members of a household have been stricken with clinical poliomyelitis has been estimated by Siegel and Greenberg to be 0.2% of all households affected. This rate would undoubtedly be even lower if only paralytic cases were considered. There is some suggestion, therefore, that the DPT injections may actually have predisposed to the development of paralytic disease in the patients considered here. Severe trauma to the left arm 10 days prior to onset of paralytic symptoms may have been a further factor in the localization of paralysis in one of the patients. At any rate, paralysis of the left arm appeared first and most prominently during the first few days of illness. Another patient received DPT in the left buttock, and the left lower extremity was the only limb paralyzed. Residual paralysis in another sibling involved both lower extremities with almost total paralysis on the left, but the side of the DPT injection could not be recalled.

Although the association of antigen injection with subsequent paralytic disease was striking in three members of the family, the failure of paralytic disease to develop in two children who had also received DPT is of considerable interest. Large amounts of type-1 poliomyelitis virus were present in the stools of both nonparalyzed siblings, and, although no specimens of blood were obtained soon after injection, serums obtained later had high titers of neutralizing antibody to type-1 virus. These findings are rather good evidence that these two children were infected with poliomyelitis concurrently with their paralyzed siblings. One of the nonparalytic patients appeared to have had an abortive-type infection with minor symptoms, while another had completely inapparent infection. The fact that these two children received DPT vaccine and failed to develop paralytic illnesses suggests that recent antigen injection is not the sole or determining factor in the development of paralytic disease in persons who are harboring the poliomyelitis virus. The serial antibody studies indicate that both parents had previously been exposed to all three poliomyelitis virus types and were immune. The complement-fixing antibody response in the three paralyzed children is difficult to interpret, but is in keeping with previous studies reported on this subject. The decline or disappearance of complement-fixing antibodies after 32 weeks contrasts with the sustained high level of neutralizing antibody levels. The observations reported here give support to the practice of withholding or postponing injections of an elective nature if the patient has symptoms of a minor ailment. This would apply when there is reason to suspect that the minor ailment may represent infection with poliomyelitis. In the family cases of this report, however, the impending poliomyelitis could not be anticipated because the children were asymptomatic when DPT vaccine was given.

Acute Poisoning with Isoniazid Treated by Exchange Transfu-

B. E. Katz and M. W. Carver. Pediatrics 18:72-76 (July) [Springfield, Ill.].

[illegible] case of acute isoniazid poisoning in a 19-month-old child is [illegible]ported. Seizures and cyanosis persisted after the patient's stomach was lavaged and oxygen was administered. The patient was admitted to the hospital, where examination revealed a comatose, cyanotic, and apneic child having intermittent, generalized, tonic and clonic seizures more marked on the right than on the left side. The pulse rate varied from 80 to 104 per minute. The skin was flushed and cynanotic at intervals. The pupils were 4 mm. in diameter and responded to light. The neck was not resistant to flexion, and the cervical musculature was atonic. The heart tones were of normal quality, and no murmurs were heard. Blood pressure was 100/60 mm. Hg. The liver edge could be felt 1 cm. below the costal margin on the right side, and the tip of the spleen was palpable. Neurologically, there was a generalized hypertonia of the extremities during the periods between the seizures. The deep tendon reflexes were hyperactive. An exchange transfusion, exchanging approximately 73% of the child's blood, was performed by the method similar to that used for infants with hemolytic disease of the newborn. At the beginning of the procedure the pulse rate was 140 per minute and by the end of the procedure it had decreased to 90 per minute. By the time the exchange transfusion was completed (1 hour and 50 minutes), the child, who was breathing spontaneously and was awake, sat up on the edge of the operating table and cried for his mother.

The usual serum levels with dosages in the usual therapeutic range are 3.0 to 7.5 μgm. per milliliter. In the case presented, the amount of isoniazid ingested was approximately 83 mg. per kilogram. The serum level of isoniazid when the exchange was started was 38.6 μgm. per milliliter and at the end of the exchange 26.4 μgm. per milliliter. Eighteen hours after exchange transfusion the serum level was 7.8 μgm. per milliliter. These values may be inaccurate because of delay in their determination. However, it is possible that the dramatic improvement noted was associated with a critical level above which convulsions and respiratory depression occur and below which they disappear. The patient in this case suffered no complications and was discharged from the hospital five days after ingesting isoniazid. The pharamacological reports on isonicotinic acid hydrazide indicate that the drug is absorbed promptly from the gastrointestinal tract. Maximum concentrations may be attained in the plasma between one and six hours after administration. The procedure of exchange transfusion should be considered as a method of treatment of patients with acute drug poisoning. It would seem of special value in acute conditions in which the toxic agent is dangerous because of the effects of excessive blood level and in those in which there has been a single ingestion or exposure.

Cortisone in Treatment of Children with Chronic Asthma

M. C. S. Kennedy and D. C. Thursby-Pelham. Brit. M. J. 1:1511-1515 (June 30) 1956 [London, England].

The main object of the studies described was to assess the value of the oral administration of cortisone in improving the ventilatory function of children with chronic "wheezy" chests. A further object was to compare the effect on the ventilatory function of such children of cortisone given by mouth and epinephrine given by inhalation. Twelve children attending an asthma clinic were selected for study. All had an impaired ventilatory function as judged from the expiratory flow rate test, which was carried out as a routine twice weekly, before and after an inhalation of epinephrine. The short-acting epinephrine given by inhalation increased the expiratory flow rate of the 12 children by an average of 13% (range of 0% to 29%). During treatment with cortisone by mouth (2.5 gm. over a period of five to six weeks), the mean expiratory flow rate of the 12 children was 13% higher than during a similar course of treatment with placebo tablets. In three children the mean expiratory flow rate during treatment with cortisone was more than 20% higher than during treatment with placebo tablets. The effect of cortisone, when given at a rate of 75 mg. daily, was slow to develop, reaching a peak between the second and fourth weeks of treatment and waning when the dose level was reduced to 50 mg. daily. The expiratory flow rate increased by an average of 28% in the 12 children when the oral administration of cortisone was combined with inhalations of epinephrine. This suggests that the combined effect of the two drugs is additive. No serious side-effects were encountered during cortisone therapy over short periods. However, until more is known of the long-term effect of cortisone on the adrenals, the advisability of prolonged treatment with cortisone seems questionable.

Massive Infection with Trichuris Trichiura in a Child.

R. Gajardo and A. Atias. Rev. chil. pediat. 27:121-122 (March) 1956 (In Spanish) [Santiago, Chile].

Massive infection with Trichuris trichiura in children is rare in Chile. A 5-year-old child from a rural region of the country was normal up to the age of 4½ years, except for his habit of eating earth. At the age of 4½ years, the patient began to lose his appetite and weight and to suffer from recurrent rectal prolapse. The feces contained a large number of worms. He developed a dysenteric diarrhea, progressive anemia, and cachexia. He was brought to the hospital with symptoms of acute intestinal obstruction. He was given antibiotics and a blood transfusion prior to an operation, during which an ileocecal intussusception, three intestinal perforations, and purulent peritonitis were observed. The patient died a few hours after the operation. No other lesion that could have been the cause of death was observed at autopsy.

The number of T. trichiura organisms in the colon was enormous. The principal lesions, consisting of acute erosion and acute cystic degeneration of the intestinal mucosa, were very similar to those caused by pellagra.

OTOLARYNGOLOGY

Gout as a Cause of Respiratory Obstruction. J. B. Cavenagh and J. E. Blundell-Williams. J. Laryng. & Otol. 70:365-370 (June) 1956 [London, England].

The patient was a 75-year-old farmer whose throat suddenly became very painful. Laryngeal embarrassment increased despite various treatments. Breathing was labored and noisy and was frequently interrupted by a choking cough as the accumulation of mucus and saliva tended to spill over into his glottis and trachea, owing to his inability to swallow because of the intense pain it produced. The left side of the neck in the thyroid region was extremely tender to touch. The mucosa of the pharynx was highly injected, and mirror examination of the glottis showed injection and edema of the epiglottis, aryepiglottic fold, and arytenoid region on the left side, which completely hid the vocal cord. The patient was hospitalized, because it was feared that tracheotomy might become necessary. He was nursed in a steam tent; atropine sulfate was given to reduce the salivation. This treatment was continued for the following two days, with a gradual improvement of symptoms. The patient was now able to swallow fluids without choking, and drip infusion was discontinued. The etiology of his trouble was not clear. A request of his, however, appeared to solve the problem. He asked for gout medicine prescribed by his doctor, as an attack was starting in his left big toe. Treatment with a mixture of sodium salicylate and Colchicum resulted in rapid improvement.

One is accustomed to associate acute edema of the glottis with a streptococcic infection, trauma due to scalding or chemical agents, or possibly angioneurotic edema. Various factors in this case did not fit in with any of these categories: the sudden onset without any previous malaise or history of injury, the intense injection of pharynx and edema of larynx, and the relative lack of response to penicillin. The extreme tenderness to touch and pain on swallowing would probably have been accompanied by high fever if due to a streptococcic infection, but here the temperature never rose above 100.2 F (37.9 C) and the pulse rate never went above 90 per minute. The gradual subsidence of signs and symptoms and termination in a typical attack of gout fits in with the description of earlier writers and appears to place the etiology of this case beyond doubt. The lesson to be learned from this case and from the scanty literature on the subject seems to be that the sudden onset of pain in the throat with dysphagia, especially if intense and associated with threatened respiratory obstruction, in an elderly subject, should prompt inquiries as to a past history of gout. If this proves to be the case, antigout therapy should be started immediately.

INDUSTRIAL MEDICINE

A Study of the Effects on the Lung of Industrial Exposure to Zirconium Dust. C. E. Reed. A. M. A. Arch. Indust. Health 13:578-580 (June) 1956 [Chicago].

Pulmonary granulomatosis was observed in a chemical engineer associated with the development of the process for purification and reduction of zirconium metal after seven years of intermittent contact with this metal. This occurrence prompted an investigation into the possibility that dusts and fumes encountered in the production of zirconium might produce a pulmonary granulomatosis. The relation of zirconium to silicon in the periodic table of elements was another reason for looking on this metal with some suspicion. In the production of zirconium, compounds in dust form are encountered as zirconium chloride ($ZrCl_4$) (which hydrolyzes to zirconyl chloride [$ZrOCl_2$], zirconium oxide (ZrO_2), and metallic zirconium. In addition, workers are exposed to low and nontoxic concentration of hydrochloric acid, chlorine, phosgene, and to small amounts of other oxides and chlorides of magnesium, aluminum, titanium, and hafnium.

Studies on guinea pigs that had been placed in cages as near as possible to the heaviest concentration of dusts and that were kept in this environment constantly for from two to six months showed no evidence of inflammatory reaction, granuloma formation, or fibrosis in the lungs of any of the animals. Twenty-two workers who had been exposed to the fumes of the process of the production of zirconium for periods of from one to five years were studied. No pulmonary granulomatosis was found. None of the workers presented findings similar to those in the engineer previously mentioned. Fifteen of the 22 men had no symptoms of lung disease. Two had mild bronchial asthma. Five men had chronic cough and sputum and had consulted a physician for chest symptoms. A diagnosis of chronic bronchitis had been made, and the findings of the present investigation confirmed this diagnosis. Three of those five men worked in the chlorination room and attributed their symptoms to chlorine fumes. The subsequent course of the engineer's illness and lymph-node biopsy indicated that he had sarcoidosis or chronic beryllium poisoning (he had been rather heavily exposed to beryllium seven years previously).

A Mild Outbreak of Tuberculosis in a Large Ontario Office. H. Kinsey and H. T. McClintock. Dis. Chest. 30:77-84 (July) 1956 [Chicago].

The authors report on an outbreak of tuberculosis in a group of 1,200 office employees. A patient with far-advanced tuberculosis had been discovered in this group in December, 1952. It was established that there had been contact for 11 months, and during the following 18 months 12 additional employees were discovered to have tuberculosis. In four, no relation with the earlier cases could be established. In two of these four patients it seemed likely that exposure had occurred from known outside sources, while in two it was impossible to determine any likely source of infection. The patients ranged in age from 21 to 36 years. Seven, including the original one, were men and six were women. The first patient had far-advanced disease; those subsequently discovered included one with moderately advanced tuberculosis, seven with minimal tuberculosis, and four with pleurisy and effusion. Since no additional tuberculous infections have appeared recently, it is felt that adequate control will be provided by making chest films of all new employees promptly and of known contacts at regular intervals and by continuing the original program of mass surveys at two-year intervals.

THERAPEUTICS

Treatment of Peripheral Circulatory Disturbances with Hydrogenated Alkaloids of Ergot of Rye. R. G. Zozoya. Presse Méd. 64:1086-1087 (June 13) 1956 (In French) [Paris, France].

In 1943, Stoll and Hofmann extracted three new alkaloids from ergot of rye; their hydrogenated derivatives are dihydroergocristine, dihydroergocornine, and dihydroergokriptine. All three have an intense sympatholytic action and an important vasodilating effect. Hydergine, which is a mixture of three equal parts of these drugs, has a therapeutic action in circulatory diseases of the limbs, exercising a peripheral vasodilating effect through the intermediation of the vasomotor center and a latent adrenosympatholytic effect on the cell receptors that becomes apparent when a surcharge of adrenaline or noradrenaline is produced. Hydergine was used in treating patients with organic or functional circulatory disturbances of the limbs, such as arteriosclerosis obliterans, Buerger's disease, arterial embolism, thrombophlebitis, thromboangiitis obliterans, scalenus syndrome, and chilblains. The results obtained show that Hydergine has an intense vasodilating action, when the dosage is adapted to the individual and is carefully controlled, and a sedative effect on pain that makes the use of opiates and barbiturates unnecessary. It shortens the preoperative and postoperative course when surgical treatment is required and enhances the effect of sympathectomy. It also constitutes effective maintenance therapy and eliminates the need for repeated anesthetic blocks.

BOOK REVIEWS

Roentgen Interpretation of Fractures and Dislocations. By Joseph Levitin, M.D., Chief, Department of Radiology, Mount Zion Hospital, San Francisco, and Ben Colloff, M.D., Associate Chief, Department of Orthopedic Surgery, Mount Zion Hospital, San Francisco. Cloth. $7.75. Pp. 265, with 258 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

The purpose of this book is to describe the positions that bones usually assume when they are fractured or dislocated and to tell what constitutes acceptable satisfactory reduction, whether motion can be permitted, and the status of healing. The authors have accomplished their objectives most satisfactorily by the use of line drawings rather than reproductions of roentgenograms and by the brief but adequate descriptions that accompany the diagnostic illustrations. An appendix containing bone age charts and information about common appliances used in internal fracture fixation enhances the value of the volume. The bibliography is adequate, and the index is good. This book should be of value not only to the roentgenologist and general practitioner but also to the student and resident.

Cancer: A Manual for Practitioners. Third edition. Cloth. Pp. 321. American Cancer Society (Massachusetts Division), Inc., 462 Boylston St., Boston 16, 1956.

The first edition of this book was published in 1940 at the request of the Massachusetts Department of Public Health and the American Cancer Society; a second edition appeared in 1950 under the auspices of the Massachusetts Division of the American Cancer Society. Both editions were distributed widely to physicians, medical students, public libraries, and cancer agencies. In the current edition all the chapters have been revised and several new ones added. About half of the book deals with specific organs and the remainder with general aspects of the cancer problem; specific neoplastic diseases, such as Hodgkin's disease and the leukemias; and special diagnostic and therapeutic procedures. Four chapters are devoted to cancer control activities. This compact volume endeavors to inform the general practitioner not only on the practical aspects of early diagnosis and treatment but also on the progress of cancer work generally and the broad aspects of cancer control. The authors of the various chapters are well known in their special fields and have succeeded admirably in presenting their subjects briefly and clearly. The material is well arranged and integrated. The volume does not lend itself to a review of the many controversial phases of the cancer problem. An excellent service has been performed in the preparation of this practical manual, and a significant contribution has been made to the program of cancer control.

The Drug Addict as a Patient. By Marie Nyswander, M D , Senior Supervising Psychiatrist, Post Graduate Center for Psychotherapy, New York. Cloth. $4.50. Pp. 179. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 91 Great Russell St., London, W.C.1, England, 1956.

As an outgrowth of the Harrison Narcotic Act of 1914, the drug addict has been forced into an unwanted alliance with the underworld and the physician who undertakes to treat him is in danger of losing his license to practice and of being imprisoned. The author of this forthright book not only gives a clear and concise discussion of the pharmacology of habit-forming drugs but also goes straight to the root of the problem of drug addiction. There are chapters on the physiological effects of narcotics, the psychological make-up of the addict, social pathology as related to drug addiction, and the diagnosis of addiction, with treatment and rehabilitation of the addict. The subject is of great importance to physicians, because they have been excluded from the treatment of a tragic disease and their efforts are necessary if they are to regain their logical place in the treatment of this condition. In no other country has failure to understand the problem of drug addiction led to so vicious a situation as that now found in the United States, where, if appropriate steps are not taken, matters will grow worse. An addict's glossary is given as an appendix, and an index is included. This book is highly recommended as a source of general information and because it presents a viewpoint not widely held on a subject that is almost universally misunderstood in the United States.

Foundations of Nutrition. By Clara Mae Taylor, Ph D , Professor of Nutrition, Teachers College, Columbia University, New York, Grace MacLeod, Ph.D.; and the late Mary Swartz Rose. First, second, and third editions under present title and fourth edition under title "Rose's Foundations of Nutrition." Fifth edition. Cloth. $6. Pp. 620, with 128 illustrations The Macmillan Company, 60 Fifth Ave., New York 11, 1956.

This book was first published in 1927 by Dr. Mary Swartz Rose and underwent three revisions before she died in 1941. It has now been revised by Drs. Taylor and MacLeod. Though the outline of the book has been altered very little, all the material has been brought up-to-date. The first half deals with the essentials of an adequate diet, including energy, protein, mineral elements, vitamins, and water. Chapters 19 through 24 cover contributions made by various types of food materials to the diet. Dr. Rose early introduced this approach to a study of nutrition, and as we learn more of nutrition this information becomes more and more valuable. The remainder of the book deals with adequate diets for adults, pregnant and lactating women, and children. In this discussion the unit "share" is still used in the text and is related to 100 calories of energy or $\frac{1}{30}$ of the daily allowance of each nutrient. The appendix includes extensive tables on nutritional requirements and nutritive values of foods expressed both in shares and in weights. All those who have relied on Dr. Rose's textbook for teaching and research and many others interested in nutrition will welcome this excellent revised edition.

The Structure and Function of Skin. By William Montagna. Cloth $8.80. Pp. 356, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1956.

Although the author states in his introduction that it is not possible to gather into one small volume all the information pertaining to the structure of the skin, his book comes close to accomplishing this. It does so in a manner that should interest not only the dermatologist, anatomist, and biologist but also the student and inquisitive practitioner. The presentation is that of a gifted teacher: interesting, lucid, authoritative, and orderly, showing clearly how function knits together all structures. General gross anatomy is discussed in the first chapter. The next six chapters are devoted to such structures as the epidermis, dermis, sweat glands, and pilar system. The final chapter deals more with speculative ideas than with facts. The chapter on the pilar system deserves particular notice. With the aid of pictures and diagrams, this difficult and little understood subject is clearly and ably presented. A bibliography is included at the end of each chapter, and in the introduction there is a list of standard works recommended for reference. Controversial subjects, such as the nature of the basement membrane, tonofibrils, intercellular bridges, and the origin of keratinization, are discussed fully. Although the proofreading might have been more careful, the book merits the highest recommendation.

Modern Actinotherapy: A Review of the Literature, Giving an Outline of Indications and Technique. Compiled by Raymond H Beckett, B.A With preface by Francis Bach, M.A., D.M., D.Phys.Med Cloth 17s 6d Pp. 161, with 25 illustrations. William Heinemann, Ltd., 99 Great Russell St., London, W.C.1, England, 1955.

This textbook presents as comprehensive a review of the literature on the medical use of ultraviolet light as is possible in 151 pages. However, the review of the literature is, unfortunately, not so critical as might be desired. The description of the application of ultraviolet light consists of material long known, especially to dermatologists. Much other material is included from the past regarding the application of ultraviolet light, on a rather empirical basis, in conditions that for many years have been much more effectively treated by other means and in conditions for which it is of no specific value.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

SALK VACCINE OR GAMMA GLOBULIN

To the Editor:—*If a member of a household is given a diagnosis of acute poliomyelitis, should the other members of the household (children and adults) be given the Salk vaccine at once if there has been no previous Salk immunization, or should gamma globulin be used? If the vaccine is given to unimmunized children or adults in the presence of active poliomyelitis in the household, is there likelihood of any harm being done, that is, reduction of any native resistance?*

Jackson Herbert, M.D., Portsmouth, Ohio.

Answer.—In the circumstances described, each of the preparations must be considered separately. Although gamma globulin has been used in epidemic areas with effectiveness, the consensus seems to be that it is of limited value in household members because about 90% of cases that occur in household contacts occur so soon after the index case that gamma globulin cannot be expected to be effective. This would also be true for vaccine. Others are of the opinion that gamma globulin should be used to protect the 10% in whom the incubation period after the index case is sufficiently long so that it might be effective. The time of beginning effectiveness of vaccination is longer than after gamma globulin because of the time required for development of antibody. If vaccine is given, under these circumstances, it should be considered to be for future exposure and not for the one that has just occurred. From evidence accumulated in the course of administering vaccine in the midst of epidemics, no evidence has emerged to indicate that a provocative effect has been induced.

FAMILY'S CONTACT WITH TUBERCULOUS FRIEND

To the Editor:—*A fellow physician and close friend of my family discovered within the past month that he has an open active case of early minimal tuberculosis. He has gone to the sanatorium. Tuberculin tests of myself and family are positive for my wife and me as well as for two of our children, aged 6 and 8. Our two youngest children had negative tests. Roentgenograms of all are negative. I would like to know if our children should receive treatment on the basis of a positive skin test. My wife has been a positive reactor for years, I presume, since a test done when she was in nursing was positive. I have had a patch test once or twice in the past and have always interpreted it as negative. The above skin tests done recently were intracutaneous ones with first and then second strength purified protein derivative. We are in our 30's. Can we expect our tests to remain positive?*

M.D., Oklahoma.

Answer.—Unless your two children, aged 6 and 8, have been tested with tuberculin periodically and are known to have become positive reactors recently, there probably would be no reason for administering antituberculosis drugs. The primary lesions they have apparently are too small or do not have consistency to cast visible shadows on chest *x*-ray films. Moreover, only 75% of the lung is visualized on usual films of the chest. Futhermore, 10 to 15% of lesions are extrathoracically located. Unless testing has been done periodically, there is the possibility that the two children have been infected sufficiently long that the lesions have lost their blood supply and therefore drugs administered now could not enter so as to come in contact with the tubercle bacilli. This would also apply to your wife's lesions and probably to yours, if periodic testing has not been done recently.

If the two younger children do not react to tuberculin within about eight weeks after the last contact with your fellow physician, chances are strong that they were not invaded with tubercle bacilli, since most invasions result in sensitivity of the skin to tuberculin within eight weeks. If they should be found to react at that time, antimicrobial drug administration might be considered. A number of studies are now in progress to determine whether treatment of patients whose tuberculin reaction has recently become positive with antituberculosis drugs is efficacious. If all tubercle bacilli are reached by the drugs while the lesions are still vascular and if they are destroyed, one might expect the sensitivity of the tissues to disappear. In fact, this has already been reported in a few cases, but it still is not known whether the tubercle bacilli are dead.

Evidence has accrued to show that tubercle bacilli may be so suppressed by antituberculosis drugs that for a time they cannot be grown in culture medium or guinea pigs. At first, this seemed good evidence that the organisms were dead. However, when cultures have been retained for some months, in a sizable number bacilli have begun to multiply and produce colonies. This has not occurred in all cultures, and there is still hope that in some cases all bacilli have been destroyed. There is considerable likelihood that the members of your family who now react to tuberculin will continue to do so. However, there would be no harm in retesting about once in three years, inasmuch as there is evidence that in some persons all tubercle bacilli die and sensitivity of the individual's tissue disappears. It is not yet known how frequently this occurs.

TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS

To the Editor:—*Which penicillin preparation will give the highest and most sustained blood levels with a minimum of discomfort to a patient with subacute bacterial endocarditis? Subcutaneous administration of a soluble penicillin preparation is being considered as a better method than intravenous administration.*

M.D., California.

Answer.—Subacute bacterial endocarditis is most often caused by organisms sensitive to penicillin. However, it is absolutely imperative that a sufficient number of blood cultures be obtained prior to the initiation of treatment, so that the responsible organism will be available for identification and testing for sensitivity to all of the available antibiotic agents. This is one disease in which sensitivity testing is an absolute indication. If the organism is highly sensitive to penicillin, 1 million units of crystalline benzathine penicillin G dissolved in isotonic sodium chloride solution given intramuscularly every six hours for a minimum of four weeks is usually adequate treatment. Rarely, however, relapse may occur. Some patients with subacute bacterial endocarditis have been cured by the injection of 1 to 2 million units of procaine penicillin given in two doses per 24 hours for four weeks. Subcutaneous administration of penicillin has been used in the treatment of subacute bacterial endocarditis. Constant subcutaneous drip can be arranged by dissolving 4 million units of crystalline benzathine penicillin G (the manufacturer makes no difference—any one of the preparations passed by the U. S. Food and Drug Administration is good) in 1,000 cc. of isotonic sodium chloride solution and allowing the solution to drip through a hypodermoclysis needle inserted under the skin. A tunnel clamp is very helpful in producing a regular rate of drip.

For organisms moderately sensitive to penicillin, the dosage of the antibiotic may be increased to 10 million or more units per day. In some cases, where very high blood levels must be attained, administration of probenecid (Benemid), in a dose of 0.5 gm. every six hours, is very helpful in producing the desired concentration of drug in the blood. Most recently, cases of subacute bacterial endocarditis have been treated with penicillin given orally. This method should be used only when the responsible organisms are highly sensitive to penicillin. The drug of choice appears to be penicillin V and the dose, 1 million units every two hours; no attention need be paid to meals when this preparation is used. Some people still prefer to treat by

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

intramuscular injection of penicillin for the first two weeks, and then give penicillin V in the above dose orally for another two to four weeks. There is an increasing number of cases of subacute bacterial endocarditis due to organisms not sensitive to penicillin. Some strains are sensitive to a combination of penicillin and streptomycin; the doses of these drugs useful in these instances are 2 million units of penicillin plus 0.5 gm. of streptomycin, given intramuscularly every six hours for four to six weeks. In every instance where the causative organisms are not sensitive to penicillin, they must be examined for sensitivity to other antibiotics and the drug used to which the organisms are the most sensitive; the doses employed should be maximal and the period of therapy no less than four to six weeks.

RICINOLEATED ANTIGENS

To the Editor:—*Please inform me briefly relative to the means of preparation, the value, and the manner of administration of ricinoleated antigens.* *M.D., California.*

Answer.—The use of soaps as detoxicating agents was proposed by the late W. P. Larson, and investigations in his laboratory continued for nearly a decade, beginning in 1919. The basis for the action was the reduction of the surface tension of the medium. During this time it was reported that sodium ricinoleate was the best soap for this purpose and that, when it was used in amounts from 0.1 to 2% in final dilutions, it would detoxicate certain bacteria and certain toxins, but without impairing their antigenic properties. Thus, final dilutions of sodium ricinoleate of 0.1% would kill pneumococci and in final dilution of 0.5% would kill the streptococci of scarlet fever in about five minutes. After this destruction, no growth would ensue, but, when the micro-organisms thus treated were injected into animals, immune bodies developed. Tubercle bacilli became nonpathogenic when the culture medium was reduced to 44 dynes. It was demonstrated that tetanus and diphtheria toxins also were detoxicated by sodium ricinoleate. In an article by Larson and Eder (*J. A. M. A.* 86:998 [April 3] 1926), it was claimed that injections, ranging from L+ 0.125 to 0.25, of diphtheria toxin that had been detoxicated with a 1% solution of sodium ricinoleate would, in a single injection, produce immunity comparable to that conferred by other toxin-antitoxin mixtures of that day. These authors did not believe multiple injections enhanced the immunity produced by a single dose. The exact details of the preparation of the detoxicated solutions were never revealed, although it is evident the preparation consisted of simple mixtures of toxins and soaps. The process formed the basis of litigation some years ago, and these ricinoleated antigens never enjoyed commercial exploitation. There is no evidence that any are marketed today.

POSTPARTUM HEMORRHAGE

To the Editor:—*Does early ambulation cause postpartum hemorrhage?* *M.D., California.*

Answer.—There is no evidence at all that early ambulation causes postpartum hemorrhage. Most obstetric patients may safely be permitted out of bed the day after delivery or cesarean section. However, patients who have had hemorrhage or any other complication should be kept in bed for several days.

INFECTIOUS OBSTETRIC CASES

To the Editor:—*I would like to know the recommendations governing the care and placement of obstetric patients with infectious cases. Is there a definite ruling in writing? We have no definite section designated for infectious cases on our obstetric floor, and some laymen in our community are concerned that an obstetric infection may be transferred from the obstetric floor to another floor.* *M.D., Pennsylvania.*

Answer.—Proper provision for the isolation of the obstetric patient who develops an infection is a necessary provision in every maternity section. Such an individual is better moved out of the section of the hospital housing "clean" mothers into a private room where strict isolation procedure can be maintained. This relieves the nursing personnel in the maternity section from the added responsibility of caring for an infected mother in a clean environment. The American Committee on Maternal Welfare is in the process of establishing standards for obstetrics in which this and other problems will be considered. In many urban communities health authorities in charge of hospital regulations have developed specific rules for such problems.

BRUCELLOSIS AND BLOOD TRANSFUSIONS

To the Editor:—*In Public Health Reports, May, 1956, the following statement appears on page 511 in the article entitled "Trends in Brucellosis Control": "Although the tissues of these persons are invaded, clinical signs and symptoms arise in remarkably fewer persons than the number actually infected." To what extent do these asymptomatic cases constitute a problem in blood transfusions?* *M.D., Washington, D. C.*

Answer.—There has been no authentic instance in the United States of brucellosis being transmitted to a human being through a blood transfusion in which the donor was an asymptomatic carrier of Brucella. In the United States, most brucellosis is due to infection with Br. abortus, in which case the disease is relatively mild and the bacteremia is of a low order. However, in some areas in the world where Br. melitensis is more of a problem, the disease has apparently been transmitted through the use of blood transfusions. This is probably due in part to the fact that Br. melitensis is more highly invasive and bacteremia is more likely to occur. But even under these circumstances, the number of Brucella organisms in the blood stream is relatively small

SALT IN THE DIET

To the Editor:—*Please give information, or references, concerning the percentage of sodium in the average American diet (i. e., that added in cooking and baking).*

Frank Senska, M.D., Iowa City, Iowa

Answer.—The average daily intake of sodium of normal adults living in the United States is estimated to be from 3 to 6 gm This amount includes the sodium naturally present in foods and that which is added to foods in the form of salt and other sodium compounds (Sodium Restricted Diets, Publication 325, Division of Biology and Agriculture, National Research Council, 1954) In "Present Knowledge in Nutrition" (ed. 2, New York, the Nutrition Foundation, Inc., 1956) it is stated that the average daily intake of salt is from 10 to 15 gm. Therefore, the intake of sodium from salt added to foods would range from 4 to 6 gm

CONGENITAL ATRESIA OF EXTERNAL EAR

To the Editor:—*A 17-year-old girl has a congenital occlusion of an ear. She has never had an operation on this ear down to the eardrum. Will she lose the hearing in that ear from nonuse, or will it be all right if she has an operation in a year or two?*

G. L. Lester, M.D., Chautauqua, N. Y.

Answer.—Congenital atresia of the external auditory meatus is usually associated with a normally formed and functioning cochlea in the inner ear. Surgical correction to establish a patent meatus with creation of a substitute tympanic membrane is a satisfactory surgical procedure, which results in a partial restoration of the hearing. So far as is known, the hearing nerve does not deteriorate from disuse, so that there is no urgency about such an operation.

RUBELLA AND PREGNANCY

To the Editor:—*A patient who, according to her dates, is three months and five days pregnant from conception has rubella. What is the consensus of opinion as to the therapy for this patient, and is administration of gamma globulin of any value?* *M.D., Oklahoma*

Answer.—This patient was more than 13 weeks pregnant when she contracted rubella. This is slightly beyond the period when rubella generally affects the embryo. Since the chances of any fetal harm are slight after three months, this pregnancy may be permitted to continue. Gamma globulin should be given to the patient, because it will do her no harm and it may be helpful to the fetus.

« Washington News »

Military Dependents Medical Care • •
Hospital Design Advisory Committee • •
Federal-State Rehabilitation Programs • •
PHS Grants Program Advisory Committee • •

MILITARY DEPENDENTS MEDICAL CARE

State medical societies, in preparation for their role in the new military dependent medical care program, have almost completed the first phase of their work. More than three-quarters of them have indicated they have decided on negotiating and disbursing contractors, have agreed to submit fee schedules, and have decided to set up committees that will settle medical questions and work out changes in fee schedules from time to time in the future. Of the states that already have taken action, approximately four-fifths have indicated they will do their own contract negotiating with the Defense Department for doctors in the state.

The Defense Department has announced that its next major step will be to call representatives of all participating state societies to Washington to work out individual contracts, based on a model contract that now is being formulated. There is the possibility that some of these arrangements may be handled by mail. Prior to these negotiations, however, formal implementing regulations will be drawn up and issued by the Defense Department in cooperation with the Department of Health, Education, and Welfare.

On the hospital care phase, the Defense Department is moving ahead with plans for dividing up the country between Blue Cross and commercial insurance companies, with Blue Cross getting about two-thirds of the areas. Negotiations for this part of the program will continue for several weeks. Under the law, the program is to go into effect next Dec. 8. Directing the medicare program for the Army (agent for all services) will be Major Gen. Paul I. Robinson, who presently is commanding officer at Letterman General Hospital, San Francisco. Present plans call for designating the new operation as the department's "Dependent Medical Care Division."

REHABILITATION PROGRAMS

Working toward a goal of annual rehabilitation of 200,000 persons, the federal-state rehabilitation program restored 66,273 handicapped persons to productive employment during the fiscal year ending last June 30. The U. S. Office of Vocational Rehabilitation, making public its annual report, lists the increase as 14% over the previous year. Of the total rehabilitated, about 3,500 entered such professional fields as education, medicine, and engineering; 8,200 got their training in skilled trades; and 6,200 went into the farm labor force. Others are in managerial, sales, and service jobs or in unskilled labor.

Income of the patients showed, as usual, a striking increase between prerehabilitation and postrehabilitation status. In the first full year of their employment, they are expected to earn about 119 million dollars, in contrast to the 17 million dollars earned by the same persons prior to rehabilitation. The report points out that more than 48,000 of the persons were unemployed at the time they started rehabilitation and that most of the others were in "unsafe, part-time or otherwise unsuitable jobs or were in danger of losing their jobs because of their disability." As an example of the dollar value of rehabilitation, OVR points out that about 13,000 of these people had been dependent on public assistance immediately prior to or during rehabilitation, and had been receiving approximately $11,100,000 a year in public or private aid. The total cost of rehabilitating this group was $9,200,000.

HOSPITAL DESIGN

To help stimulate more efficient hospital management, the Department of Health, Education, and Welfare has appointed an advisory committee "to study and develop methods of adapting hospital facilities and services more closely to the varying needs of patients." Heading the committee is Dr. Russell Nelson, director of Johns Hopkins Hospital, Baltimore. It will work closely with Dr. Lowell T. Coggeshall, special assistant to Secretary Folsom in health and medical matters.

In announcing the appointment of the committee, Mr. Folsom said: "Most hospitals are built and operated today to provide the maximum possible medical care involving complex and expensive equipment and personal services for each patient. Some patients, however, do not need such expensive equipment or services. If some sections of general hospitals could be designed and operated specifically to serve persons who have only limited needs, the cost of hospital care for those patients could be reduced substantially."

Among other possibilities, the committee will consider the advantages of rooms designed for patients who will be hospitalized only at night or only in the daytime, or for limited hours. Such accommodations would meet the requirements of persons whose chief need is for diagnostic services, or others who can obtain adequate care in their own homes part of the time. Many persons who need only part-time hospitalization pay for 24-hour care, because few hospitals offer part-time treatment. Another possibility is a hospital so arranged and managed that many patients can go to a central cafeteria or dining room for their meals, thereby reducing cost of food distribution. Also, patients might do some of the light housekeeping in their rooms.

Federal grant money already is available fo
perimental construction along lines that
suggested by the committee. To assist
he U.S. Public Health Service now

From the Washington Office of the American Medical Association.

tailed information on what has been done to date in developing or operating facilities more closely related to actual patient needs. Councils of the American Hospital Association and the American Institute of Architects, which have had these problems under study for years, will be asked to assist the committee. "The cost of hospital care has been increasing steadily," Secretary Folsom said in outlining the committee's task. "We do not expect, of course, that the work of any one committee or group in any one field will solve the whole complex problem. But we believe this committee can make an important contribution, and I am grateful to the distinguished men and women who have agreed to serve."

PHS ADVISORY COMMITTEE

A 12-man advisory committee to aid the Public Health Service in administering the three-year, 90 million dollar grants program for building of health research facilities has been appointed by Secretary Folsom of the Department of Health, Education, and Welfare. The group is to be known as the National Advisory Council on Health Research Facilities. The law provides for matching grants to institutions doing research in medicine, osteopathy, dentistry, public health, and related sciences.

The council is made up of eight members from the professions and four from the general public. PHS Surgeon General Leroy Burney and an official of the National Science Foundation are ex-officio members, with the surgeon general serving as chairman. Council members are Dr. George N. Aagaard, professor of medicine and dean of the School of Medicine, University of Washington; Eugene N. Beesley, president, Eli Lilly & Company; Dr. Thomas H. Hunter, dean of the School of Medicine, University of Virginia; Dr. Carlyle Jacobsen, executive dean for medical education, State University of New York; Dr. Paul C. Kitchin, professor of dental histology and embryology of the School of Dentistry, Ohio State University; Dr. Oliver H. Lowry, dean of the School of Medicine, Washington University, St. Louis; Dr. Robert A. Moore, vice-chancellor, University of Pittsburgh; F. C. Sowell, vice-president and general manager of radio station WLAC, Nashville, Tenn.; Dr. John E. W. Sterling, president of Stanford University; Dr. Thomas B. Turner, professor of microbiology of the School of Hygiene and Public Health, Johns Hopkins University; Dr. James W. Wilson, professor and chairman of the department of biology, Brown University; and James Bradshaw Mintener, who is resigning as assistant secretary of HEW.

PERSONNEL

The new chief of the physical medicine service at Walter Reed Army hospital is Lieut. Col. Aniello F. Mastellone, who succeeds Col. Harold B. Luscombe, retired. Col. Mastellone's most recent post was chief of the physical medicine service at Fitzsimons Army Hospital in Denver. . . . G. Cullen Thomas of Minneapolis has been named as a special consultant to the Food and Drug Administration, to serve in the area of industry cooperation and education. Mr. Thomas has retired after 26 years as a vice-president of General Mills, Inc. . . . Dr. Lewis H. Hoyle has been appointed medical director of the Kansas City regional office of the Department of Health, Education, and Welfare. As hospital and medical facilities director in the same office, Dr. Hoyle was responsible for regional supervision of the Hill-Burton hospital construction program. Dr. Charles F. Blankenship, currently the Kansas City director, moves to the San Francisco office in the same capacity. The shifts are effective Oct. 1. . . . Four new members have been appointed to the Veterans Administration special medical advisory group. They are Dr. Charles D. Shields, Georgetown University, replacing Dr. Donald A. Covalt, Bellevue Medical Center; Dr. Howard P. Rome, Mayo Clinic, who replaces Dr. David A. Boyd Jr.; Dr. Shields Warren of New England Deaconess Hospital, Boston, who replaces Dr. Robert A. Moore, University of Pittsburgh; and Mrs. Marion Sheahan Bailey, associate general director of the National League for Nursing, Inc., who replaces Mrs. Elmira B. Wickenden of Bronxville, N. Y. Mrs. Wickenden is resigning because of other pressing commitments; others are leaving the group on the expiration of their terms.

MISCELLANY

The Public Health Service has announced the awarding of 12 grants for research in various aspects of air pollution. Six are for new projects and six for continuing support of projects already under way. They amount to $318,568 and bring the total number of grants since July, 1955, to 32. The largest single grant this time was $94,340 for a continuing project—the design and organization of a study to relate the *incidence, prevalence, and prognosis* of human disease to air pollution in an urban area. . . . The Navy reports that 184 ensign (medical) officers participated in summer "cruises" at 16 naval teaching hospitals and 9 naval medical research activities during the past season. This training is part of a naval reserve program to afford qualified medical students an opportunity to join the reserve as commissioned officers while still in medical school. . . . A special course for nurses has been sponsored by the Federal Civil Defense Administration. Directed by the FCDA health office, the course included discussion of principles of civil defense and the organization, administration, and operation of civil defense programs. . . . The Atomic Energy Commission has a limited supply of spent fuel elements from its materials testing reactor for rental to licensed users. The elements are used as sources of gamma radiation employed in medical and industrial research. AEC is making a flat charge of $100 a year for use of each fuel element. . . . In preparation for National Employ the Physically Handicapped Week (Oct. 7-13), the U. S. Chamber of Commerce urges employers to recognize that physical fitness is a relative thing and must be judged in relation to a specific job. . . . The National Science Foundation, in a report titled Federal Support for Science Students in Higher Education, estimates that in 1954 the federal government aided more than one out of every five graduate students and one out of every six undergraduates in all fields of study.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 5
CHICAGO, ILLINOIS

COPYRIGHT, 1956, BY AMERICAN MEDICAL ASSOCIATION

SEPTEMBER 29, 1956

THE NEED FOR COMPLETE COOPERATION BETWEEN SURGEON AND ANESTHESIOLOGIST

Warren H. Cole, M.D.
and
Max Sadove, M.D., Chicago

- *Surgeons and anesthesiologists must work together in the operative care of the patient; the abundance of new apparatus, materials, and methods that have become available to them in recent years can be fully utilized only by combining their individual resources. Increased knowledge of physiology and pharmacology has brought increased opportunities and responsibilities; these demand an extent of knowledge that can hardly be supplied by one person. Surgeon and anesthesiologist should consult preoperatively; they should exchange information as to the type of operation planned and the kind of anesthesia to be used. During the operation there must be not only a predetermined division of responsibilities but also an exchange of information as to the condition of the patient and the progress of the surgery. The danger of such complications as shock and cardiac arrest can be reduced by attention to the position of the patient, to pulse and blood pressure, to the sometimes inevitable changes in the surgeon's plans, and to the orders for postoperative care.*

We wish to call attention to the need for the maximum cooperation between the anesthesiologist and surgeon in the operative care of a patient. This close relationship is necessary if the patient is to receive the maximum benefit of medical knowledge, and we must realize that the welfare of the patient is paramount. By tradition, medicine is a service profession, devoted to treatment of the patient and his disease. We have made so much progress in our profession during the past several decades that it is not possible for one man to possess more than a small fraction of that knowledge. This fact alone is sufficient to justify the demand for efficient teamwork between the anesthesiologist and surgeon.

The rapid progress made by medicine during the past few decades has made it essential that the physician be well informed if he is going to give the benefit of this knowledge to the patient. This obligation naturally applies to the anesthesiologist and surgeon, both of whom have done their share in the achievement of this progress. The improvement in our knowledge of the need for blood, fluids, and electrolytes before, during, and after major operations has allowed the surgeon to increase the extent of the operation very much indeed. However, safety in this increase in extent of the operation has been made possible only by advances in anesthesiology; in fact, in certain fields such as thoracic surgery, the advance in anesthesiology had to precede the progress of surgery.

This need for greater knowledge is very diversified and by no means limited to one or two phases of medicine. The anesthesiologist and surgeon alike must have extended knowledge in such fields as physiology, pharmacology, biochemistry, pathology, and internal medicine if they are to utilize the progress made during the past few decades. In other words, a physician has shirked his duty if he does not keep up with major advances in fields of medicine other than his own. We must admit, of course, that many problems will present themselves in which the combined training of the surgeon and anesthesiologist is not sufficient to meet the situation. They must know how and when to ask for aid from their medical friends.

New Responsibilities of Anesthesiologist

During the past several years, the responsibilities of the anesthesiologist have changed considerably. Originally, his only obligation was to "pour ether." His increased knowledge of such subjects as physiology and pharmacology has earned him the privilege or responsibility of doing many additional things, as, for example, assisting in determining the operability of the patient and the choice of anesthetic and advising in the diagnosis and treatment of shock. Before any deci-

---

From the Department of Surgery, University of Illinois College of Medicine, Research and Educational Hospital.

Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956.

sion can be made regarding operability of the patient or choice of anesthetics, the anesthesiologist must see and examine the patient. This is best done several days before the operation and again the night before the operation, at which time the anesthesiologist should write the preoperative orders. At this time, he should talk to the patient about the anesthetic. Often, the patient may have a fear of a general anesthetic and may urgently request a local; almost as often, the reverse will be true and the patient will insist on being asleep during the operation. If a local anesthetic is requested, the anesthesiologist will have to consult the surgeon to be sure that the extent of the operation or other similar factors will not make use of a local anesthetic impractical.

With his increasing acquisition of medical knowledge, the anesthesiologist must not forget that the practice of medicine exists for the welfare of the patient. Surgeon and anesthesiologist alike must do their best to alleviate the patient's fear, and they should order sedatives as indicated. Perhaps the most important time in this respect is during the preoperative visit and when the anesthetization is being started. A friendly, sympathetic attitude and assurance that the procedure is safe will do much indeed to ease the patient's mind. Gentleness is not only indicated but required at all times, including the period after loss of consciousness. Too often, indeed, the anesthesiologist and surgeon discard caution and gentleness after the anesthetic has taken effect. Manipulation in the mouth and harynx must be carried out gently, because the muosa is not as tough as skin. With very few exceptions, bleeding from the mouth, even if slight, is inexcusable. The manipulation most apt to cause trauma and bleeding is insertion of an intratracheal tube. The anesthesiologist must learn to do this gently; too often, postoperative hoarseness, soreness, and pain are due to roughness during intubation. If intubation is not accomplished within a few minutes, a senior anesthesiologist should be called to perform this manipulation. If the senior anesthesiologist is the one having difficulty, perhaps it is safer to change the technique or even to postpone the operation.

The increase in major responsibilities of the anesthesiologist must not blind him to some of the minor ones. For example, the controls for changing the position of the operating table are placed at the head of most modern tables, so that the anesthesiologist can reach them. It is to be hoped that the anesthesiologist will possess a cooperative spirit that will prompt him to do what he can to add efficiency to the operation.

Special Training for Anesthesiologist

Reference has already been made to the fact that the modern anesthesiologist has been forced to acquire a varied amount of knowledge to carry out his functions properly and efficiently. Actually, there are no limits on the knowledge to be possessed; the more he possesses, the more useful he will be in the surgical team, of which he is an important member. Perhaps the best example of a special area in which knowledge is required of the modern anesthesiologist is pharmacology. There are so many anesthetic agents in use today that familiarity with these alone would require a fair knowledge of pharmacology. However, the complexity of anesthesia in poor-risk patients with complicating diseases makes it essential that the anesthesiologist possess a fair knowledge of the use of all important drugs. This is particularly important when complications relating to anesthetization develop, because they so often appear suddenly and, if not corrected immediately, may lead to death.

Since an average knowledge of pharmacology is required of the anesthesiologist, it is natural that the surgeon should rely upon him for advice and consultation concerning conditions requiring drug therapy as related to the operation. This shift in responsibility is very appropriate, because it will eliminate the waste of time incurred by both if the surgeon must also be a pharmacologist. It is indicated and appropriate that the surgeon spend this time saved in learning to correct some of the important threats to safe surgery, such as malnutrition in the aged, so commonly seen by the surgeon today. The fact should be emphasized that possession of a good knowledge of pharmacology is not possible without a fair knowledge of physiology and chemistry. Accordingly, the anesthesiologist must be well informed concerning normal and abnormal physiology. In fact, it can be said without question that the skill and ability of an anesthesiologist are strongly related to his knowledge of physiology, pharmacology, and chemistry, assuming he has had good training in the techniques of anesthesiology itself.

Another requirement of the modern anesthesiologist is that he have dexterous hands and fingers. Training in insertion of intratracheal tubes, of Levin tubes during the operation, and of intravenous needles is essential. Proficiency in the former two is rarely acquired during the residency, just as proficiency in performing difficult operations is rarely acquired in the few years of residency in surgery. There are numerous other prerequisites of training or knowledge to be possessed by the anesthesiologist, but those mentioned above may perhaps be considered the most important. In fact, the anesthesiologist must have sufficient knowledge and ability to command the respect of the surgeon. If he does not, the surgeon will be distracted during the operation because of apprehension concerning the anesthetization; at times, this apprehension may be sufficient to jeopardize the surgeon's technique even to the point where he may commit serious technical errors. Furthermore, lack of respect may result in the issuance of orders by the surgeon on matters in which he is too inadequately informed to reason intelligently.

Determination of Operability and Type of Anesthetic

Although we all are striving to obtain enough knowledge and experience to make decisions regarding operability so accurately that we will have no postoperative fatalities, that utopian period is far in the distance. Yet we must admit that proper application of present knowledge will continue to reduce mortality rates. Since life is the most precious thing on earth, it is obvious that all possible knowledge must be put to work on such important problems as determination of operability in a poor-risk patient who requires a serious prolonged major operation. Under such circumstances, the combined knowledge of the surgeon and anesthesiologist must be utilized. A good example of the necessity of a cooperative study and decision is the problem presented by an elderly patient with a cancer in the gastrointestinal tract who also has a serious emphysema and perhaps mild bronchiectasis. If the anesthesiologist feels that the condition of the patient will not safely permit the operation planned, he should so inform the surgeon. Perhaps a different operative technique should be utilized.

When the surgeon possesses vital information that may not be obvious to one making a single examination, he must inform the anesthesiologist, as of a case of malnutrition proved by history of inadequate caloric intake but not detected by chemistry, which reveals normal protein levels. It is the surgeon's responsibility to recognize this deficit and correct it before operation if at all possible; unfortunately, this is not always possible, because the gastrointestinal disease may be producing a partial obstruction or symptoms such as diarrhea, which cannot be corrected. Accordingly, we wish to emphasize the importance of free interchange of questions and information between the anesthesiologist and surgeon in the preoperative period, particularly in patients whose operability is doubtful.

During the Operation

During the operation, it is essential that teamwork and cooperation be practiced to the maximum degree, because so many events that take place at this time are vital to good results or to survival of the patient. The surgeon should be informed when a significant change in the patient's condition takes place. It is a shock to the nervous system of the calmest of surgeons to have the anesthesiologist announce that the blood pressure is now 70/60 mm. Hg and that it has been falling steadily for the past 15 minutes. In fact, it is appreciated by most surgeons if the anesthesiologist announces the blood pressure and pulse every 10 or 15 minutes, even though they are entirely normal. Likewise, the surgeon should inform the anesthesiologist when any complications develop during the operation, and he should also inform him if additional work, beyond that expected, must be done. If, during a celiotomy, the surgeon finds it necessary to open the chest, the anesthesiologist should be informed as soon as the decision is made. During a thoracic operation, the surgeon must expect the anesthesiologist to request the privilege of aerating the lung on the side of the operation every 15 to 30 minutes. If the surgeon is doing something at this moment that cannot be interrupted, he should request three or four minutes to complete it and should then stop the operation for aeration of the lung.

The question concerning the need for fluids and blood during the operation is a very important one, because it comes up in all major operations. In general, this should be considered to be the surgeon's responsibility, but the anesthesiologist should keep this point in mind at all times, and, if the fluid or blood is not being given in amounts consistent with the indications from his standpoint, he should bring the question up for discussion. The decision regarding the time to start administration of blood is more important than the problem of fluid intake. If there is any question about the advisability of starting blood transfusion, it can usually be settled readily by having the nurses count sponges and by checking the amount of blood in such places as in the suction bottle or on drapes. Specific information may be available from blood-volume determinations done with radioactive albumin, particularly if preoperative determinations have been carried out. The anesthesiologist should consider it his privilege to request more blood or less blood; it is very possible that his decision may be more accurate than the surgeon's, but the surgeon should not hide behind this cloak and blame the anesthesiologist for all errors in fluid replacement.

Now and then there will be changes in the cardiac mechanism that may suggest a coronary thrombosis, and an electrocardiogram may be indicated. Since the decision regarding cardiac reserve on the operating table would appear definitely to be for the anesthesiologist to make, it would seem that he must be capable of reading electrocardiographic tracings. During the development of anesthesiology over the past few decades, numerous items of equipment have been added to the anesthesiologist's armamentarium. However, we must emphasize the fact that the anesthesiologist's ability is by no means rated according to the amount of equipment he possesses. Actually, the pendulum has swung so far toward a large amount of equipment that the anesthesiologist should be urged to limit its use; simplicity in instruments and equipment will result in better anesthesiology.

Cardiac Arrest.—Cardiac arrest is becoming so frequent and is of such grave importance that we choose to discuss it separately. Although the assignment of duties to the anesthesiologist and surgeon may vary in different hospitals, no one should question that it is the anesthesiologist's responsibility to keep track of the pulse beat, and it is his responsibility to inform the surgeon as soon as he suspects that cardiac arrest has occurred. When the operation is being performed on the heart or in the immediate neighborhood, the responsibility belongs to the surgeon. The surgeon can and should try to confirm the presence or absence of a heartbeat; if he is working in the thorax or abdomen he can readily do so. Since the time lapse between cardiac stoppage and start should not be over three minutes, someone must act as timekeeper. Unless the anesthesiologist is positive he felt a heartbeat only a few seconds previously, there should be no delay for "timekeeping," and an incision must immediately be made in the thorax by the surgeon and cardiac massage instituted. It should also be the responsibility of the anesthesiologist to order the drug therapy. It should be the surgeon's responsibility to look for ventricular fibrillation if the heart does not resume its beat, because he is the person who is best able to observe fibrillation. Every operating room should have a defibrillator available, and the surgeon in charge of the operating room or service should be responsible for obtaining one.

The Postoperative Period

There will perhaps be more difficulty in assigning responsibility in the postoperative phase of the patient's care than in any other period. Each hospital will have to devise its own formula. In general, the surgeon is responsible for the patient's welfare postoperatively, but certain duties should be as [illegible] to the anesthesiologist. Actually, here is ano [illegible] re team-

sion can be made regarding operability of the patient or choice of anesthetics, the anesthesiologist must see and examine the patient. This is best done several days before the operation and again the night before the operation, at which time the anesthesiologist should write the preoperative orders. At this time, he should talk to the patient about the anesthetic. Often, the p
tient may have a fear of a general anesthetic
urgently request a local: almost
will be true and the pati
during the operation. If a
the anesthesiologist will ha
be sure that the extent of the
factors will not make use of a
tical.

With his increasing acquisitio
edge, the anesthesiologist must
practice of medicine exists for the
tient. Surgeon and anesthesiologist al
best to alleviate the patient's fear, a
order sedatives as indicated. Perhaps th
tant time in this respect is during the preo
and when the anesthetization is being starte
ly, sympathetic attitude and assurance that
cedure is safe will do much indeed to ease the p
mind. Gentleness is not only indicated but req
at all times, including the period after loss of c
sciousness. Too often, indeed, the anesthesiologist an
surgeon discard caution and gentleness after the anesthetic has taken effect. Manipulation in the mouth and pharynx must be carried out gently, because the mucosa is not as tough as skin. With very few exceptions, bleeding from the mouth, even if slight, is inexcusable. The manipulation most apt to cause trauma and bleeding is insertion of an intratracheal tube. The anesthesiologist must learn to do this gently; too often, postoperative hoarseness, soreness, and pain are due to roughness during intubation. If intubation is not accomplished within a few minutes, a senior anesthesiologist should be called to perform this manipulation. If the senior anesthesiologist is the one having difficulty, perhaps it is safer to change the technique or even to postpone the operation.

The increase in major responsibilities of the anesthesiologist must not blind him to some of the minor ones. For example, the controls for changing the position of the operating table are placed at the head of most modern tables, so that the anesthesiologist can reach them. It is to be hoped that the anesthesiologist will possess a cooperative spirit that will prompt him to do what he can to add efficiency to the operation.

Special Training for Anesthesiologist

Reference has already been made to the fact that the modern anesthesiologist has been forced to acquire a varied amount of knowledge to carry out his functions properly and efficiently. Actually, there are no limits on the knowledge to be possessed; the more he possesses, the more useful he will be in the surgical team, of which he is an important member. Perhaps the best example of a special area in which knowledge is required of the modern anesthesiologist is pharmacology. There are so many anesthetic agents in use today that familiarity with these alone would require a fair knowledge of pharmacology. However, the
complexity of anesthesi
complicating disea
anesthesiologi
all impor
wh

i
tial.
durin
difficult
of reside
requisites
the anesthesi
perhaps be co
anesthesiologist
ability to comman
does not, the surg
operation because
anesthetization; at times
sufficient to jeopardize th
to the point where he may
errors. Furthermore, lack of res
issuance of orders by the surgeon
he is too inadequately informed to

Determination of Operability and Ty

Although we all are striving to
knowledge and experience to make decisi
operability so accurately that we will h
operative fatalities, that utopian period is
distance. Yet we must admit that proper ap
of present knowledge will continue to reduce mo
rates. Since life is the most precious thing on ea
is obvious that all possible knowledge must be put
work on such important problems as determination of
operability in a poor-risk patient who requires a serious
prolonged major operation. Under such circumstances,
the combined knowledge of the surgeon and anesthesiologist must be utilized. A good example of the necessity of a cooperative study and decision is the problem

the country that the responsibilities of the surgeon and anesthesiologist cannot be defined dogmatically. Many of these fuctions will have to be worked out according to circumstances; however, certain of them are rather obvious. For example, the surgeon and anesthesiologist should consult preoperatively, and, after the anesthesiologist has had opportunity to examine the patient and his chart, the surgeon should inform the anesthesiologist of the type of operation planned and the anesthesiologist should inform the surgeon of the type of anesthetic he contemplates using. The anesthesiologist should inform the surgeon promptly of any change in the patient's condition during the operation. Likewise, the surgeon should inform the anesthesiologist immediately of any change in the operative plan. The surgeon expects the anesthesiologist to keep constant watch over the patient's condition, and the anesthesiologist expects the surgeon to perform the operation with the least amount of trauma and minimal blood loss. The operation is no place for prejudice or anger. We must remember at all times that the welfare of the patient is the paramount issue during an operation. Complete cooperation will result in maximal efficiency.

1853 W. Polk St. (12) (Dr. Cole).

THE ROLE OF HYPNOSIS IN ANESTHESIOLOGY

Milton J. Marmer, M.D., Beverly Hills, Calif.

• *Thoracotomy and resection of the lingula pulmonis was accomplished with the aid of hypnosis in a 25-year-old woman who had previously undergone a diagnostic bronchoscopy under hypnosis. The patient was hypnotized the night before the operation and again at 10 a. m. on the day of the operation. The medication required before and during the operation included 100 mg. of pentobarbital and 50 mg. of diphenhydramine hydrochloride by mouth, 100 mg. of meperidine hydrochloride and 0.40 mg. of scopolamine hypodermically, 50 mg. of thiamylal sodium intravenously to stop involuntary swallowing, 25 cc. of 1% solution of procaine hydrochloride infiltrated into the skin before the incision, and a total of 100 mg. of succinylcholine administered as 0.1% solution by intravenous drip over a period of 45 minutes to permit control of the respiration.*

Hypnosis can be a valuable addition to the armamentarium of the anesthesiologist. It is unfortunate that the application of the principles of this technique has been almost neglected in the present-day practice of anesthesiology. Instruction in the principles of hypnosis should be incorporated into the training in anesthesiology. In fact, every anesthesiologist should also be a hypnotist. Words have long been recognized as exerting a tremendous influence on human behavior.[1] As Rudyard Kipling once said, "Words are the most powerful drug used by mankind." Hypnotism, which paved the way for the acceptance of ether and chloroform by drawing attention to the possibility of surgery without pain, was dealt its death blow by the advent of these anesthetic agents. Crawford Long,[1A] in his first published account of the use of sulfuric ether, by inhalation, as an anesthetic in surgical operations, wrote:

> At the time I was experimenting with ether there were physicians high in authority, and of just distinguished character, who were advocates of mesmerism and recommended the induction of the mesmeric state as adequate to prevent pain in surgical operations. Nothwithstanding, thus sanctioned I was an unbeliever in the science, and of the opinion that if the mesmeric state could be produced at all, it was only on those with strong imaginations and weak minds and was to be ascribed solely to the workings of the patient's imagination. Entertaining this opinion, I was the more particular in my experiments in etherization.

In 1846, Robert Liston, the British surgeon, while performing the first operation in England with ether as an anesthetic, made the classic remark: "This Yankee dodge beats mesmerism all hollow!"[2] By 1860, mesmerism and surgery had parted company. The more chemical anesthesia increased in efficiency, the less significant hypnotism became as a means of anesthesia. At the end of the 19th century in England there was a revival of interest in hypnotism, and it was again demonstrated that surgical procedures could be performed with the patient in the mesmeric state.

Hypnotic phenomena have been observed since Biblical times, but scientific and medical interest in the subject was first aroused in the latter part of the 18th century, by Anton Mesmer. He claimed to be able to cure disease by means of "animal magnetism," which he believed to be some kind of magnetic influence that flowed from him to the patient, a concept since thoroughly discredited. James Braid, a Manchester surgeon, rejected the theory of animal magnetism and attributed the phenomenon of mesmerism to suggestion. He introduced the term hypnotism in 1843.

The first attempts to perform surgery while the patient was under hypnosis were made in France, by Dupotet and Recamier, in 1821. Jules Cloquet, in 1829, removed a breast while the patient was in a mesmeric sleep. By 1837, John Elliotson had established an enviable reputation as one of the ablest surgeons in London. He performed many operations with the patients under hypnosis, but he was finally asked to resign his post because of alleged charlatanism. In 1843, he began publication of *The Zoist*, which was called "A Journal of Cerebral Physiology and Mesmerism and Their Applications to Human Welfare." According to Elliotson, the first surgical procedure carried out on a mesmerized patient in England was the insertion of a seton in the neck in 1838. Four years later, in 1842, a surgeon named Ward performed a midthigh amputation on a patient in the mesmeric state. The third volume of *The Zoist* (March, 1845–January, 1846) contained three

---

From the Department of Anesthesiology, Cedars of Lebanon Hospital, and the Department of Surgery (Anesthesiology), University of California School of Medicine, Los Angeles.

Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956.

reports of surgical operations performed with the patient under mesmeric anesthesia, four of which were carried out in the United States. James Esdaile, in India, between 1844 and 1859, performed a remarkable series of operations on patients who had been hypnotized. The significance of his accomplishment in the use of mesmerism for surgical anesthesia is manifested by the fact that he reported on several thousand operations, of which some 300 were major procedures, including amputations, repair of hydroceles, and removal of scrotal tumors and cataracts.

Although in the past 10 years new interest in the use of hypnosis has become evident, anesthesiologists as a rule are still more comfortable when they use drugs than when they employ the less familiar psychological techniques.[3] However, if physicians understood more clearly what hypnosis is and what can be expected of it, I believe that it would be utilized much more widely and effectively. It is the only means of anesthesia that carries no danger for the patient. Hypnotism raises the patient's threshold to pain. Actually, perfect anesthesia should be attained by employing hypnotism in conjunction with chemical agents. Hypnosis can be a pleasant experience, involving no tension or apprehension. It can be maintained for long periods and terminated at will, and it has the superlative advantage of placing no extra load on the circulatory, respiratory, hepatic, or renal systems.[4]

Induction and Effects of Hypnosis

There are as many ways of producing hypnosis and as many ideas to explain its nature as there are hypnotists, but most authorities favor the theory that the mesmeric state is a condition of "exaggerated suggestibility."[5] The hypnotist has neither an esoteric power nor a mysterious gift. Anyone can learn to hypnotize, but use of the technique should be restricted to trained and competent practitioners. Patients vary in their susceptibility to hypnosis in the same way that they differ in their responses to drugs or other medical therapy. The best hypnotic subjects are ordinary, normal people, the more intelligent and imaginative the better. It is virtually impossible to hypnotize an idiot. Children usually make good subjects because of their heightened powers of imagination. Young people respond better than old, because their patterns of reaction are not so rigidly set. There is no difference in susceptibility to hypnosis between men and women.

Optimum results may not be obtained with the first attempt. Some patients who can be influenced only slightly at first can be trained to become good subjects by repeated sessions with the therapist. Hypnosis obeys the laws that govern conditioning in general. It is of the utmost importance that the patient believe that the hypnotizing physician has both competence and integrity. Pain can be reduced or obliterated in many people by hypnotic suggestion. It is well known that distraction of attention may exclude from consciousness many sensations, including pain. Pain, which is perceived, is subjective and individual; it varies in accordance with the emotional and physical make-up of the patient. Under hypnosis, the patient is conscious of pain, but his higher centers ignore it.

In the hypnotic state the subject appears to be anxious to please the hypnotist and will usually carry out his suggestions. No patient will carry out a suggestion that conflicts with his basic moral principles. The subject is not an automaton; he may refuse to carry out suggestions, and he can always break the trance if the situation becomes really intolerable. Such muscular phenomena as alterations in tone are to be expected. Catalepsy may be brought about, and any muscular activity can be increased, decreased, or completely inhibited. However, vital functions are not affected. Either analgesia or anesthesia may be produced. Partial amnesia is encountered in the majority of cases, and complete amnesia is not infrequent.

Hypnosis can be used to assist a patient to relax and to help obviate excitement and apprehension. Most people fear anesthesia more than surgery. Induction of anesthesia should start not in the operating room but with the preanesthetic visit to the patient, usually one or two nights prior to surgery. Many emotional changes accompany anesthesia, and it is well known that stress may produce hypertension, tachycardia, or irregularities of cardiac rhythm. Although every person handles anxiety in his own fashion, the correct psychological approach on the part of the anesthesiologist will go a long way toward obtunding psychic trauma and establishing confidence.

With most patients I have used what I call "an exercise in relaxation" as a trial attempt at hypnosis. If, during the relaxing exercise, the patient follows suggestions and a hypnoid level is approached, more suggestions are made, in the hope that a deeper level of hypnosis will be achieved. Even when it is evident that a hypnoid level cannot be reached, this method can do much to help a patient relax, both physically and mentally, and to alleviate an appreciable degree of anxiety and tension. If it is possible, I take this opportunity to hypnotize the patient, because with a deeper level of hypnosis valuable posthypnotic suggestions can be given. This "relaxing" technique is especially useful when working with patients who are poor operative risks, such as those with cardiac disease or allergies to commonly used anesthetic drugs or those scheduled to undergo cardiac surgery. This means of preoperative sedation and preparation establishes confidence, minimizes fear and anxiety, and makes the prospect of surgery more acceptable. The unavoidably great investment of time is well worthwhile because of the greater ease and safety with which the surgical procedure is carried out.

Hypnosis is a valuable method of inducing anesthesia or achieving basal anesthesia in children. A simple suggestive technique can induce anesthesia before tonsillectomy, for example, and enable one to make posthypnotic suggestions that render recovery from anesthesia more pleasant. The results in such cases are gratifying, because on recovery the children are more cheerful, more alert, more responsive, more comfortable, and more cooperative than those who undergo anesthesia induced by chemical agents alone.

Hypnosis is invaluable not only as a means of sedation before and after operation but as an auxiliary method of anesthesia or a means of achieving total anesthesia. Hypnoanalgesia is especially useful when employed in conjunction with other anesthetic procedures, because it reduces the amount of chemical agents used. I have used hypnoanalgesia successfully in association with epidural and spinal anesthesia when it was essential to obviate depression of the respiratory or the cardiac system with drugs. Hypnosis alone can be employed in such procedures as incision and drainage, short orthopedic operations, or extractions of teeth. It should be mentioned that hypnodontia is a well-recognized and highly useful field of dentistry.

Hypnosis may be used when changing painful dressings, as of burns, and while removing sutures when the patient is frightened. It has been used successfully to improve both the morale and appetite of badly burned men.[6] Hypnoanalgesia also eliminates depression of vital functions and protective reflexes and often prevents such accidents as palsies of ulnar nerves or excessive traction on brachial roots, because the hypnotized patient is aware of any painful pressures in an unanesthetized area. The use of hypnosis in obstetric delivery is well documented. However, the handling of the pregnant woman in this respect usually falls within the province of the obstetrician.[7]

Posthypnotic suggestion is perhaps the single most valuable phenomenon associated with hypnosis. Many suggestions effective in lessening the incidence and severity of nausea and vomiting may be carried out with remarkable accuracy. Such suggestions can relieve postoperative pain, reduce the amount of narcotics used, and help the patient to breathe deeply or to cough. Review of the literature has failed to reveal any reports of the use of hypnoanalgesia or hypnoanesthesia in thoracic surgery. The surgical operations involving the use of hypnosis that have been reported on in the modern literature are laparotomy,[8] bilateral mammaplasty,[9] appendectomy [10] and amputation.[11] Herewith is reported the first case in which hypnoanalgesia and hypnoanesthesia were employed in the resection of the lingula of the upper lobe of the left lung.

Report of a Case

A 25-year-old woman entered Cedars of Lebanon Hospital for bronchoscopic examination because of the presence of a lesion in the upper lobe of the left lung. On Jan. 6, 1955, with the patient anesthetized by hypnosis, a diagnostic bronchoscopic examination was performed. After the examination, it was decided that resection of the lingula was necessary and that the operation should be attempted under hypnosis because of the successful use of hypnoanalgesia during the bronchoscopic examination. The patient was hypnotized the night prior to surgery, and the suggestion was made that at a given signal in the morning she would be deeply relaxed and asleep and would respond only to the voices of the surgeons and the anesthetist. At 7:30 a. m. on Jan. 17, the patient was given 1½ grains (0.10 gm.) of pentobarbital (Nembutal) and 50 mg. of diphenhydramine (Benadryl) hydrochloride, by mouth. At 8:30, 100 mg. of meperidine (Demerol) hydrochloride and 1/150 of a grain (0.40 mg.) of scopolamine was administered. Hypnosis was begun at 10 a. m., and the patient was taken to the operating room at 10:30, when a deep hynotic level had been attained. An endotracheal tube was inserted while the larynx was directly visualized. Oxygen only was administered. Because the patient continued to swallow in the presence of the endotracheal tube, an intravenous injection of 50 mg. of thiamylal (Surital) sodium was given after an intravenous infusion of 5% dextrose in water had been begun. The skin was infiltrated with 25 cc. of a 1% solution of procaine hydrochloride, and an incision was made in the left side of the thoracic wall. Suggestion was continued throughout the procedure.

When the chest was opened, administration of 500 cc. of blood was begun. The patient responded to all commands except the one that she should hold her breath, which elicited resistance and resulted in more rapid breathing. Additional suggestion failed to produce the desired apnea. To prevent tearing of the lung during dissection, an intravenous drip of a 0.1% solution of succinylcholine was begun, and respiration was controlled. A total of 100 mg. was administered over a period of 45 minutes. Breathing returned to normal 30 seconds after withdrawal of the drug. Hypnotic suggestion was continued during the entire period of apnea as well as during closure of the wound. The operation ended at 1 p. m., when the tube was removed after the trachea was cleared. The resected lesion was a tuberculoma. Posthypnotic suggestion was given to the effect that postoperative discomfort would be minimal and that deep breathing and coughing would be easy. The patient was told to sleep for two hours and then awaken. The postoperative course was uneventful. The amount of narcotics used after surgery was minimal, and the patient was discharged on Jan. 25, in excellent condition.

Summary

Hypnosis has much to offer the anesthesiologist. It minimizes fear and apprehension and is valuable as an adjunct to the measures commonly employed in sedation before and after operation. It can be attempted when chemical anesthetics are contraindicated. Posthypnotic suggestion has proved to be of great value in the postoperative course, namely, in reducing or eliminating nausea, vomiting, and pain. Hypnosis is a successful auxiliary measure for inducing anesthesia and can effect anesthesia alone. Patients vary in their susceptibility to hypnosis, and a deep hypnotic level cannot be reached in every instance. Ideally, hypnosis should be used in combination with chemical agents to achieve anesthesia. The only disadvantage to hypnosis is that its effective application requires a considerable expenditure of time, a negative quality that is more than offset by its many advantages. Hypnoanalgesia was effectively employed during a resection of the lingula for tuberculoma of the upper lobe of the left lung in one patient.

507 N. Arden Dr.

References

1. Heron, W. T., in Hypnosis in Modern Medicine, edited by J. M. Schneck, Springfield, Ill., Charles C Thomas. Publisher, 1953, chap. 11.

1A. Long, C. W.: Account of First Use of Sulfuric Ether by Inhalation as an Anesthetic in Surgical Operations, South. M. & S. J. n. s. **5**: 705-713, 1849.

2. Rosen, G.: Mesmerism and Surgery: Strange Chapter in History of Anesthesia, J. Hist. Med. & Allied Sc. **1**: 527-550 (Oct.) 1946.

3. Heron, W. T.: Hypnosis as an Anesthetic, Brit. J. M. Hypnotism **6**: 20-26, 1954-55.

4. Raginsky, B. B.: Use of Hypnosis in Anesthesiology, Personality **1**: 340-348 (Nov.) 1951.

5. Van Pelt, S. J.: Hypnotism and Its Importance in Medicine, Brit. J. M. Hypnotism **1**: 19-34 (Dec.) 1949.

6. Crasilneck, H. B., and others: Use of Hypnosis in Management of Patients with Burns, J. A. M. A. **158**: 103-106 (May 14) 1955.

7. DeLee, S. T.: Hypnotism in Pregnancy and Labor, J. A. M. A. **159**: 750-754 (Oct. 22) 1955.

8. Owen-Flood, A.: Hypnotism and the Anaesthetist, Brit. J. Anaesth. **27**: 398-404 (Aug.) 1955. Rose, A. G.: Use of Hypnosis as an Anesthetic, Analgesic and Amnesic Agent in Gynecology, Brit. J. M. Hypnotism **5**: 17-21, 1953. Zalman, E.: Laparotomy Under Hypnotic Anesthesia, Lek. listy **1**: 227-234, 1946.

9. Mason, A. A.: Surgery Under Hypnosis, Anaesthesia **10**: 295-302 (July) 1955.

10. Gindes, B. C.: New Concepts of Hypnosis as Adjunct to Psychotherapy and Medicine, New York, Julian Press, Inc., 1951. Owen-Flood, A., in Hypnosis in Modern Medicine, edited by J. M. Schneck, Springfield, Ill., Charles C Thomas, Publisher, 1953, chap. 4.

11. Sampimon, R. L. H., and Woodruff, M. F. A.: Some Observations Concerning Use of Hypnosis as Substitute for Anaesthesia, M. J. Australia **1**: 393-395 (March 23) 1946.

NECROTIZING RENAL PAPILLITIS AND DIABETES MELLITUS

Fred W. Whitehouse, M.D.
and
Howard F. Root, M.D., Boston

• Necrosis of the renal papillae, ascribed to local ischemia and accompanied by general septicemia, was demonstrated in 10 instances in the course of 266 postmortem examinations of 416 diabetic patients who died during a five-year period; in addition the papillary necrosis was found in a kidney removed surgically from a diabetic patient who was relieved by the nephrectomy but who died two years later because of the functional inadequacy of the remaining kidney. To prevent this complication of diabetes, catheter drainage should be avoided whenever possible, and the importance of proper perineal hygiene in women should be emphasized. If genitourinary infections do occur, they should be treated vigorously with the correct antibiotic and obstructive uropathy should be eradicated; the diabetes should be well controlled. Necrotizing renal papillitis should be considered as a possibility whenever sepsis or progressive renal failure is observed in a diabetic patient.

Ischemic necrosis of the renal papillae and concomitant bacterial infection result in a clinicopathological entity variously known as necrotizing renal papillitis,[1] papillary necrosis,[2] medullary necrosis,[3] and necrotizing pyelonephritis.[4] Although the pathogenesis of the lesion is not completely understood, most authorities subscribe to the mechanism described above. Its close relationship to diabetes mellitus and obstructive uropathy has been emphasized.[5] Two recent reports[6] have adequately reviewed the literature. We would like to report our experience with necrotizing renal papillitis, based on cases studied at the New England Deaconess Hospital from January, 1950, to September, 1955. It should be pointed out that all patients reported on here were being treated at the Joslin Clinic and hence were drawn from a preponderantly diabetic population. All cases have been proved pathologically; no doubt exists as to the identity of any case.

Prior to 1950, necrotizing renal papillitis was indexed along with acute pyelonephritis. To review the experience prior to their separation would lead to inaccuracy of data; we will therefore limit this review to the subsequent years. There were 11 reports of necrotizing renal papillitis found in the files of the Joslin Clinic between January, 1950, and September, 1955. A study of these cases comprises the substance of this report. The table summarizes the clinical and pathological data on these patients.

Incidence and Concurrence with Diabetes

During the five-year period of this study, 14,252 diabetics were admitted to the New England Deaconess Hospital. During the same period, 416 diabetics died and 266 had postmortem examinations. Eleven cases of necrotizing renal papillitis were found: one in every 1,296 diabetics admitted and one in every 24 patients autopsied. Hence, necrotizing renal papillitis was found at 4.1% of autopsies on diabetic patients. The average age of our patients at the time of diagnosis was 60 years. The youngest patient was 26 years of age, the oldest 79. Females predominated 9:2 in our series. This is in keeping with past experience with diabetics.[7] All patients were white.

Diabetes mellitus was present in all patients. Ten patients were known to be diabetic at the time of admission, while one (case 8) was a newly discovered diabetic. The average duration of the diabetes was 14.8 years. The range was from newly discovered to 24 years. Three patients had had diabetes over 20 years and eight over 10 years. All but one were on insulin therapy. All patients were taking either protamine zinc insulin or isophane (NPH) insulin. The insulin requirement increased in six patients during their illness, rising from 50 to 100 units in one (case 5) and from 28 to 70 units in one (case 4). The average increase for the six patients was 24 units. In four patients the requirement did not change, and it fell from 40 to 20 units in one (case 9). Eight patients had evidence of diabetic retinopathy and three had diabetic neuropathy. Six patients had a previous diagnosis of diabetic nephropathy. An estimate of control of the diabetes in the patients in this series was difficult to assess. Arterial hypertension was present in four patients.

There are two clinical pictures associated with necrotizing renal papillitis.[1a] One, the acute fulminating type, is characterized by severe prostration, signs of overwhelming sepsis that may or may not be localized to the urinary tract, and rapidly progressive renal failure. Death occurs early and is usually ascribed to septicemia. The second or subacute type is characterized by a smoldering renal infection present for weeks or months, with acute exacerbations and terminal oliguria and uremia. An asymptomatic form has also been recognized. In our patients, the duration of the final illness (terminal hospital admission) ranged from three days (case 8) to six weeks (cases 1 and 10), with an average of three and one-half weeks.

Eight patients had fever at some time during the course of their illness. The number of days on which they had fever prior to hospitalization could not be ascertained with any degree of accuracy. Only 4 of the 11 patients had signs and symptoms suggesting urinary tract infection. In these patients, fever, chills, and flank pain were prominent. One patient had gross hematuria. The clinical picture in seven patients did not suggest renal infection. Six patients had previously diagnosed diabetic nephropathy. One case appeared after a sigmoid colectomy. An indwelling catheter was used in nine patients. Only three patients had oliguria. Ten of the 11 patients died. The patient in case 5 survived after removal of the left kidney.

From the Joslin Clinic and New England Deaconess Hospital. Dr. Whitehouse is now at the Henry Ford Hospital, Detroit.

Laboratory Findings

Ten patients had polymorphonuclear leukocytosis, with the number of white blood cells varying from 12,000 to 33,500. In two patients the nonprotein nitrogen level was between 40 and 50 mg. per 100 cc., in five it was between 50 and 100, and in four it rose above 100 mg. per 100 cc. One patient (case 6) had been in chronic uremia for over one year and entered the hospital with a nonprotein nitrogen level of 175 mg. per 100 cc. An elevated nonprotein nitrogen level receded toward normal in four patients. Examination of the urine was done frequently in all cases. Oliguria and anuria were not striking, in our experience. Only two patients had a daily urine output persistently below 500 cc. per 24 hours. A third patient (case 8) was oliguric on the day of death. The patient in case 11 presented with the chief complaint of "inability to urinate." This patient was totally anuric during one 24-hour period and was oliguric for eight days prior to death. The patient in case 9, with terminal diabetic nephropathy, was oliguric for a 10-day period during her final illness but in the last 48 hours of life voided a total of 1,400 cc. The remaining eight patients passed seemingly adequate amounts of urine, varying from 500 to 2,300 cc. per 24 hours. The table indicates the average 24-hour urinary output during the final five days of life.

There was significant albuminuria (over 20 mg. per 100 cc.) in 10 cases. Gross hematuria occurred in one patient, while microscopic hematuria was recorded in five cases. Pyuria was universal but highly variable, with the sediment showing only scattered pus cells on some occasions while at other times it was loaded with leukocytes. Cylindruria was recorded in seven cases, with mainly hyaline and fine and coarse granular casts present. These casts, of course, are commonly seen in the urine of patients with chronic renal disease. No documented papillary casts were identified. The urine was cultured in seven cases, while for four patients there was no record of culture. Escherichia coli and Proteus vulgaris were isolated in four cases each, growing out together in three. Micrococcus (Staphylococcus) pyogenes var. aureus was found in three cases. Two strains of streptococci and an Aerobacter were also isolated. In three of the seven patients with positive cultures, only one organism was found, while in four a mixed infection, with gram-negative organisms predominating, existed.

In the cases reviewed, x-ray studies were not used extensively as an aid in diagnosis. An intravenous pyelogram in the patient in case 5 showed a distorted calix at the lower pole of the left kidney. Roentgenograms of the abdomen in two patients were unrevealing. Retrograde pyelograms, suggested by Wall,[8] were not done.

Diagnosis and Treatment

An anatomic diagnosis was made in each patient, in 10 at postmortem examination and one (case 5) by nephrectomy. An intravenous pyelogram in this latter patient was interpreted as being suggestive of malignancy. Nephrectomy was carried out. Necrotizing renal papillitis and multiple cortical abscesses were found on pathological examination. The correct diagnosis was suggested ante mortem in only two cases. No case was proved ante mortem except in one patient (case 5). The usual pathological findings of ischemic infarction of the renal papillae associated with acute inflammation of the papillae and acute and chronic inflammation of the renal parenchyma was present in all cases. Eight patients showed unilateral papillitis, while three had bilateral involvement. Papillary necrosis was localized to two papillae each in three patients with unilateral involvement. Other significant postmortem findings are recorded in the table. In the two patients with concomitant diabetes and obstructive uropathy, acute pyelonephritis was bilateral but papillary necrosis was limited to the side with the obstruction.

All patients received some antibacterial agent (sulfonamide or antibiotic), usually more than one, during the course of their illness. In this series one can-

Data on Eleven Patients with Necrotizing Renal Papillitis

					Clinical Findings					Pathological Findings	
					Complications of Diabetes Mellitus						
Case No	Age, Yr	Sex	Duration of Diabetes Mellitus, Yr	Location of Necrotizing Renal Papillitis	Retinopathy	Neuropathy	Nephropathy	Urine Output, Cc *	Highest Nonprotein Nitrogen Level, Mg /100 Cc	Cause of Death	Other Postmortem Findings
1	75	F	21	Unilateral	+	—	—	860	70	Acute pulmonary edema	Acute myocardial infarction; ureteropelvic stricture on left side; bilateral pyelonephritis
2	62	F	7	Unilateral	+	—	—	620	49	Acute myocardial infarct	Bilateral acute and chronic pyelonephritis
3	67	F	14	Unilateral	—	—	+	900	112	Uremia; necrotizing papillitis	Diabetic nephropathy
4	79	F	4	Unilateral	—	—	—	910†	58	Aerobacter septicemia	Ureterolithiasis and pyonephrosis on left side; multiple pulmonary abscesses
5	62	F	14	Unilateral	+	—	+	...	58	Uremia (2 yr postoperatively)	Multiple cortical abscesses; diabetic nephropathy; argyria§
6	54	M	21	Bilateral	+	+	+	800	200	Uremia	Diabetic nephropathy
7	76	F	24	Unilateral	+	+	—	1,180	40	Cerebrovascular accident	Carcinoma of lung; pyelonephritis
8	57	M	New	Bilateral	—	—	—	1,320‡	73	Staphylococcemia; necrotizing renal papillitis	Renal and myocardial abscesses; portal vein thrombosis
9	26	F	19	Bilateral	+	+	+	530	150	Uremia	Acute myocardial infarction; diabetic nephropathy
10	37	F	20	Unilateral	+	—	+	920†	115	Uremia	Diabetic nephropathy
11	64	F	19	Unilateral	+	—	+	350	89	Heart block	Diabetic nephropathy; diffuse ischemic myocardial necrosis

* Av 24 hr urinary output for last 5 days of life † 4 day av ‡ 2 day av. § Surgical specimen

In October, 1955, Franke and Fuchs [1] and Bertram, Bendfeldt, and Otto [2] published the results of clinical trials of carbutamide in the treatment of diabetes mellitus. Reduction in blood sugar level and control of glycosuria were observed in 80% of diabetic patients receiving the drug. In April, 1956, the first American study of carbutamide therapy appeared in the literature in the form of a preliminary report by Ridolfo and Kirtley [3] confirming the German findings. Carbutamide, aside from its hypoglycemic properties, is a potent antibacterial agent. Substitution of a methyl group for the amino group of carbutamide (fig. 1) produced a compound without antibacterial potency but with unimpaired hypoglycemic activity. This compound, 1-butyl-3-*p*-tolylsulfonylurea, was designated U-2043 by the Germans and is known in the United States as tolbutamide, or by the trade name Orinase. The work of Stoetter in Germany and of Miller and Craig [4] and Kinsell, Brown, Friskey, and Michaels [5] in the United States suggests that tolbutamide has an order of effectiveness similar to that of carbutamide in the treatment of diabetes.

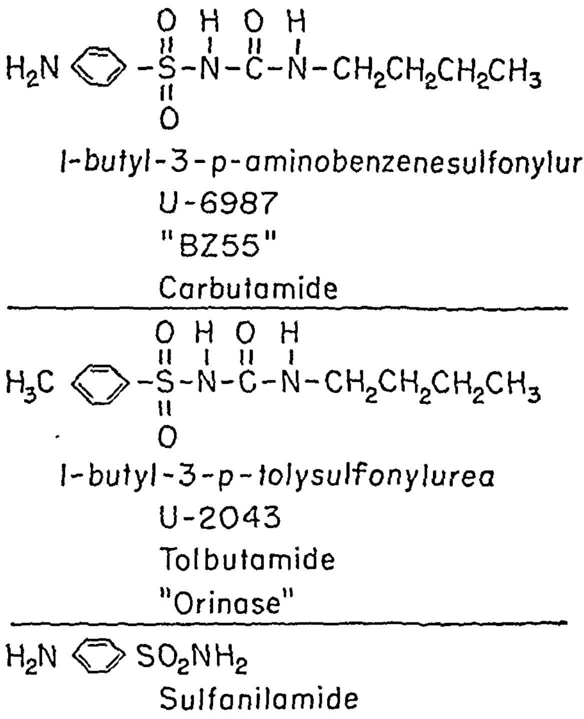

O H O H
H2N -S-N-C-N-CH2CH2CH2CH3
O
1-butyl-3-p-aminobenzenesulfonylurea
U-6987
"BZ55"
Carbutamide
O H O H
H3C -S-N-C-N-CH2CH2CH2CH3
O
1-butyl-3-p-tolysulfonylurea
U-2043
Tolbutamide
"Orinase"
H2N SO2NH2
Sulfanilamide

Fig. 1.—Chemical structure of two aryl sulfonylureas and sulfanilamide.

Pharmacology.—Carbutamide is rapidly absorbed from the gastrointestinal tract. In humans, after an orally given dose of 2 gm., blood levels of carbutamide rise almost vertically to peaks of about 14 mg. per 100 cc. within three to six hours, after which a slow decline begins. According to Achelis and Hardebeck,[6] acetylation of carbutamide does not appear to exceed 8 to 10%. Urinary concentrations of carbutamide, unlike those of other sulfonamides, are low and are predominantly in the acetylated form, suggesting a preferential excretion of acetylated carbutamide with reabsorption of free carbutamide. By virtue of this slow elimination, it behaves as a long-acting or "depot" sulfonamide in respect to its antibacterial effect, requiring, after an initial 4-gm. dose, only single daily 1-gm. doses for maintenance of effective blood levels. This long-acting property may be of significance in its antidiabetic action as well. Others, however, have reported 66% of urinary carbutamide to be in the free state.[3] Laboratory and clinical investigations have demonstrated antibacterial activity against many of the anticipated organisms, and the drug has been used successfully in the treatment of pneumonia, pharyngitis, and related illnesses.[6]

At blood carbutamide levels of 20 to 25 mg. per 100 cc., the blood sugar levels of normal fasting subjects will decline from a range of 100 to 110 mg. per 100 cc. to 70 to 80 mg. per 100 cc. for several hours, regardless of whether the material is given orally or intravenously.[6] Occasionally mild hypoglycemic symptoms are encountered, but severe reactions are unknown in humans.

While published pharmacological studies of tolbutamide are still incomplete, this drug appears to differ from carbutamide primarily in respect to bacteriostasis, which property it lacks. There seems to be little difference between the two in respect to hypoglycemic activity. Hypoglycemic responses have been induced by tolbutamide in mice, dogs, cats, rabbits, monkeys, and humans.[7] Premixing of the substance with a sodium bicarbonate solution sufficient to give a pH of 7.5 exaggerates the hypoglycemic response in rabbits.[7] Tolbutamide levels in the blood rise promptly after oral administration of the drug. According to Kinsell and co-workers,[5] the degree of its conjugation may influence its therapeutic effect in diabetics. In one patient with juvenile diabetes who responded to tolbutamide therapy with a decrease in insulin requirements, most of the drug was excreted in conjugated form; in another who did not respond, the greater portion of urinary tolbutamide was in the free form.[5] Acidification of urine is reported to precipitate a metabolically inactive excretion product,[8] in which the methyl group has been oxidized to a carboxyl radical.[9] At first these drugs were administered in initial doses of 3 gm.[7] followed by daily doses of 2 gm., and reduced to 1 gm. per day if clinical results permitted. However, in subsequent studies, dosages have varied from 1 to 12 gm. per day.

Toxicity.—Carbutamide and tolbutamide appear to be relatively nontoxic drugs. The L.D.$_{50}$ of orally given carbutamide in mice is 4 gm. per kilogram,[6] while that of tolbutamide is 2.5 to 3 gm. per kilogram.[7] Doses of 150 mg. per kilogram of tolbutamide given to dogs daily for two weeks produced no detectable pathological changes on gross and histological examination. The results of prolonged administration of these compounds to animals are under study,[7] but to date no pathological changes other than thyroid hyperplasia have been reported.[6] Liver, kidneys, and pancreas seem otherwise to be unaffected by tolbutamide, and weight loss, crystalluria, and peripheral blood or bone marrow changes have not as yet been recorded in these animals.[7] Severe hypoglycemia cannot be produced, regardless of dosage, except in rabbits when the drug is premixed with sodium bicarbonate.[7]

In humans, careful follow-up studies have revealed no serious untoward reactions thus far. Drug fever and drug eruptions due to carbutamide were encountered by German investigators in as high as 7.3% of patients,[2] but in all cases prompt remission followed termination of therapy. One case of jaundice has been reported in a German patient receiving carbutamide, but the prodromal symptoms of infectious hepatitis antedated the administration of the drug. Exhaustive studies of the urine, of hepatic and renal function, and of the blood in patients treated with carbutamide have been negative thus far.[3] Crystalluria has not been demonstrated even at blood levels as high as 200 mg. per 100 cc.[3] One patient with high blood carbutamide levels developed mental clouding, which cleared up on lowering the dosage. This same patient subsequently developed a skin rash and leukopenia, with a leukocyte count of 1,900 per cubic millimeter.[3] Very large doses of tolbutamide are reported to produce transient granulocytopenia due to a maturation arrest.[3] Reduction in radioactive iodine (I^{131}) uptake has been observed during the administration of these agents.[5] Except when they are given concomitantly with insulin, these drugs do not produce serious hypoglycemic shock in humans.

Clinical Results.—Franke and Fuchs[1] have reported that carbutamide reduced or corrected hyperglycemia and glycosuria in approximately 80% of their series of 50 diabetics. These favorable results were obtained in mild and moderately severe cases of adult diabetes, while the therapeutic failures occurred in the patients with severe juvenile diabetes, and in those in whom there was complicating infection or ketosis. Bertram and co-workers[2] have published the results of the treatment of 82 diabetics with carbutamide. In a group of 28 patients over the age of 49 with mild cases of diabetes, none of whom had been receiving insulin, all but 3 experienced significant reduction in fasting hyperglycemia and glycosuria. Of 38 diabetics treated with insulin in the same age group, in 28 the diabetes was satisfactorily controlled when carbutamide was abruptly substituted for insulin. In a third group of 10 patients, ranging in age from 15 to 40 years, with labile juvenile diabetes, carbutamide therapy did not significantly alter insulin requirements, although its inception was often attended by hypoglycemic reactions. The authors concluded that carbutamide is effective in diabetes of the "adult" type, characterized by mildness and stability of the disease, by a relative tolerance or hyposensitivity to insulin, by maturity at onset, and often by obesity. In contrast, failure to respond could be expected in the "juvenile" type of diabetes, characterized by severity and lability of the disease, by insulin sensitivity, by onset during youth, and by normal or subnormal weight. In addition, long duration of the disease in either type seemed to augur poor response. The results of these studies were confirmed in the United States by Ridolfo and Kirtley,[3] who reported a high percentage of therapeutic success in their series of 18 diabetics treated with carbutamide. Tolbutamide, though less extensively tested at first, has been reported to give comparable results.[10]

Mechanism of Action

The precise mechanism by which the aryl sulfonylurea drugs exert their hypoglycemic action remains to be elucidated. The original German workers[11] believed that these agents acted upon the alpha-cell system of the pancreas, causing a decrease in glucagon production. This antiglucagon theory is weakened by observations that alloxan diabetes, in which alpha-cell activity remains intact, does not respond to the sulfonylureas.[6]

A second hypothesis has been offered by Mirsky. His studies[12] of insulin degradation and those of Elgee and co-workers[13] have led him to conclude that there exists in tissues a specific enzyme, insulinase, responsible for insulin inactivation or destruction. According to Mirsky,[14] insulinase is counterbalanced by an insulinase inhibitor normally present in certain tissues. He has postulated that deficiency of insulinase inhibitor may be responsible for increased insulin destruction, resulting in the stable, insulin-tolerant type of diabetes so characteristic of the adult form of the disease.[14] Mirsky[15] has further demonstrated that insulinase activity and degradation of insulin are diminished by very high concentrations of tolbutamide, and he suggests, therefore, that the drug is a noncompetitive insulinase inhibitor and thereby slows the destruction of endogenous insulin.

Certain objections to the Mirsky hypothesis have been raised. If insulin-sparing were the mechanism of sulfonylurea action, one would expect metabolic alterations identical to those produced by insulin. Yet, whereas insulin induces glycogen accumulation in the muscles, the sulfonylureas do not.[15A] In further contrast to insulin-induced hypoglycemia, sulfonlyurea-induced hypoglycemia is accompanied by a more consistent increase in hepatic glycogen.[16] Another objection is the failure of sulfonylures to enhance, with any degree of consistency, the effect of exogenous insulin in patients with labile juvenile diabetes. Finally, Vaughan[17] has shown in vitro that tolbutamide in concentrations comparable to those producible in vivo does not cause insulinase inhibition. Her in vitro studies indicate that tolbutamide, which markedly diminishes epinephrine and glucagon-induced glucose release from rat liver slices, may do so by inhibiting one or more of several hepatic enzymes. Possible sites of action include glucose-6-phosphatase, phosphoglucomutase, or phosphokinase.[17]

Failure of the sulfonylureas to modify glucagon and epinephrine-induced hyperglycemia *in vivo*[8] has led to alternative speculation. Suppression of gluconeogenesis rather than of glycogenolysis may be the crucial action. Another theory, suggested by French workers, is that the sulfonylureas enhance beta-cell activity, thereby increasing insulin levels. Degranulation of beta cells is said to follow their administration, an observation that would support this concept.

Clinical Material

The 18 patients used in this study were diabetics admitted to the Dallas Veterans Administration Hospital. They were arbitrarily divided into four groups according to the type and severity of their disease. Group 1 includes three cases of the severe labile type usually seen in juvenile diabetics. In these cases insulin shock and ketosis were never far apart and discontinuation of insulin therapy was, therefore, impossible.

The patients ranged in age from 34 to 65. Onset of disease had been at the age of 24 in two cases and at 59 in the third. All were slim, though not malnourished.

Group 2 consisted of five individuals who had moderately severe stable diabetes, requiring insulin for adequate control. Withdrawal of insulin for 10 days or more in these patients was followed by an increase in glucose excretion to 25 gm. or more per day. They ranged from 51 to 65 years of age and, in all, diabetes had been discovered when the patient was over 40 years of age. Slight obesity was present in only one. This group included one patient (see table, patient 1, group 2) whose diabetes first became manifest while he was receiving high doses of steroids to suppress pemphigus.

Group 3 was composed of six patients with mild adult diabetes, with fasting blood sugar levels of over 150 mg. per 100 cc., who excreted less than 25 gm. of glucose per day during the control period. Their ages ranged from 38 to 61 years, and known duration of their diabetes was from three weeks to three years. One patient was slightly obese. In all cases glycosuria had been adequately controlled without insulin by carbohydrate restriction. Group 4 consisted of four patients with very mild adult diabetes whose fasting blood sugar levels never exceeded 150 mg. per 100 cc. and whose daily excretion of glucose did not exceed 1 gm. per day during the control period.

With the exception of the three patients in group 1 with labile diabetes, administration of insulin was discontinued in all patients for a control period of at least seven days prior to treatment with tolbutamide. In group 1 insulin dosages were reduced until the fasting blood sugar levels exceeded 250 mg. per 100 cc. and the daily glucose excretions exceeded 25 gm. Diets were prescribed according to the caloric requirements of the patient and were kept constant thereafter. Weights were checked daily.

Tolbutamide therapy was begun after a stable base line of seven days or more had been completed. The usual starting dose was 3 gm. given each morning on awakening. In all but the first three cases the drug was administered as 2% tolbutamide in 0.5% sodium bicarbonate solution. In these three cases, the patients were later re-treated with the tolbutamide solution. Whenever possible, on the first day of therapy food was withheld until six hourly blood sugar level determinations had been made so as to determine the degree of hypoglycemic response, if any, to a 3-gm. test dose of the drug. The 3-gm. dose would then be continued daily for five days or more, and, if response was unsatisfactory, the dose was raised in 3-gm. increments until satisfactory response was obtained. If at a daily dose of 12 gm. no favorable effect had been observed, administration of the drug was discontinued.

Evaluation of therapeutic results was based on whether the drug produced "worthwhile improvement in diabetic control" in patients receiving the calorically adequate diets. "Worthwhile improvement" was defined as suppression or substantial decrease in glycosuria or, if glycosuria had not been present before treatment, a reduction of 25% or more in the mean fasting blood sugar level. Minor decreases in the blood sugar level of doubtful clinical value were not counted as favorable responses. For example, a drop in the mean fasting blood sugar level from 145 to 130 mg. per 100 cc. in a patient with mild, previously aglycosuric diabetes was not considered a worthwhile result.

Effect of Tolbutamide Therapy on Mean Fasting Blood Sugar Levels and Mean Daily Glucose Excretion of Twelve Diabetics

					Control Period		Tolbutamide Therapy		
Group	Patient	Age, Yr.	Estimated Duration of Diabetes	Insulin Dosage-Study Periods, Units	Mean Fasting Blood Sugar Levels, Mg./100 Cc.	Mean Glucose Excretion Gm./24 Hr.	Mean Fasting Blood Sugar Levels, Mg./100Cc.	Mean Glucose Excretion, Gm./24 Hr.	Tolbutamide Gm./Day
1	1	34	11 yr.	40 isophane 20 regular	490 (270-590)*	35.6 (31.6-36.6)	503 (390-574)	21.8 (8.24-34.4)	3- 9
	2	35	10 yr.	30 isophane	291 (184-278)	Not done	276 (133-168)	32 (4-100)	3-12 (6 b.i.d.)
	3	65	6 yr.	35 isophane	193 (152-302)	26.6 (12.2-51)	303 (217-431)	29 (0-98)	6-12 (6 b.i.d.)
2	1	58	3 yr.	0	211 (152-278)	30.4 (16.5-46.4)	192 (152-206)	24.1 (7.4-38.7)	6
	2	61	1 mo.	0	333 (331-340)	74.1 (50-103.2)	322 (295-355)	67.7 (28.5-109)	3-12 (6 b.i.d.)
	3	61	14 yr.	0	Not done	Not done	282 (233-340)	26.3 (10.4-39.7)	3-12
	4	65	27 yr.	0	186 (149-217)	25.7 (11.9-50.5)	221 (200-242)	28.9 (10.7-54.5)	3- 6
	5	51	6 yr.	0	220 (205-235)	61.9 (35-88)	219 (195-242)	65.5 (8.1-140)	12 (6 b.i.d.)
	6	59	5 yr.	0	260 (223-313)	35.5 (19.5-43.6)	200 (152-286)	0	3†
3	1	38	3 yr.	0	173 (149-211)	21 (18-29)	143 (96-172)	0	3
	2	45	3 wk.	0	162 (139-184)	7.1 (4.7-11.1)	113 (93-134)	0	3
	3	61	2½ yr.	0	278 (168-331)	10.9 (9.3-14.5)	247 (223-278)	4.7 (0-35)	3
							232 (217-242)	1.8 (0-9)	6
							165 (156-190)	0	12 (b.i.d)
							183 (156-217)	0	6 at bedtime

*Figures in parentheses indicate range.

†Patient 6 in group 2 was subsequently treated with 6 gm. of tolbutamide at bedtime, with reduction in mean fasting blood sugar level to 163 mg./100 cc.

Methods

Fasting blood sugar levels were determined each morning by the Folin-Wu method,[18] and determinations of 24-hour glucose excretion were made daily. Urinalyses, including examinations for crystalluria, were done twice weekly and complete blood cell counts, platelet counts, determinations of the blood urea nitrogen and blood cholesterol levels, and liver function tests were done periodically. Sulfobromophthalein (Bromsulfalein) excretion, I^{131} uptake, and protein-bound iodine level were determined in most cases before and at the end of tolbutamide therapy.

Results

Clinical Effectiveness.—Worthwhile improvement in control of diabetes, as defined above, was achieved in 7 of the 18 patients treated with tolbutamide (see table). This is an over-all response rate of 39%. In all patients weight remained constant throughout the period of observation.

Group 1: In the three patients in group 1 with severe labile diabetes, tolbutamide, administered after lowering insulin dosage to levels below the minimal requirements for adequate control, did not diminish glycosuria or fasting hyperglycemia in any case (see table). In one patient with extremely labile diabetes (fig. 2), profound insulin shock occurred on the fourth day of tolbutamide therapy, but daily fasting blood sugar levels and urinary glucose excretion increased progressively until, at dosage levels of 12 gm. daily, administration of the drug was discontinued and insulin dosage increased. Although severe hypoglycemic shock was not encountered in the other two patients, gradual deterioration in control was noted despite daily doses of 9 to 12 gm. In one (fig. 3) discontinuation of tolbutamide therapy without change in insulin dosage or diet was followed the next day by a startling drop in the fasting blood sugar level and glycosuria from 468 mg. per 100 cc. and 129 gm. to 53 mg. per 100 cc. and 0 gm., respectively, requiring prompt reduction in insulin dosage from 40 to 25 units. This apparent improvement was short-lived, however.

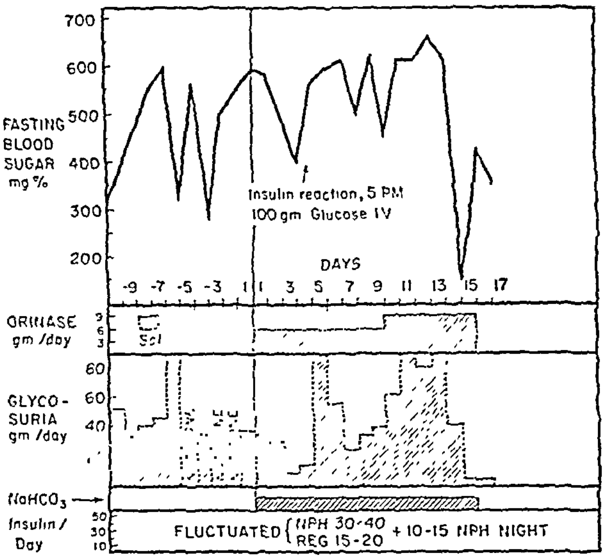


Fig. 2.—Therapy and course of patient 1, group 1 (see table), underweight, with labile diabetes of 11 years' duration, receiving inadequate doses of insulin (35 to 80 units). Addition of tolbutamide in doses of 6 and 9 gm. daily is associated with gradual deterioration of control and alarming episodes of hypoglycemic shock.

Group 2: In the patients in group 2 with moderately severe though stable adult diabetes, insulin withdrawal during the base-line period was followed by stabilization of the disease in a state of poor control, with fasting blood sugar levels of from 186 to 380 mg. per 100 cc. and daily glucose loss of from 25 to 80 gm. The administration of tolbutamide in doses as high as 12 gm. per day produced benefit in only one patient (see table, patient 6, group 2). In all other cases tolbutamide therapy was abandoned after two weeks and insulin therapy reinstituted in doses ranging from 15 to 45 units of isophane (NPH) insulin daily. Three of the four patients whose diabetes was clinically unresponsive had had favorable hypoglycemic responses to the test dose of tolbutamide when food was withheld on the first day of treatment. This responsiveness in the fasting state did not necessarily indicate clinical responsiveness on a calorically adequate diet.

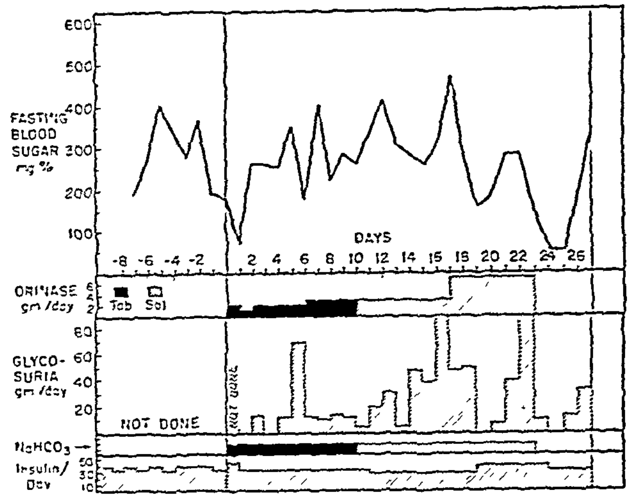


Fig. 3.—Therapy and course of patient 2, group 1 (see table), not obese, with labile diabetes of 10 years' duration, receiving inadequate doses of insulin. Progressive deterioration in control occurs while patient is receiving tolbutamide; its abrupt withdrawal was followed by apparent improvement of short duration.

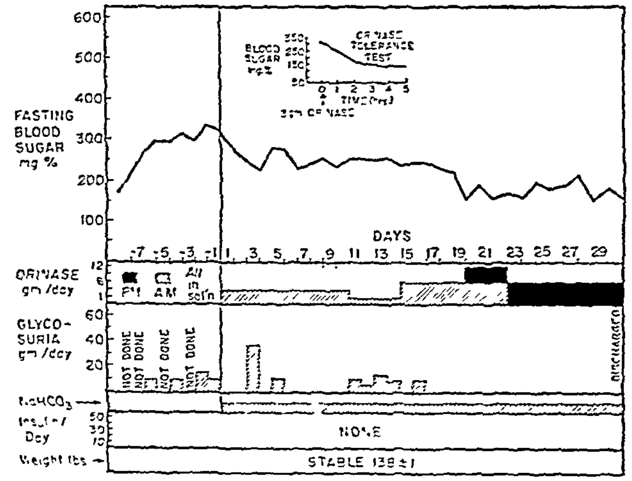


Fig. 4.—Typical chart of patient with tolbutamide-responsive diabetes (patient 3, group 3 [see table], not obese, with stable diabetes of 2½ years' duration and with old cerebrovascular accident), illustrating relationship of dosage and time of administration to therapeutic effect.

Group 3: Tolbutamide in doses of 3 gm. per day quickly diminished fasting hyperglycemia to levels well below 200 mg. per 100 cc. and completely eradicated glycosuria in the group 3 patients with mild adult diabetes, in all of whom the diabetes had been controlled on diet alone. It appeared that bedtime administration of the drug resulted in somewhat lower fasting blood sugar levels than did morning doses, but in most cases glycosuria ranging from 7.1 to 21 gm. per day before treatment disappeared, regardless of the time of administration. In one case (fig. 4) 6 gm. per day was necessary to suppress glycosuria completely. All patients in this group have been discharged, with instructions to continue taking 3 gm. of tolbutamide at bedtime, and their cases are being followed.

Group 4: The patients in group 4 with very mild adult diabetes were aglycosuric without any treatment, and their fasting blood sugar levels, though elevated, never exceeded 150 mg. per 100 cc. during the period of observation. All experienced significant hypoglycemic responses to test doses of tolbutamide, but reductions in these minimally elevated fasting blood sugar levels during tolbutamide therapy were not important enough to warrant prolonged administration of the drug. In one patient, amelioration of the oral glucose-tolerance curve was noted, though it remained distinctly diabetic in character. Since no treatment other than avoidance of sugar was warranted in these patients, it would seem unfair to consider them in the final analysis of the therapeutic efficacy of the drug.

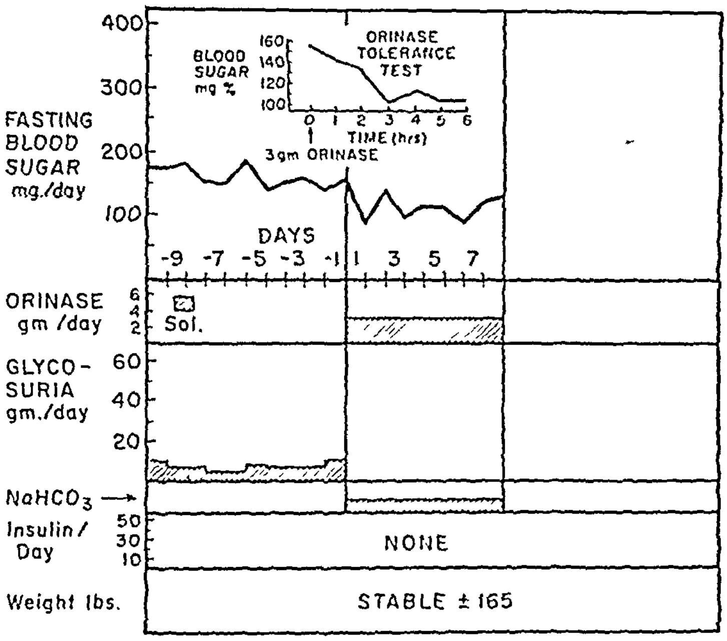


Fig. 5.—Typical chart of patient with mild, tolbutamide-responsive diabetes (patient 2, group 3 [see table], not obese, with stable diabetes of three weeks' duration).

Toxicity.—No untoward reactions were encountered in any of the 18 patients receiving tolbutamide. In none of the patients was weight loss, crystalluria, fever, or drug rash noted. No significant changes in complete blood cell counts, platelet counts, prothrombin times, hepatic function tests, urinalyses, determinations of cholesterol levels, sulfobromophthalein excretions, or I^{131} uptakes were observed during the period of hospitalization.

Clinical Evaluation

These results are essentially similar to those of previous authors. Any apparent differences result from variations in opinion as to the severity of diabetes and the indications for insulin administration. One source of error in evaluating the sulfonylureas stems from the fact that many patients with mild diabetes receive insulin unnecessarily, sometimes in rather large doses. Since in a surprising number of such patients the diabetes remains controlled after insulin withdrawal, abrupt substitution of a sulfonylurea drug for insulin without an intervening control period, as had been done in the earlier studies, can be misinterpreted as a favorable response and is not a valid method of study. A control period of insulin withdrawal should always precede the start of tolbutamide therapy in order to obtain a true picture of the therapeutic effect of the drug.

The questions of optimal dosage and time of administration require further study. It is our impression that 3 to 6 gm. of tolbutamide per day is needed in most patients to obtain maximal control. Bedtime doses, as might be expected, were superior to morning doses in lowering the fasting blood sugar level, though glycosuria was similarly suppressed by either. In one patient, premixing of tolbutamide with 0.5% sodium bicarbonate solution to form a 2% solution of tolbutamide seemed to be more effective than the tolbutamide tablets, and this method of administration was used in all subsequent cases. Sodium salts of tolbutamide may prove more effective by virtue of more complete intestinal absorption. A final observation of interest is that several patients with good hypoglycemic responses to test doses of tolbutamide given in a fasting state failed to have worthwhile clinical responses to identical doses given after they had resumed their diets.

Comment

The foregoing data seem to confirm previous clinical studies of the sulfonylureas and make possible certain tentative conclusions as to their current status in the treatment of diabetes mellitus. In the first place, it now seems abundantly clear that the sulfonylureas have no place in the therapy of labile diabetes. The danger of profound hypoglycemic reactions when insulin and sulfonylureas are given concomitantly to patients sensitive to insulin is considerable, particularly in the first week of therapy. Furthermore, there has been inadequate evidence that therapeutic benefit in this group ever occurs, and we have the impression that tolbutamide may at times aggravate the severity of the disease, as in the patient referred to in figure 3, whose condition seemed to deteriorate more rapidly when he was receiving large doses of the drug, but who improved dramatically when tolbutamide therapy was abruptly discontinued without change in insulin dosage or diet. It is possible that those sporadically reported patients with labile diabetes in whom sulfonylurea therapy seemed to permit a reduction in insulin dosage had been receiving overdoses of insulin prior to this. To eliminate this possibility, the insulin dosage should always be reduced to subminimal levels prior to the introduction of a second therapeutic agent.

The therapeutic activity of the sulfonylureas seems to be limited to stable diabetes, of which there were 15 cases in the present series. However, the three group 4 patients had diabetes that was too mild to have required treatment, and, although they "responded," the potential range of response was not wide enough to be considered worthwhile. Exclusion of these patients from consideration leaves 12 patients who had stable diabetes and who required treatment of some sort; in six cases insulin therapy had been necessary for adequate control of glycosuria, and in six diet alone had been effective. Of the six patients requiring insulin, in only one could the diabetes be controlled with tolbutamide, while in the group in which the diabetes was previously controlled by diet alone, all six responded to this drug In other words, of the seven patients with diabetes adequately controlled with tolbutamide (58% of the 12), only one had diabetes that was severe enough to have previously required insulin for control, while in all others the diabetes had been controlled with diet alone.

Speculation as to the ultimate place of the sulfonylureas in diabetotherapy is tempting though premature. Should long-term administration prove safe, most patients with stable diabetes would deserve a trial of sulfonylurea therapy. It is again emphasized that the drug should be given only after all previous treatment has been discontinued, so as to evaluate properly the therapeutic benefit. Thus, these drugs may make less stringent dietary restriction possible in many nonobese patients with stable diabetes, and to a lesser extent may replace insulin therapy in other patients with this type of diabetes who now require it for control. In addition it may provide an alternative to insulin therapy in certain obese diabetics who have been unsuccessful in attempts at weight reduction. One might, therefore, venture to predict a niche in the therapeutic spectrum between insulin treatment and dietary restriction A final observation of note was the failure of tolbutamide therapy to improve control of diabetes resulting from steroid administration.

Summary and Conclusions

In a study of the effect of tolbutamide (Orinase) therapy in 18 diabetics, daily oral administration of tolbutamide in doses of 3 to 6 gm. per day suppressed glycosuria and diminished fasting hyperglycemia in 7 of 12 patients with stable adult diabetes. All but one of the seven diabetics who responded to treatment had conditions that were mild enough to be adequately controlled by diet alone In only one case had insulin therapy been necessary for adequate control of the disease. Tolbutamide in large doses did not benefit patients with labile diabetes and caused hypoglycemic shock in one patient. One patient with diabetes provoked by steroid therapy did not benefit from tolbutamide.

Addendum

In continuing clinical trials of tolbutamide, two instances of skin reactions have been encountered. In one patient, diffuse erythema of the entire body appeared within four hours of the first dose but disappeared despite continued administration of tolbutamide. In the other patient, urticaria appeared but subsided without interruption of therapy.

4500 S. Lancaster Rd (2) (Dr. Unger).

The tolbutamide used in this study was supplied as Orinase by Dr C. J. O'Donovan of the Upjohn Company, Kalamazoo, Mich

Drs Donald W. Seldin and Holbrooke S Seltzer aided in the preparation of this report

References

1 Franke, H, and Fuchs, J Ein neues antidiabetisches Prinzip Ergebnisse klinischer Untersuchungen, Deutsche med Wchnschr 80: 1449-1452 (Oct 7) 1955

2 Bertram, F, Bendfeldt, E, and Otto, H Über ein wirksames perorales Antidiabeticum (BZ-55), Deutsche med Wchnschr. 80: 1455-1460 (Oct 7) 1955

3 Ridolfo, A S, and Kirtley, W R Clinical Experiences with Carbutamide, an Orally Given Hypoglycemic Agent, J A. M A 160. 1285-1288 (April 14) 1956

4 Miller, M, and Craig, J. W Hypoglycemic Effects of 1-Butyl-3-p-Toluene Sulfonylurea Given Orally in Human Diabetic Subjects (Preliminary Report), Metabolism 5 162-164 (March) 1956

5 Kinsell, L W, Brown, F R, Jr, Friskey, R W, and Michaels, G D Insulin Sparing Sulfonamides, Science 123: 585 (April 6) 1956.

6 Achelis, J. D, and Hardebeck, K. Uber eine neue blutzuckersenkende Substanz Vorläufige Mitteilung, Deutsche med Wchnschr 80. 1452-1455 (Oct 7) 1955

7. Orinase, Oral Hypoglycemic Agent, Kalamazoo, Mich, the Upjohn Company, 1956

8 Fajans, S S, and others Aryl *Sulfonylurea Compounds* in Normal Man and in Diabetic Subjects, Metabolism, to be published.

9 Louis, L H, and others The Structure of a Urinary Excretion Product of 1-Butyl-3-*p*-Tolylsulfonylurea (Orinase), to be published.

10 Mirsky, I A., Diengott, D, and Dolger, H · Hypoglycemic Action of Sulfonylureas in Patients with Diabetes Mellitus, Science 123: 583-585 (April 6) 1956 Footnotes 4 and 5.

11. Footnotes 1, 2, and 6

12. Mirsky, I. A, and Broh-Kahn, R. H.· Inactivation of Insulin by Tissue Extracts: I. Distribution and Properties of Insulin Inactivating Extracts (Insulinase), Arch. Biochem. 20: 1-9 (Jan.) 1949 Mirsky, I. A., and Perisutti, G. *Inactivation of Insulin by Liver Slices of Rat*, Endocrinology 52: 698-704 (June) 1953 Mirsky, I. A, Perisutti, G., and Dixon, F. J Destruction of I^{131} Labeled Insulin by Liver Slices, Proc Soc Exper. Biol & Med 86: 228-230 (June) 1954.

13 Elgee, N. J, Williams, R. H, and Lee, N. D. Distribution and Degradation Studies with Insulin-I^{131}, J Clin. Invest. 33: 1252-1260 (*Sept.*) 1954

14. Mirsky, I. A.. Role of Insulinase and Insulinase-Inhibitors, Metabolism 5: 138-143 (March) 1956.

15. Mirsky, I A, Perisutti, G, and Diengott, D.· Inhibition of Insulinase by Hypoglycemic Sulfonamides, Metabolism 5: 156-161 (March) 1956

15A Miller, W. L., Jr., and Dulin, W. E.: Orinase, a New Hypoglycemic Compound, Science 123: 584-585 (April 6) 1956.

16 Footnotes 1, 7, and 8

17 Vaughan, M In Vitro Studies on Action of Sulfonamide Hypoglycemic Agents, Science 123: 885-886 (May 18) 1956.

18 Folin, O Two Revised Copper Methods for Blood Sugar Determinations, J Biol Chem 82: 83-93 (April) 1929

Old Age.—The ability to learn "new things" declines with old age. There is more difficulty to comprehend visual or verbal stimuli which present new concepts and then to relate them to past experience. New situations, heretofore never experienced, calling for a new approach are troublesome to oldsters. In old age, tasks are more slowly performed, but accuracy and quality of performance may be better. The older person will do less well under time-stress. Rapid perception and motor coordination, known as "reaction time," decline with old age. Recent and immediate memory functions less well. Sensory acuity is often *diminished. However, reasoning ability,* finesse, "experience," and creativeness remain strong. Many years of living may bless one with a sensible sort of judgment and practical wisdom exercised very usefully in the affairs of everyday life. When abilities involving speed and time stress are removed, the difference of functioning between older and younger persons is less marked. It is noteworthy that some people "mellow" as they grow older. There occurs a passive but seemingly happy acquiescence, riding along with life and age as they come rather than fighting them The relief from responsibility, competitiveness, action and aggressiveness of youth appears welcome. A serene philosophy of life seems gradually to have accumulated. Somehow, continued everyday living has been of therapeutic and maturing value so that oldsters may be more comfortable within themselves than they were when they were younger.— J. A. Aita, M.D., The Ingredients of Old Age, *The Nebraska State Medical Journal,* May, 1956.

ACCIDENTAL CHEMICAL POISONINGS IN CHILDREN

Harold Jacobziner, M.D., New York

• *The possibility of preventing accidental poisoning (by chemicals other than illuminating gas) was studied by analyzing 454 cases that occurred in children under the age of 16 in New York City in 1954. Drugs were responsible for 47% of all poisonings, with aspirin ranking first and barbiturates second in this category. Among other chemicals, household bleaches were the chief offenders. Of the total of 454 cases, 84% occurred in children of the 0-3 year age group, and in this group lead was the responsible substance in 87% of the cases. Investigation of the circumstances generally revealed certain household practices as being at fault; in some environments the careless handling of materials, poor choice of storage places, and reckless changing of containers made eventual poisoning so likely that it could hardly be called accidental. Sanitary inspectors obtained valuable information, and visits by public health nurses proved effective in eliminating hazards. The physician can provide considerable health education during office visits, but he can also do much by observing existing health hazards during his home visits.*

Chemical poisonings (excluding those due to gas) are the third leading cause of death in children under 6 years of age in New York City. More children in this age group died from accidental poisonings in 1953 in New York City than from the following communicable diseases combined: measles, rubella (German measles), rheumatic fever and other streptococcic infections, poliomyelitis, diphtheria, whooping cough, and scarlet fever. During the same period 400 such deaths were reported in the same age group for the United States as a whole.[1] It is significant that the death rate from accidental poisoning in this group in the United States is fourfold that prevailing in England.[2]

The ever-increasing number of new chemical substances, drugs, and household preparations that appear on the market daily and soon find their way into homes influence the incidence of, and are perhaps responsible for, the substantial rise in accidental chemical poisonings. This study was designed to define and identify the various determining biological and environmental factors and to obtain more precise information on the epidemiology of fatal and nonfatal accidental poisonings.

Method of Study

Epidemiological investigations were made on 454 patients treated at hospitals. These investigations included hospital and home visits by sanitary inspectors of the environmental sanitation services. In selected cases, home visits were also made by public health nurses[3] and, in the case of lead intoxication, by epidemiologists of the bureau of preventable diseases. The analyses included identifying data, age, sex, race, type of poison, brand name (if any), location of poison, whether self-administered or given by another individual, amount ingested, symptoms, type of treatment (outpatient department or inpatient department), hospital diagnosis, laboratory determinations, and other pertinent remarks. This report is limited to 454 cases of chemical poisoning and 80 cases of lead intoxication, and only verified hospital diagnoses are included.

Results

The changes and variations with age are shown in table 1. The largest number of poisonings occurred in persons aged one; cases in this age group accounted for 34% of all poisonings. The next most dangerous age was 2 years. Aspirin was the chief offender in persons aged 2 and 3. Nearly 84% of all reported poisonings in children under 16 years of age occurred in children aged 1 to 4. The high incidence in this age group is undoubtedly related to the child's stage of growth and development. While given to exploration, the child has not yet learned through experience sufficient caution nor has he received the necessary education or protection from the adults in the family.

Types of Agents.—The various types of poisonings are listed in table 1. The number of individual substances involved is so numerous that a grouping by categories is necessary. Drugs were responsible for 47% of all poisonings in this study. Aspirin, particularly flavored or candied, was the chief offender, accounting for 75 occurrences, or 16.5% of all poisonings. Barbiturates were the next most frequent offenders in this category, followed by cosmetics. Of the household preparations, bleaches were the agents chiefly involved, accounting for 34 occurrences, followed by benzine and kerosene. Aspirin, barbiturates, bleaches, benzine, kerosene, lye, rodenticides, and insecticides

TABLE 1.—*Cases of Accidental Chemical Poisoning, by Age of Patient*

Type	Total	Under 1 Yr.	1 Yr.	2 Yr.	3 Yr.	4-9 Yr.	10-15 Yr.	Unknown
Drugs	213	11	40	71	43	29	16	..
Aspirin	75	5	9	32	20	7	2	..
Barbiturates	21	1	3	7	3	3	4	..
Other	117	5	28	35	20	19	10	..
Cosmetics	15	1	7	4	1	2	..	..
Household preparations	180	6	88	54	14	16	1	1
Benzine	19	..	8	8	..	3	..	..
Bleach	34	..	11	14	3	5	..	1
Kerosene	18	1	14	2	..	1	..	..
Lye	15	1	4	3	4	3	..	..
Other	94	4	51	27	7	4	1	..
Insecticides and rodenticides	46	5	18	9	6	4	3	1
Mouse seeds	15	1	6	4	3	..	1	..
Other	31	4	12	5	3	4	2	1
Total	454	23	153	141	64	51	20	2

Assistant Commissioner, Maternal and Child Health Services, Department of Health, City of New York.

Read before the Ninth Clinical Meeting of the American Medical Association, Boston, Nov. 30, 1955.

were responsible for over 50% of all poisonings. Thus, if elementary precautionary measures had been taken with regard to these substances, over 50% of chemical poisonings in children would have been avoided.

Sex and Race.—Table 2 shows that 52% of the poisonings occurred in males and 48% in females. This is not statistically significant and could be ascribed merely to a chance occurrence. A significantly higher prevalence (25.5%) is observed (table 2) in nonwhite than in white children, a much higher incidence than would be expected from the composition of the general population, which is approximately 15% nonwhite. This observation is in agreement with findings of previous studies.[4]

Type of Treatment Agency.—Over 95% of the children were treated in hospitals and the majority (62.5%) in the emergency outpatient department facilities (table 3).

Fatalities.—Among the 454 cases investigated, exclusive of lead and gas poisonings, one death occurred. This death was due to salicylate intoxication in an 11-month-old girl who reportedly received about 100 grains (6.6 gm.) of aspirin in 48 hours. It was administered by the mother, who treated the baby for a condition that she diagnosed as a "cold and fever." No physician was in attendance, and the patient was dead on arrival at the hospital.

TABLE 2.—*Cases of Accidental Chemical Poisoning, by Sex and Race of Patient*

		White		Nonwhite		Unknown		
Type	Total	Male	Female	Male	Female	Male	Female	Unknown
Drugs	213	49	45	23	24	38	33	1
Aspirin	75	17	21	6	6	13	12	..
Barbiturates	21	5	8	3	1	3	1	..
Other	117	27	16	14	17	22	20	1
Cosmetics	15	2	3	4	2	2	2	..
Household preparations	180	37	29	25	25	36	24	1
Benzine	19	6	3	2	4	2	2	..
Bleach	34	6	3	5	7	8	5	..
Kerosene	18	4	3	5	3	2		1
Lye	15	2	3	2	2	2	4	.
Other	94	19	17	11	12	22	13	..
Insecticides and rodenticides	46	10	9	4	5	7	11	.
Mouse seeds	15	1	5	2	1	2	4	..
Other	31	9	4	2	4	5	7	..
Total	454	98	86	56	59	83	70	2

Location of Injurious Agent.—Forty per cent of all poisonings studied were due to injurious agents that were available in open places, such as floor, sink, table, dresser, open shelf, and chair (table 4). In an additional 74 occurrences (16%), the agents were located in closed places, such as dresser, cabinet, shelf, and drawer. Many of these places were unlocked and within the child's reach. Accidental poisonings occur in direct proportion to the degree of accessibility of the toxic substances, as has been suggested previously.[2b]

Seasonal Distribution.—Poisonings were more frequent (60%) in the first six months of the year (table 5). The reason for this is not quite clear; however, it is impossible to draw valid conclusions on the basis of one year's experience.

Lead Poisonings

A total of 80 verified cases of lead poisoning occurred in 1954. A confirmed diagnosis by the bureau of preventable diseases includes a history of ingestion of a lead-containing substance, pica, clinical findings, an analysis of a sample of the substance ingested for lead content, and analyses of blood lead levels or lead content in organs. It may also include x-ray determinations and examination for basophilic stippling. It is not implied that all criteria were confirmed in each case. In table 6 are presented pertinent data relating to age, sex, and race distribution.

TABLE 3.—*Cases of Accidental Chemical Poisoning, by Treatment Agency*

Type	Total	Out patient Department Only	In patient Department Only	Outpatient-Inpatient Departments	Dead on Arrival	Unknown
Drugs	213	135	71	..	1	6
Aspirin	75	49	25	..	1	..
Barbiturates	21	4	16	..	..	1
Other	117	82	30	..	..	5
Cosmetics	15	9	3	1	..	2
Household preparations	180	117	57	2	..	4
Benzine	19	15	4	..	..	..
Bleach	34	26	7	..	..	1
Kerosene	18	9	9	..	..	..
Lye	15	7	8	..	..	.
Other	94	60	29	2	..	3
Insecticides and rodenticides	46	23	22	..	..	1
Mouse seeds	15	8	7	..	..	.
Other	31	15	15	..	..	1
Total	454	284	153	3	1	13

The highest incidence of lead poisoning was found in persons aged 2, followed by those aged one and then aged 3. Persons in this age group accounted for 87.5% of the total. No difference in incidence by sex was observed in this series. There was, however, a striking variation by race. Thirty-five per cent of the cases occurred in nonwhite children, a significantly higher percentage than would be expected from the general population composition. An analysis of lead poisonings in children admitted for treatment in municipal hospitals during 1954 shows an even greater race difference, with 55% in the nonwhite group (table 7). The municipal hospitals, however, serve a large

TABLE 4.—*Cases of Accidental Chemical Poisoning, by Location of Agent*

Type	Total	Medicine Chest	Other Closed Places	Open Places	Miscellaneous	Unknown
Drugs	213	28	38	67	3	77
Aspirin	75	14	15	23	2	21
Barbiturates	21	..	4	3	..	14
Other	117	14	19	41	1	42
Cosmetics	15	1	2	7	1	4
Household preparations	180	1	31	80	11	57
Benzine	19	..	3	11	1	4
Bleach	34	..	4	16	1	13
Kerosene	18	..	1	11	..	6
Lye	15	1	2	5	..	7
Other	94	..	21	37	9	27
Insecticides and rodenticides	46	1	3	30	1	11
Mouse seeds	15	1	2	12	..	..
Other	31	..	1	18	1	11
Total	454	31	74	184	16	149

segment of this population, which may explain in part the high nonwhite incidence in this group. It is interesting that there was a marked preponderance of females in this group. This is particularly difficult to explain, since the citywide figures did not reveal any sex distribution difference. It is possible that the female in this population group is more vulnerable to the effects of lead intoxication. The number of cases is, of course, too small for any valid conclusions. Thirteen deaths resulted from lead intoxication in children under age 16; no deaths were reported in children 6 years of age or older (table 8). Over 76% of he fatalities occurred during the summer months, me to September. The reason for this seasonal disibution is still obscure and deserves greater scrutiny. Metabolic disturbances and dehydration may be contributory factors.

TABLE 5.—*Cases of Accidental Chemical Poisoning, by Month, 1954*

Type	Total	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Unknown
Drugs	213	22	24	22	17	23	14	13	9	15	12	19	19	4
Aspirin	75	4	9	11	9	6	4	5	..	2	4	11	9	1
Barbiturates	21	2	1	1	1	7	1	1	2	..	2	2	..	1
Other	117	16	14	10	7	10	9	7	7	13	6	6	10	2
Cosmetics	15	1	4	2	1	1	..	..	1	1	..	3	1	..
Household preparations	180	22	11	18	19	16	23	13	18	10	11	8	9	2
Benzine	19	3	1	5	2	2	2	..	1	1	1	1	..	..
Bleach	34	5	5	3	3	1	4	..	5	2	2	1	2	1
Kerosene	18	2	1	1	3	4	3	1	2	..	..	..	1	..
Lye	15	1	..	..	2	3	3	1	1	2	..	..	2	..
Other	94	11	4	9	9	6	11	11	9	5	8	6	4	1
Insecticides and rodenticides	46	2	6	4	9	4	5	4	3	1	2	3	3	..
Mouse seeds	15	1	4	2	2	2	1	1	1	..	1	..	..	..
Other	31	1	2	2	7	2	4	3	2	1	1	3	3	..
Total	454	47	45	46	46	44	42	30	31	27	25	33	32	6

Lead poisoning is not an uncommon disease in young children, and often it may be asymptomatic and undiscovered. Encephalitis may occur even before any mild symptoms characteristic of early lead poisoning have developed, such as weakness, irritability, headache, anorexia, pallor out of proportion to the anemia, and vomiting. It was also observed recently that, when other young children are examined in a household where a case of lead poisoning is diagnosed, these children, though entirely asymptomatic, may also show evidence of lead intoxication in laboratory blood and urine lead investigations. This is understandable, since these children are subject to the same environmental factors, such as substandard housing in which paint containing lead is used and where plaster flakes, wall plaster, and paint peelings from window sills are easily accessible.[5]

TABLE 6.—*Cases of Lead Poisoning, by Age,* Race, and Sex*

			Age Yr					
		Total	1	2	3	4	5	6
Male	White	16	4	5	5	..	1	1
	Nonwhite	15	4	8	2	..	1	..
	Unknown	9	3	4	..	..	2	..
	Total	40	11	17	7	..	4	1
Female	White	14	3	8	2	1	..	..
	Nonwhite	13	3	3	4	2	1	..
	Unknown	10	2	5	2	1	..	..
	Total	37	8	16	8	4	1	..
Unknown	White	3	1	2	..	..	..	..
	Total	3	1	2	..	..	..	..
Total.................		80	20	35	15	4	5	1

* No patients age 7 or older.

Multiplicity of Toxic Substances Involved

Ninety distinct types of substances, from aspirin to liniment, representing 164 different brands, were responsible for the 454 poisonings reported. For example, there were 7 brands of perfume, 8 brands of rodenticides, 12 brands of insecticides, and 10 different types of bleach preparations. (For convenience in analysis, these were placed in the categories represented in the tables.) This highlights the large number of products available in the American home, all of which if misused may be responsible for fatal and nonfatal mishaps.

Misplacing and Misuse of Agents

The removal of a substance from the original container and its transfer to a household utensil was a contributory factor to the occurrence of many serious poisonings; for example, iodine stored in an antacid bottle. Household bleach, one of the most common offenders, was found stored in a mayonnaise jar, drinking glass, soda bottle, or baby's bottle; gasoline and white gas were stored in coffee cans and cola drink bottles. In 14 instances kerosene was not in the original container but in a glass jar, drinking glass, coffee pot, cola drink bottle, and glass pitcher to catch drippings from the stove. Lye was left on a spoon after use, in a measuring cup, and in a tin box; paint was found in tin cans, coffee cans, and garbage cans; and turpentine was stored in glass jars, soda bottles, teacups, soup can, and glass containers. Gentian violet pills were ingested by three children in one family who thought they were candy. Insecticides were found spread on paper, on potatoes, and in cola bottles. Mouse seeds, which were involved in 15 occurrences and which contain 0.5% strychnine, were found in kitchen dishes, saucers, and other places. In only three instances were they found in the original containers. Rat poison was found in paper cups.

In addition, all these poisons were easily accessible to children, since they were stored, in the main, on the floor, in the sink, on the table, in open ledge cabinets, and in washtubs. One incident occurred when a home-made soap containing lye and fat was put in a basin in the sink to cool off and a 2-year-old boy obtained the basin and ingested some of its contents.

Home Visiting

Sanitary inspectors and public health nurses, in addition to obtaining valuable epidemiological information on the many whys and wherefores of poisoning causation during their home visits, also found a high degree of ignorance on the part of parents and other adults in the family concerning the potential hazards of drugs and household preparations. Parents were also woefully ignorant about the danger of children eating wall plaster, paint flakes, and paint from window sills. Visits to the home by public health nurses on accidents are invaluable. Nurses are readily accepted into homes, and families are willing to give them information and to obtain needed aid and guidance.

TABLE 7.—*Cases of Lead Poisoning in Children Admitted for Treatment in Municipal Hospitals, by Age, Race, and Sex*

			Age, Yr.				
		Total	1	2	3	4-9	10-15
Male	White	8	4(1)*	...	1(1)	3	...
	Nonwhite	15	1	6	5(1)	3	...
Female	White	21	4	14(1)	2	1	...
	Nonwhite	21	5	5	5	6	...
Total		65	14	25	13	13	...

* Figures in parentheses indicate number of fatalities.

The public health nurse has been skillful in motivating families not only to institute needed safety measures but to follow through promptly on any other health problems. Referrals to appropriate treatment agencies for either prenatal care or health supervision and immunization of infants and young children were made in practically every case. Following are excerpts from a typical report by a nurse about an episode of a one-year-old child ingesting furniture polish.

> The child swallowed furniture polish. He and his sister had been left alone for a few minutes while his mother was in the basement. His crying summoned the mother, who telephoned the family physician. . . . The parents sleep in the living room on the couch. There is a large kitchen between the living room and the children's bedroom. It is the room in which the accident happened. The polish is kept in the cabinet near the floor. The children undid the small towel tied in a knot over the door handles of the cabinet, a makeshift expedient intended to serve as a lock.
>
> The apartment was inadequately wired. Sockets were overloaded. This was pointed out and the fire hazard stressed. A lamp cord in the living room was badly frayed. It was within easy reach of the children. Danger of severe shock, burns, and electrocution was pointed out to the mother. She was informed that the same danger existed when the electric cleaner, the iron, the toaster, or any electrical appliance was plugged into the socket, if the connecting cord was broken or frayed. The lamp was disconnected by the mother and put aside. It was emphasized, and the mother agreed, that the wooden gate at the head of the cellar stairs was at best a precautionary measure; likewise the fence surrounding the premises. The mother agreed that eternal vigilance and supervision of the children is the only safety measure that can be depended on.
>
> The mother was advised to follow her private physician's advice concerning overweight. She weighs 209 lb. She was advised to observe the diet prescribed. Nurse plans to visit again to issue literature on safety and obesity, to assist the mother to become more safety minded, and to help her in following her doctor's recommendations.

Nurses are thus not limiting their efforts on home visits to safety alone nor to the child population concerned but are actually translating this experience and their enthusiasm into action in all of their many other activities and are thus making a notable contribution to the prevention of all types of accidents in all age groups and to public health in general.

How Accidents Happened

Except in 32 incidents, children ingested the toxic substance because it was easily accessible and within their reach. Of the other 32 incidents, 9 were suicidal attempts in older children. The agents involved were mainly barbiturates, though iodine, roach powder, and aspirin were also incriminated. In three other instances older children, 13 to 15 years of age, took the toxic substances mistakenly for other medicaments, such as eye drops for nose drops, iodine because it was in an antacid bottle, and a rodenticide containing strychnine that was found on a shelf and mistakenly taken for tea. The remaining 21 cases were due to the administration of the toxic substance to infants varying in age from 11 days to 2½ years by adults or older siblings, either as overdosages or as mistaken medicaments.

Effect of Socioeconomic Factors

While no ethnic, religious, racial, or socioeconomic group is exempt, the risk was found to be considerably higher in the nonwhite group and in the lower socioeconomic levels. It is believed that the higher incidence in the nonwhite group is not due to any genetic or inherent constitutional factors but is merely a reflection of socioeconomic status. Ignorance, substandard housing, and overcrowding are definitely predisposing factors. A distinct correlation exists between substandard housing and lead poisoning, since most of the poisonings occurred in low socioeconomic areas where wall plaster, paint flakes, and window sill paint peelings containing lead were ingested by young children. It is possible, however, that the disparity may not be as great as is apparent, since many poisonings in the higher socioeconomic areas may not be reported.

TABLE 8.—*Total Fatalities from Lead Poisoning in New York City in 1954, by Age, Race, and Sex*

			Age, Completed Yr.				
		Total	1	2	3	4	5
Male	White	5	...	3	1	...	1
	Nonwhite	2	1	...	1	...	...
Female	White	4	1	2	1	...	...
	Nonwhite	2	2	...	...	...	...
Total		13	4	5	3	...	1

Underreporting of Poisonings

Though reporting of poisonings due to drugs and of inhalation or ingestion of toxic agents is mandatory in New York City, the law has been observed chiefly by nonobservance both by hospitals and by practicing physicians. Only a small fraction of such cases were reported prior to the establishment of the Poison Control Center in March, 1955. The previous underreporting is evidenced in many ways: 1. While previously only several hundred episodes were reported annually, over 2,200 such incidents were reported to the Poison Control Center in an eight-month period. 2. During 1954, 14 municipal hospitals alone admitted on their wards 304 children under 16 years of age for the treatment of poisoning. In another six-month period, 128 children between 1 and 4 years of age with poisoning were admitted on wards of municipal hospitals.[6] 3. Twenty-six deaths from poisoning were reported in children under age 16 in New York City during 1954. It is conservatively estimated that for every fatal case there are about 150 nonfatal occurrences.[7] Thus, the actual number of accidental poisonings in New York City is perhaps over 4,000 annually.

Preventability

All accidental poisonings herein reported were carefully scrutinized, and, exclusive of the few suicidal attempts, it was definitely determined that they were all preventable; in no instance could it be established that the case was unavoidable.

Comment

"Accidental poisonings" are not accidental. It would have been an accident indeed if a poisoning had not taken place in most of the incidents studied. All the prerequisite ingredients for the occurrence of an accident were present; i. e., a toxic substance, an inexperienced host, and an unsafe environment. In many cases the total environment was so manipulated that an occurrence was unavoidable. Although I do not wish to minimize the importance of proper labeling of contents, it is doubtful whether this measure alone will help materially to reduce the large number of needless poisonings, as many persons do not read the label, many cannot read it, and many do not find the label content meaningful.

Though there is still a paucity of knowledge about nonfatal poisonings, a formidable body of information already exists about fatal poisonings, which, if appropriately applied, would aid in the reduction and control of chemical poisonings. The control of chemical poisonings is a collective responsibility and requires the skills and concerted action of many professions and disciplines. It is not merely a medical or paramedical problem alone, but one of engineering, industry, public health, sanitation, education, law enforcement, housing, social work, and basic investigative research. It is strongly believed that the basic epidemiological tools that have proved so potent in the control of communicable diseases will prove just as effective in the control of poisonings, for accidental poisonings also follow a distinct epidemiological pattern.[8] It is not enough to study the toxic agent, its pharmacological action, and its specific antidote, if any. A sound preventive program implies a thorough knowledge of all the facts about the agent, host, and environment—where, when, why, and to whom chemical poisonings happen.

Solving the Problem.—The prevention of chemical poisonings is a difficult, multifaceted, and complex problem; but it is capable of solution. The problem must be properly identified and defined and appropriate countermeasures applied to the most vulnerable population and to areas with the greatest need. A relentless war must be waged on all fronts in order to reduce the large number of needless poisonings.

What the Practicing Physician Can Do.—Though the modern physician no longer limits his practice to therapeutics but engages extensively in preventive medicine, there is still a wide lack of sufficient awareness and interest on the part of many physicians to incorporate home safety and accident prevention as an integral part of their daily practice. While the health and protection of children are primarily responsibilities of the family, the physician has a distinct obligation as health advisor and counselor to the family in helping it to obtain an ideal state of well-being and optimal health for its children. Working with people and disseminating knowledge and health promotion are not strange roles to the practicing physician. These activities have served him well in the control of many illnesses, and it is believed that they will be equally effective in the control of chemical poisonings.

Health Education: Health education is of incalculable aid in any health program, but it is essential in an accident control program. Reliable and precise information, without any overdramatization, on all the factors and forces responsible for the many needless chemical poisonings must be provided and told by the physician in a simple but effective manner. Parent, adult, and child education about the hazards of medicaments and household preparations will prove a potent force in preventing many poisonings. While it is not easy to alter genetic or biological factors, habits, and attitudes, environmental factors can be altered. Because of the family physician's intimate knowledge of the child's growth and development, the family's cultural and social background, the family's customs and traditions, the total home environment, and the parents' and child's habits and attitudes, the physician is in a most strategic position to become a dominant member of the poisoning-prevention team.

The physician must assume his obligation and become better informed by obtaining a wider knowledge about the health hazards of drugs and the many household preparations. This knowledge should not only be with regard to symptomatology and therapeutics involved; it should be used to continually educate parents and children on the potential hazards of these substances. Physicians can provide considerable health education and guidance during office visits for periodic health supervision and for immunization against communicable diseases. The physician also has a rare opportunity to practice health education and preventive medicine at its best during his home visits for the care of the sick. While in the home he can carefully observe any existing health hazards and influence parents on the need to acquire safe habits and attitudes and to institute and maintain safety precautions in and about the home in order to safeguard the lives and the well-being of their children.

Careful and Specific Directions: Careful and specific directions should be given to parents by the physician when medicaments are prescribed. Only small quantities to fill immediate need should be prescribed.

Parents should be strongly advised to keep medicaments and all household preparations in the original containers under lock and key and out of reach of children. Parents should also be advised by physicians at every opportunity against self-medication.

Other Measures: The physician can also aid immeasurably by prompt and complete reporting of all accidental poisonings in persons under his care to the local health department. The epidemiological data thus obtained will serve as important guides for sound preventive programs. As a member of the local medical society, a physician can be helpful in influencing the establishment of a poison control center in his community. As a leading citizen in the community, the physician can also aid in motivating community groups, both public and voluntary, to mobilize their efforts in solving the problem of chemical poisonings.

Summary and Conclusions

Four hundred fifty-four cases of accidental chemical poisoning (excluding those due to gas) occurred in children under 16 years of age in New York City in 1954. Of the total number, 84% occurred in persons in the age group 0-3 years. The high incidence in this age group is related to the child's exploratory nature coupled with inexperience and lack of caution. Drugs were responsible for 47% of all poisonings, with aspirin as the chief offender and barbiturates as the second leading cause in this category. Bleaches were the chief offenders of the household preparations.

No significant sex differences in incidence were observed, but a striking difference was noted in incidence by race, with cases in nonwhites greatly predominating. This possibly reflects socioeconomic conditions, such as substandard housing and overcrowding, rather than inherent constitutional differences.

Lead intoxication was observed most frequently in persons in the age group 1-3, cases in this group accounting for 87% of the total. Over 76% of the fatal lead poisonings occurred during the months June-September. Removal of substances from the original container and transfer to a household utensil was a contributory factor in many poisonings. A disproportionate number of accidents occurred in the poor socioeconomic areas. Lack of adult supervision and disregard of elementary precautions were frequently observed. Ignorance on the part of families about hazards of chemical preparations was a contributing and predisposing factor.

Prevention of poisoning requires a team approach. It is a medical, social, and community problem, and all skills and disciplines must play a part in its solution. A comprehensive and dynamic program is needed, with stress on the most vulnerable group, areas of greatest need, and the most common offending agents. Further investigative research is needed on all aspects of the problem. A comprehensive, effective program of education is imperative. The family physician is a key person in prevention of poisoning, and health education is the keystone.

125 Worth St. (13).

Helena Richards, Ph.D., Sanitarian, and Herbert Rich, Senior Statistician, aided in compiling the data for this study.

References

1. Accident Facts, Chicago, National Safety Council, 1954.

2. (*a*) Bain, K.: Death Due to Accidental Poisoning in Young Children, J. Pediat. 44:616-623 (June) 1954. (*b*) Swinscow, D.: Accidental Poisoning of Young Children, Arch. Dis. Childhood 28:26-29 (Feb.) 1953.

3. Jacobziner, H., and Rich, H.: Home Safety and Accident Prevention in a Child Health Conference, Am. J. Pub. Health 44:83-93 (Jan.) 1954.

4. Jacobziner, H.: Accidents—a Major Child Health Problem, J. Pediat. 46:419-436 (April) 1955.

5. Jacobziner, H.: Poison Control Center in New York City, Bull. M. Soc. County of Kings 34:525-527 (July) 1955.

6. Fraenkel, M., and Erhardt, C. L.: Morbidity in Municipal Hospitals of the City of New York: Report of Exploratory Study in Hospital Morbidity Reporting, New York, Russell Sage Foundation, 1955.

7. Accident Facts, Chicago, National Safety Council, 1953.

8. Gordon, J. E.: Epidemiology of Accidents, Am. J. Pub. Health 39:504-515 (April) 1949. Roberts, H. L., and Gordon, J. E.: Home Accidents in Massachusetts: Study in Epidemiology of Trauma, New England J. Med. 241:435-441 (Sept. 22) 1949.

CLINICAL NOTES

CLINICAL EVALUATION OF A NEW NEUTRAL DETERGENT BAR

Frederick Swanson, M.D., New York

The use of cleansing agents on the skin is designed to remove all exogenous agents deposited on its surface as well as some of the materials that have been produced by the skin itself (e. g., sebum, sweat, and scales). The conventional cleansing agents, namely, the toilet soaps, fulfill these requirements in an eminently satisfactory fashion on most normal skins. On skin that is abnormally dry, sensitive, or diseased, however, the common toilet soaps not infrequently cause irritation and produce a sensation of excessive dryness, burning, and also, at times, itching. These undesirable effects of soaps on sensitive and abnormal skins are in part, at least, attributable to their alkalizing action in aqueous solution. Since soaps are salts of the weakly ionized fatty acids and the strongly ionized alkalis, an alkaline solution always results on hydrolysis. This alkaline solution is generally well tolerated when soaps are used within reason on "normal" healthy skin, for the surface of the healthy skin, by means of surface acids, buffer systems, and other homeostatic mechanisms, is able to maintain or recover its required acid pH, which ranges from about 3.5 to 6.0. However, the normal acidifying mechanisms are almost always impaired when the skin is damaged, inflamed, diseased, or in other ways abnormally sensitive; and it is then that the damaging effects of the alkaline soap solutions are most likely to occur. Because of these undesirable characteristics of ordinary soaps, dermatologists for many years have recommended that patients sensitive to soap use detergents that have an acid or neutral pH. While these are not entirely free from harmful effects on the skin, they lack one of the principal undesirable properties of soaps, i. e., their alkalizing action. Among the drawbacks that have interfered with the more widespread acceptance of many of the nonalkaline detergents is the fact that their lathering properties

---

From the Department of Dermatology and Syphilology (Dr. Marion B. Sulzberger, Chairman) of the New York University Post-Graduate Medical School and the Skin and Cancer Unit of University Hospital.

often are poor and that, with one or two exceptions, they have been available only in liquid form rather than in the much handier and more practical cake or bar form to which the users of toilet soaps are accustomed.

TABLE 1.—*Tolerance to Neutral Detergent Bar in Patients with Various Dermatoses*

	Total No. of Subjects	Tolerance: Good No.	Good %	Poor No.	Poor %
Group 1—Dermatoses that are often intolerant to toilet soaps					
Atopic dermatitis (including infantile eczema)	50	46	92	4	8
Eczematous eruptions (including contact dermatitis, nummular eczema, "housewives' eczema")	59	44	74	15	26
"Dry skin"	26	22	85	4	15
Group 2—Dermatoses that are sometimes intolerant to toilet soaps					
Miscellaneous (irritated psoriasis, seborrheic dermatitis, rosacea)	26	22	85	4	15
Group 3—Dermatoses that are usually tolerant to toilet soaps					
Acne vulgaris and acneform eruptions	39	38	97.5	1	2.5
Total	200	172	86	28	14

Recently a mild neutral detergent bar has been evaluated by us in a series of human subjects. This bar (Dove), which lathers very well, contains as its active ingredient an anionic detergent, an acyl isethionate, which is made by condensing fatty acids with sodium isethionate. It is combined with a fatty acid emollient and plasticizer along with perfume and other minor ingredients. Dove lathers are essentially neutral (pH 7), unlike soaps that give lathers with an alkaline reaction (pH 10). The 200 subjects in whom the neutral detergent bar was evaluated were dermatological patients, many of whom were deliberately selected because they were suffering from dermatoses that are notoriously intolerant to soaps. In addition to receiving whatever other treatment was indicated for their dermatosis, they were to use the neutral detergent bar as the sole cleansing agent. The evaluation of the skin's tolerance of the neutral detergent bar was based upon clinical observations regarding the occurrence of irritation, including erythema, dryness, scaling, fissuring, or worsening of the patient's dermatosis, as well as upon the subjective response of the patients, such as development of dryness, burning, itching, or "tightness" of skin. At least during the first month or two of the therapeutic trials, the patients were seen at intervals of one to two weeks. In those instances where there was doubtful tolerance of the neutral detergent bar, patients were told to continue its use until tolerance or intolerance had been established.

The test subjects were divided into three groups, on the basis of what was known regarding tolerance of their dermatoses to commonly used toilet soaps: Group 1 consisted of those who had dermatoses that often are intolerant to toilet soaps (such as atopic dermatitis, infantile eczema, contact dermatitis, nummular eczema, "housewives' eczema," eczematous fungous infections, dermatitis of the hands, excessive dryness of the skin, pruritus senilis, and winter itch eczema). Group 2 consisted of those who suffered from dermatoses that are sometimes intolerant to toilet soaps (such as seborrheic dermatitis, intertrigo, and irritated and relatively acute forms of psoriasis). Group 3 consisted of those who had dermatoses that are usually tolerant to, and in fact often benefited by, the use of toilet soaps (such as acne vulgaris, acneform eruptions, and seborrhea).

Results

The results in these three groups of patients are presented in table 1. As is well known, toilet soaps are generally less well tolerated by older people, because their skin naturally tends to be relatively dry. Moreover, it was of interest to assay the tolerance to the neutral detergent bar of infants and very young children. For purposes of comparing the skin tolerance to the neutral detergent bar in the various age groups, the 200 subjects under study were divided into three age groups, as shown in table 2. No evidence of allergic sensitization was observed in any of the 200 test subjects, nor in many hundreds of other subjects with and without skin diseases who have used the neutral detergent bar but who are not included in this report.

Comment

The results presented in table 1 show that 86% of all the dermatological patients tolerated the neutral detergent bar, while 14% had poor tolerance. A distinct difference was noted in tolerance between the three groups: patients in group 1 (atopic dermatitis, eczema) showed poor tolerance in 17% of cases, and patients in group 2 (seborrheic dermatitis, irritated psoriasis) showed poor tolerance in 15% of cases, while only 2.5% of the patients in group 3 (acne, seborrhea) did not continue use of the neutral detergent bar. These figures must, of course, be considered in the light of what probably would have been the reaction of these subjects' skin to regular use of toilet soaps. All the test subjects had dermatological difficulties, and four-fifths of them were suffering from dermatoses that are either always or often intolerant to or aggravated by soaps. The fact that most subjects were able to use the neutral detergent bar indicates a distinctly better tolerance as compared with common toilet soaps. This was especially striking in the 135 patients who had dermatoses in which many, if not most, dermatologists [1] would routinely interdict the use of soaps. The breakdown of the results for the different age groups (table 2) shows that patients from the age group 50-79, who often have soap-sensitive, dry skins, tolerated the neutral detergent bar just as well as patients in the age group 5-49. Moreover, the neutral detergent bar was well tolerated in a high proportion of infants and young children, almost all of whom had infantile eczema or other eczematous eruptions.

TABLE 2.—*Tolerance in Various Age Groups*

Age Group, Yr.	Total No. of Subjects	Good No.	Good %	Poor No.	Poor %
1-4	31	27	87	4	13
5-49	106	90	85	16	15
50-79	63	55	87	8	13
Total	200	172	86	28	14

Summary

A neutral detergent bar (Dove), which gives a lather with a pH of 7, was evaluated in a selected group of 200 dermatological patients. Of these, 135 had dermatoses often intolerant to commonly used toilet soaps and 26 had dermatoses sometimes intolerant to these soaps. Eighty-three to 85% of the patients with presumably generally poor tolerance for toilet soaps showed no signs of ill-effects from the regular use of the neutral detergent bar. No differences were found in tolerance to the neutral detergent bar between the age groups of 1 to 4, 5 to 49, and 50 to 79. The results suggest a much better skin tolerance among these dermatological patients to the neutral detergent bar than to commonly used toilet soaps. It is inferred that this difference, to a large extent, may be due to the neutral pH (7) of the neutral detergent bar lathers, as compared with the quite alkaline (pH 10) lathers of most commonly used toilet soaps.

330 Second Ave. (3).

The soap used in this study is manufactured by Lever Brothers Company, New York.

References

1. Sulzberger, M. B., and Baer, R. L., in Medical Uses of Soap: Symposium, edited by M. Fishbein, Philadelphia, J. B. Lippincott Company, 1945.

TUBERCULOMA OF SPINAL CORD

James B. Dibble, M.D.
and
Joseph Cascino, M.D., Chicago

The incidence of formation of tuberculous granulomas of the spinal cord is rare enough that we thought it worthwhile to report in detail a case we have recently observed. The first tuberculoma of the spinal cord was described in 1830 by Serre[1] in France. During the following 105 years only 87 such cases have been described in the world literature.[2] In reviewing the literature since 1935, we have been able to find only 84 more cases in the English-speaking literature.

The pathogenesis of tuberculoma of the spinal cord is now thought to be[3]: 1. A tubercle forms in the spinal cord or in the membranes, being blood-borne in the vast majority of instances. 2. This tubercle provokes a reactive phenomenon that causes proliferation of powerful connective tissue elements that form the granuloma. 3. Drainage persists into and by the subarachnoid space. 4. An inflammatory reaction occurs in the piarachnoid, and a secondary meningitis is set up. This explains the clinical picture frequently seen, i. e., the manifestation of tuberculous meningitis before cord-pressure symptoms occur. Of Anderson's four cases of spinal cord tuberculoma, in three there was an antecedent history of meningitis.[4] In our case, tuberculous meningitis had occurred four months previously, at which time symptoms of cord damage were present but not recognized as such.

Report of a Case

A 32-year-old female entered Cook County Hospital, Chicago, on Dec. 20, 1954, with meningitis as diagnosed in the examining room. Two weeks before admission she had left work because of headache and "feeling hot." She became gradually weaker, had periods of urinary incontinence, and had periods of disorientation. She was seen by two physicians, both of whom made a diagnosis of "flu." Two days before admission she was seen at a local hospital and sent home with the diagnosis of "flu." On admission to a female medical ward, the physical findings (positive and significant negative) were as follows: temperature 101 F (38.3 C), pulse rate 80 per minute, blood pressure 120/80 mm. Hg, respirations 18 per minute; lethargy and disorientation; marked nuchal rigidity; Brudzinski sign positive; "waxy flexibility" of the whole body; apical systolic murmur grade 2; appendectomy scar; and deep tendon reflexes bilaterally equal. No other abnormal neurological findings and no pathological reflexes were noted. Spinal tap revealed opening pressure of 280 mm. H_2O; clear colorless fluid; Pandy reaction 2+; 700 white blood cells per cubic millimeter, with 86% lymphocytes; smear (immediate) and culture (later) negative for tubercle bacilli; and test for Queckenstedt sign not done.

The presumptive diagnosis of tuberculous meningitis was made, and the following day the patient was started on antituberculosis medication: isoniazid, 100 mg. three times daily; aminosalicylic acid, 4 gm. three times daily; streptomycin, 2 gm. every morning; and penicillin, 600,000 units every morning. During the next week the patient gradually improved. The temperature became normal in nine days and remained normal. Her lethargy and disorientation disappeared. The tuberculin test 1:1,000 was negative, but positive to 1:100. A repeat spinal tap on the 19th hospital day showed opening pressure of 145 mm. H_2O; xanthochromia; glucose 163 mg. per 100 cc.; Pandy reaction 2+; 532 white blood cells per cubic millimeter, with 86% lymphocytes; protein over 1,000 mg. per 100 cc.; negative smear (immediate) and culture (later) for acid-fast bacilli; and test for Queckenstedt sign not done.

An interesting, though at that time unexplained, complaint was occasional inability to void, necessitating catheterizations. The significance of this finding was discussed at length a number of times, but no satisfactory cause could be found. On Jan. 21, the 23rd hospital day, the patient was transferred to the Oak Forest Tuberculosis Hospital for continuance of long-term antituberculosis therapy. She received intensive therapy uninterruptedly for the next four months.

Four months later, on May 12, 1955, the patient reentered Cook County Hospital with the complaint of progressive weakness of the left leg and progressive anesthesia of the right leg of 10 days' duration. At Oak Forest she had continued to need occasional catheterizations for inability to void. Cystoscopy had been done and showed only mild cystitis. A spinal tap had been normal and was negative for acid-fast bacilli on smear and culture early in her course at Oak Forest. A spinal tap done the day before readmission to Cook County Hospital showed a complete block to the Queckenstedt maneuver, and the removed fluid clotted in one minute. X-rays of the spine showed no bony pathology. Physical examination on readmission showed temperature of 98.6 F (37 C), pulse rate 86 per minute, and blood pressure 106/72 mm. Hg.; point tenderness on the 5th, 6th, and 8th thoracic vertebrae; hemianesthesia to the 8th thoracic vertebra on the right side; hemianesthesia to the 10th thoracic vertebra on the left side; hemiparesis to the 8th thoracic vertebra on the left side; cranial nerves intact; and bilaterally positive Babinski signs. Spinal tap revealed an opening pressure of 50 mm. H_2O, complete block on the Queckenstedt maneuver, and smear negative for tubercle bacilli. The hemoglobin and urine examinations were normal.

The patient was seen by the neurosurgery service 36 hours after admission, and an emergency laminectomy was performed 12 hours later. At surgery, laminectomy was performed from the 4th to 7th thoracic vertebrae. There was pulsation of the cord only to the 4th thoracic vertebra. The meninges were thickened greatly over the entire length of cord exposed. At the level of the 5th and 6th thoracic vertebrae was a grayish-pink homogenous tumor mass, measuring approximately 3.5 cm. in

---

Surgical Resident, Cook County Hospital (Dr. Dibble) and Attending Neurosurgeon, Cook County Hospital (Dr. Cascino).

length and 1 cm. in thickness. It completely surrounded the cord at the level of the 6th thoracic vertebra, the greater part of it being posterior to the cord itself. Incision in this mass produced 2 cc. of thick liquid yellow pus. The posterior two-thirds of the tumor was resected for decompression and biopsy. A drain was left down to the cord. This was removed on the fourth postoperative day. Biopsy showed "areas of necrosis surrounded by granulomatous areas suggestive of tuberculosis. Langhan's type of giant cells are seen." For the first 10 days postoperatively there was total paraplegia, undoubtedly due to the edema of surgery. Then gradual improvement began, and during the next month all evidence of sensory loss was gone, except for small patchy areas of hypesthesia, and motor power had returned to near normal in the right leg and was present, although weakly, in the left leg. Bowel and bladder control, lost in the immediate postoperative period, returned. Antituberculosis therapy was continued.

On June 28, 1955, six months after her original illness and six weeks after laminectomy, the patient was returned to Oak Forest for continuation of therapy on a convalescent basis.

Comment

This case falls into the group of tuberculomas of the cord classified as extramedullary, in contradistinction to the intramedullary tumors, since it could be "peeled" from the cord at surgery and seemed to be limited to the membranes surrounding the cord. It is extremely difficult to differentiate preoperatively between the two types,[5] and, therefore, exploratory operation should be done as soon as possible in all cases where localizing signs and symptoms are present. Our criterion for surgery in this case was, of course, the exstreme rapidity of progression of symptoms. This picture of rapidly changing or progressing symptoms is also stressed by Weinberg.[5] We felt that we had everything to gain and nothing to lose by immediate surgery.

Conclusions

A plea for early laminectomy is made in those patients with (1) a history of tuberculous meningitis and (2) localizing neurological findings. We are seeing at Cook County Hospital more and more recurrences of tuberculosis infection where initial intensive antituberculosis therapy is not maintained for at least one year. We do not know how much longer is indicated.

1825 W. Harrison St. (12) (Dr. Dibble).

References

1. Serre, E. R. A.: *Observations et reflexions sur l'etat de nos connaissances a l'egard de quelques lesions organiques*, Gaz. med. Paris 1: 57-58, 1830.
2. Kupka, E., and Olsen, R. E.: *Tuberculoma of Lumbar Spinal Cord*, Am. Rev. Tuberc. 38: 517-522 (Oct.) 1938.
3. Thalhimer, W., and Hassin, G. B.: Clino-Pathologic Notes on Solitary *Tubercle of Spinal* Cord, J. Nerv. & Ment. Dis. 55: 161-193 (March) 1922.
4. Anderson, F. N.: Tuberculoma of Central Nervous System, Arch. Neurol. & Psychiat. 20: 354-365 (Aug.) 1928.
5. Weinberg, M. H.: Spinal Cord Tumors, J. Nerv. & Ment. Dis. 63: 23-57 (June) 1926.

Lupus Erythematosus.—Seven patients with chronic resistant lupus erythematosus showed considerable to complete involution of their lesions within two to four months of therapy with Plaquenil. It appears to be at least as efficient as quinacrine or chloroquine. Preliminary experience confirms pharmacologic evidence that Plaquenil is the least toxic of these three synthetic antimalarials. It does not stain.—T. Cornbleet, M.D., Discoid Lupus Erythematosus Treated with Plaquenil, *A. M. A. Archives of Dermatology and Syphilology*, June, 1956.

SYMMETRICAL CEREBRAL CALCIFICATION ASSOCIATED WITH PARATHYROID ADENOMA

Warren P. Knuth, M.D.
and
Paul Kisner, M.D., Lincoln, Neb.

The presence of symmetrical cerebral calcification, particularly in the region of the basal ganglions, has been reported in connection with a wide variety of different disease entities. This subject was investigated and the literature extensively reviewed by Eaton, Camp, and Love in 1936. They added an additional six cases to the literature, the condition in all of which was diagnosed ante mortem by means of skull roentgenograms. They noted that parathyroid insufficiency was frequently seen to accompany this condition. They emphasized that roentgenograms should be taken of the skulls of all patients with hypoparathyroid tetany. Subsequent reports have confirmed the original impression of Eaton and his co-workers,[1] and, in 1947, Camp[2] reported a series of 12 cases in which the patients had roentgenographically demonstrable symmetric cerebral calcification and parathyroid insufficiency. However, inasmuch as there has been no instance of hyperparathyroidism or parathyroid adenoma in any of these reported cases, the case which is presented herein is thought to be of unusual interest.

Report of a Case

The patient, a 58-year-old male, was first seen at this hospital on Jan. 8, 1952, when he was admitted in a comatose state with the diagnosis of cerebral hemorrhage. It was difficult to obtain an adequate history, but it was learned that the patient had been discharged from the Army in 1918 because of "fits." Thereafter he obtained work as a laborer until 1935, at which time he became unemployed and his only activity was helping with housework. During 1941, his family first noticed his having episodes characterized by stiffening of the arms, a drawn face, and failure to respond to questioning. Since 1943 he had walked with his arms and hands flexed and had developed a stooped posture. During this period there was also a pronounced mental deterioration that continued progressively up to the time of his death. In 1950, the patient was found unconscious on the floor. He remained semicomatose for several days but finally recovered. In the next two years, he was frequently brought home by police after having a "spell" while out walking, but after each attack he recovered without specific therapy. It was learned that the patient's father, who died in 1943, had had a "nervous disposition," and two siblings who died in early childhood were said to have been mentally deficient.

On the morning of admission to the hospital, the patient was found in bed unconscious and, after being seen by the family physician, was brought in by ambulance. On examination, the patient was comatose and breathing stertorously with Cheyne-Stokes respirations. The rectal temperature was 101.4 F (38.5 C), respirations were 18, pulse rate was 140, and blood pressure was 110/60 mm. Hg. The skin was hot and dry, and there was slight resistance to flexion of the neck. The neck veins were not distended, and the thyroid gland was found normal. There was a rotatory slow movement of the eyes, which came to rest turning to the right and upward. The right pupil was larger than the left and both reacted to light. The extraocular movement showed no evidence of conjugate deviation. Examination of the optic fundi was negative. The chest and heart were negative except for a tachycardia with a rate of 140 per minute, and the abdomen, genitalia, and rectum revealed no abnormalities. All four extremities were hypertonic; the feet were held in extension, with the left leg somewhat more hypertonic than the right. Deep tendon reflexes were hyperactive but equal, and the abdominal and cremasteric reflexes were sluggish. The Babinski sign was present on the left and the Hoffman sign absent. There was no clonus.

From the Veterans Administration Hospital.

Laboratory Data.—The red blood cell count was 4,400,000 per cubic millimeter; hemoglobin level, 14.6 gm. per 100 cc.; and white blood cell count, 9,600 per cubic millimeter, with polymorphonuclear cells 89% and lymphocytes 11%. Serologic tests were negative. In urine studies, the specific gravity was found to be 1.008 and the urine negative for albumin and for sugar; there were 0-3 white blood cells and 0-2 red blood cells per high-power field. The nonprotein nitrogen value was 39.5 mg. per 100 cc., the fasting blood sugar level 196 mg. per 100 cc., the carbon dioxide-combining power 72 vol. %, and the chloride determination 112 mEq. per liter. The spinal fluid was clear and colorless: value for glucose was 137 mg. per 100 cc. and for protein 44 mg. per 100 cc.; the globulin was normal, the colloidal gold determination 0000000000, and lymphocytes were one per cubic millimeter. The chest x-ray film was normal. The skull films showed extensive symmetrical calcification bilaterally in the region of the caudate nuclei and flake-like calcifications bilaterally in the brain substance of the frontal lobe (fig. 1).

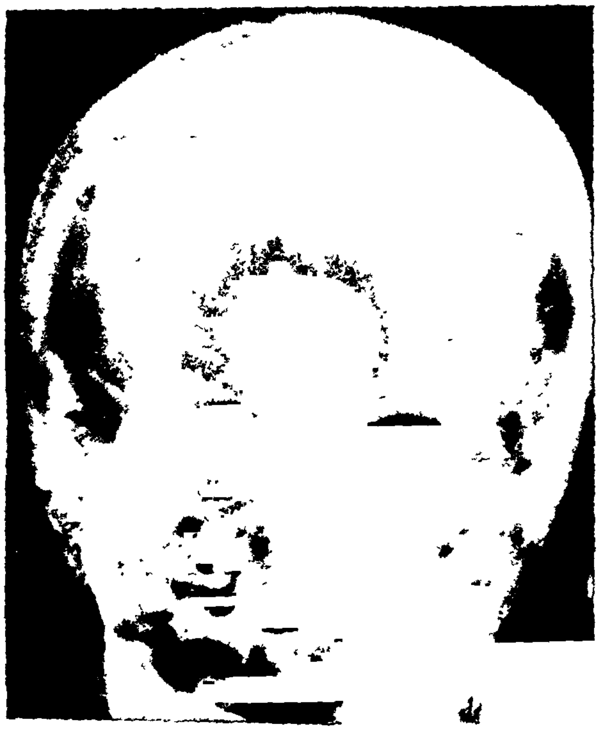


Fig. 1.—Anteroposterior roentgenogram showing symmetrical cerebral calcification involving principally the basal ganglions.

Hospital Course.—On the second day in the hospital the patient was alert, the sensorium was clear, and the response to questioning was relevant but fragmentary. The patient seemed to be in good contact but at times exhibited pathological crying. He moved all extremities in a slow and awkward manner. He was noted to hold his hands rigid and flexed. Two weeks after admission, a pneumoencephalogram was performed that showed the previously described cerebral calcifications to be outside the internal capsule, involving the putamen and globus pallidus. In addition, there was dilatation of the lateral ventricles to two to three times normal size and excessive subarachnoid air indicating bilateral symmetrical cerebral atrophy. In further laboratory studies, the total serum cholesterol was 290 mg. per 100 cc., calcium 12.4 mg. per 100 cc. (normal range, 9.0-11.5 mg. per 100 cc.), and phosphorus 3.0 mg. per 100 cc. (normal range 3.0-4.7 mg. per 100 cc.). Blood sugar at this time was 126 mg. per 100 cc.

Treatment consisted of general supportive measures as well as anticonvulsant and antibiotic therapy. A slight improvement was noted. During this period several episodes occurred in which the patient was semicomatose and the temperature was elevated to 102-104 F (38.8-40 C). During these episodes, the eyes were deviated to the right. There were intermittent grunting respirations and there was a coarse tremor of the left hand. He was finally discharged to a nursing home.

Second Admission.—The patient was again admitted two years later after a similar episode of unconsciousness. After he regained consciousness, the patient was given a general physical examination. Findings were similar to those at the time of the previous admission, but the patient exhibited far-advanced emotional and intellectual deterioration. During his hospital stay, he had several grand mal seizures that were reasonably well controlled with use of diphenylhydantoin and barbiturates. Treatment became mainly a problem of nursing care, and he was treated symptomatically. Nine months after his second admission, the patient suddenly had a severe convulsive seizure, during which he became dyspneic and cyanosed and developed shock and peripheral circulatory collapse. He died 30 minutes later.

Autopsy.—Findings at autopsy determined death to be caused by a myocardial infarction at the apex of the heart secondary to occlusion of the anterior descending branch of the left coronary artery. The brain weighed 1,260 gm., and there was considerable cortical atrophy. There was cerebral arteriosclerosis and the lateral ventricles were found on cut section to be enlarged twice the normal size. There was diffuse calcification of the basal ganglionic region. The histological picture of the calcifications was identical to that described by Eaton and coworkers[3] and consisted of a deposit of hematoxylin-staining material in the nervous tissue and in and about the blood vessels. These deposits varied in size and, in some areas, were found in the media, adventitia, and perivascular spaces of arterioles and capillaries (fig. 2). Some areas showed coalescence of the globules into calcified sheets.

When the thyroid glands were removed, the right gland was slightly larger than the left and of softer consistency. Cut section through the structure demonstrated a cystic cavity in its center, and microscopic examination revealed it to be parathyroid tissue. There was a small compressed rim of thyroid tissue at the periphery of the section. The adenoma consisted principally of slightly enlarged, uniformly shaped chief cells (fig. 3). The cell outline was not too distinct and the cytoplasm appeared pale pink and slightly granular but not deeply eosinophile such as is seen in the oxyphil cell. Examination of the remainder of the viscera revealed several small areas of abnormal calcium deposits of microscopic size within the renal parenchyma but none elsewhere.

Comment

The case report presented herein very closely resembles the sequence of events reported as occurring in hypoparathyroidism, associated with bilateral cerebral calcification. The onset of the disease is early in life and is characterized by intermittent episodes of convulsive seizures and gradually progressive intellectual and emotional deterioration. However, when the patient was first seen at this hospital, blood chemistry determinations indicated a relative hyperparathyroidism rather than parathyroid insufficiency. In addi-

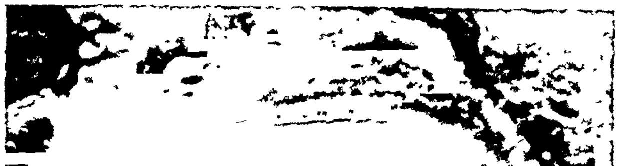


Fig. 2.—Photomicrograph showing deposits of calcium within a small artery.

tion, at autopsy a large cystic adenoma was found in a parathyroid gland and microscopic calcific deposits were present in the kidneys.

As in the case of most neoplasms, the cause of parathyroid adenomas is unknown. Inasmuch as adenomas occasionally appear in several glands in the same patient, Albright and Reifenstein[4] have suggested that the observation by Erdheim in 1907 may be worthy of consideration. This is that "germinative centers" exist in hyperplastic glands and these centers may in some way lose their ability to be controlled by normal stimuli and develop into adenomas. One can only speculate as to the relationship of the bilateral cerebral calcification, the parathyroid adenoma, and the hyperparathyroidism as noted by blood chemistry determinations. It might be assumed that a state of hypoparathyroidism may have existed for many years and the parathyroid adenoma developed as a process of compensatory hyperplasia until eventually a state of hyperparathyroidism was attained. Because of the absence of a satisfactory history and inadequate blood chemistry determinations over a prolonged period of time, it is not felt that any conclusions can be drawn from this case. The case is presented primarily from the standpoint of its unique clinical and postmortem findings.

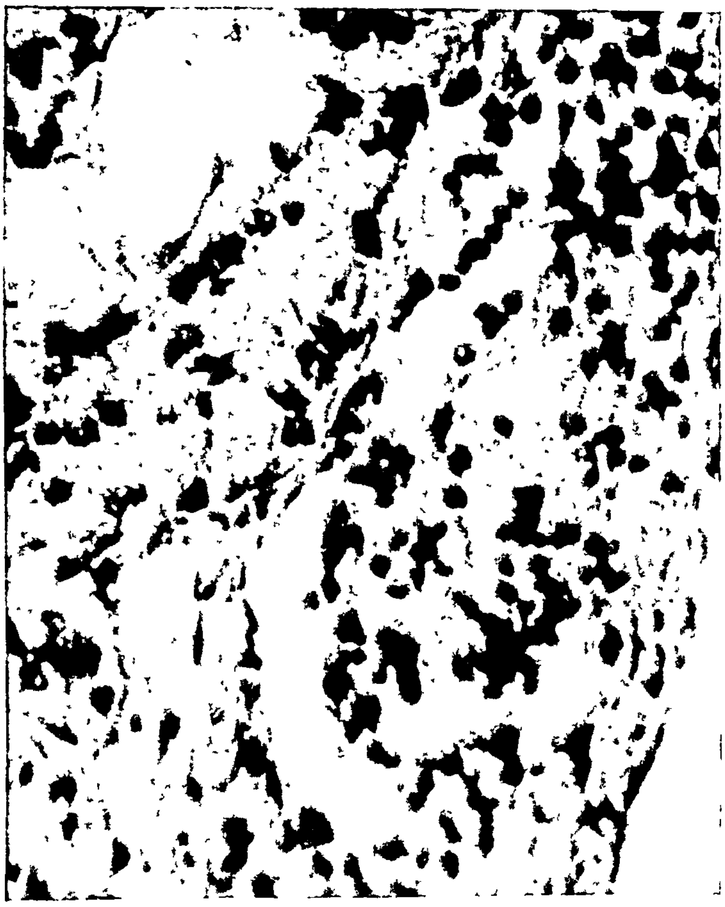


Fig. 3.—Photomicrograph showing the structure of the parathyroid adenoma discovered at autopsy.

125 S. 52nd St. (Dr. Knuth).

Richard D. Lahm and Richard D. Ferguson gave technical assistance in this study.

References

1. Eaton, L. M., and Haines, S. F.: Symmetrical Cerebral Calcification Associated with Parathyroid Insufficiency. Preliminary Report, Proc. Staff Meet., Mayo Clin. **14:** 48 (Jan. 18) 1939. Eaton, L. M., and Haines, S. F.: Parathyroid Insufficiency with Symmetrical Cerebral Calcification: Report of Three Cases, in One of Which Patient Was Treated with Dihydrotachysterol, J.A.M.A. **113:** 749-753 (Aug. 26) 1939 Sammet, J. F., and Bucy, P. C.: Symmetrical Calcifications in Anterior Limb of Internal Capsules of Brain Without Demonstrable Neurological or Metabolic Disturbances, Am. J. Roentgenol. **66:** 880-883 (Dec.) 1951.

2. Camp, J. D.: Symmetrical Calcification of Cerebral Basal Ganglia: Its Roentgenologic Significance in Diagnosis of Parathyroid Insufficiency, Radiology **49:** 568-577 (Nov.) 1947. Camp, J. D.: Pathologic Nonneoplastic Intracranial Calcification, J.A.M.A. **137:** 1023-1031 (July 17) 1948.

3. Eaton, L. M.; Camp, J. D., and Love, J. G.: Symmetric Cerebral Calcification, Particularly of Basal Ganglia, Demonstrable Roentgenographically: Calcification of Finer Cerebral Blood Vessels, Arch. Neurol & Psychiat. **41:** 921-942 (May) 1939.

4. Albright, F., and Reifenstein, E. C., Jr.: Parathyroid Glands and Metabolic Bone Disease: Selected Studies, Baltimore, Williams & Wilkins Company, 1948, pp. 46-48.

SPECIAL ARTICLE

LONGEVITY AND CAUSES OF DEATH FROM IRRADIATION IN PHYSICIANS

Shields Warren, M.D., Boston

Data bearing on effects of prolonged low-level exposure of man to ionizing radiation are few. With the use of atomic energy becoming more general and the increasing probability of large portions of the population becoming potentially exposed to radiation, the value of such data materially increases. I add herewith some observations. Radiologists and certain other groups of medical specialists, such as dermatologists, urologists, and gastroenterologists, have experienced prolonged occupational exposure near or sometimes slightly above the present permissible levels of radiation. While some of the pioneers in radiology risked themselves freely, paying with radiation-induced leukemia or carcinoma for their absorption in their new and untried tool to aid humanity, most of those utilizing ionizing radiation in their medical work have received only small doses.

Dose Levels of Irradiation

The present permissible level of total body radiation accepted by the International Committee on Radiation Protection for x-rays or gamma rays of less than 3 mev energy is 0.3 r per week (in the blood-forming organs, gonads, or eyes), which means, for a 30-year working life at the maximum permissible dose level, a total occupational exposure of 468 r. The U. S. National Committee on Radiation Protection had recommended in handbook 15 of the National Bureau of Standards, issued in 1931, a permissible level four times as great, or 200 mr per day. This was reduced in 1936 to 100 mr per day in handbook 20, and again in 1949 to 50 mr per day in handbook 41. However, only recently have measurements of radiation been made in most radiology departments in this country, and even now few radiologists wear film badges or ionization chambers. The probability is that from 1930 to 1941, when the danger of ionizing radiation was not as completely appreciated as it is today, some physicians had exceeded this level and a number may have received a total dose of over 1,000 r. In the early years of work with radiation, total doses well above this were re-

---

From the Cancer Research Institute, New England Deaconess Hospital and the Laboratory of Pathology, Harvard Cancer Commission.

ceived. Those physicians working an appreciable portion of their time with sources of ionizing radiation receive even now during their professional activities significant amounts of radiation. However, efforts are being made to minimize the doses received.[1]

There is evidence that doses of radiation are less effective in producing injury to somatic cells when protracted over a long time than when received in a brief period. It is common clinical experience that a given dose of local therapeutic radiation is less harmful to normal tissues when protracted than when administered in a single period. This is largely due to the reparative power of the exposed cells. Estimates of the acute lethal dose of total body irradiation for 50% of a human population are about 400 to 450 r. Yet many radiologists have received over this in divided doses.

The average person in the United States living at or near sea level receives somewhat under 150 mr per year,[2] or, by the time he has reached 60 years of age, he has received a total of 9 r from the total background radiation, much of it from radioactive elements in rock or soil, some from cosmic radiation. If he spends most of his life as a sailor, he will have received about one-third this amount of radiation.

Previous Studies

The longevity and causes of death of those physicians occupationally exposed to sources of ionizing radiation, even though adequately protected by past and current standards, may give information when contrasted with data on physicians as a whole and the general population. Already some such studies have been carried out. March[3] found that radiologists dying in the 15-year period from 1929 to 1943 had 10 times as many deaths from leukemia as did other physicians and again in the period from 1944 to 1948 found somewhat comparable data,[4] 4.8% deaths from leukemia in radiologists as compared with 0.7% in nonradiologists.

Henshaw and Hawkins[5] found 1.7 times as much leukemia in physicians as in white males in the United States in the period 1933 to 1943. Ulrich,[6] in a study similar to March's, found eight times as many deaths from leukemia among radiologists as among physicians practicing other specialties. Dublin and Speigelman[7] studied the mortality of medical specialists in the period 1938 to 1942. Among 175,146 physicians living in that period, 37,010 (21.1%) claimed to be full-time specialists. During the five-year period studied there were 12,419 deaths of physicians in the age group 35-74, and 2,029 (16.3%) of these deaths were of medical specialists. Since only 1.1% of the specialists who died were women, the sex ratio was not significant. The mortality ratio for specialists from all causes was 78%, taking the death rates of all physicians or 100%. They reported radiologists to have a mortality ratio of 0.90, dermatologists 0.98, and pathologists 0.60. They noted that radiologists show a high rate of mortality from cancer and leukemia, and deaths from leukemia among 95 recorded deaths of radiologists were higher than those in any other specialty.

Recent figures of the doses received by nonradiology personnel in diagnostic procedures such as angiography and cardiac catheterization indicated that doses up to 50 mr may reach the hands.[8] That radiologists and other specialists exposed to ionizing radiation receive possible genetic damage is suggested by the higher rate of congenital malformations reported in their children, 5.99% as against 4.84% in children of nonradiology specialists.[9] However, both rates appear unduly high and suggest some bias in the data. To remind one of the levels of radiation involved in diagnostic radiology, Kirsch[10] found that in typical roentgenologic examination the output as measured on the patient's skin in the center of the x-ray beam averaged 13.7 r for a gastrointestinal series, 4.9 r for a barium enema, and 6.4 r for a gallbladder series. However, the physician receives only a small portion of this output, chiefly in the form of scattered radiation during fluoroscopic examinations. The average daily exposure of some radiologists in 1936 and earlier was 12 mr per day.[11]

In the United Kingdom, where safety in radiology has been much more highly developed for some time than is the case in the United States, the doses received by radiologists are low. Osborn[12] reports the average weekly dose received by 5 trained therapeutic radiologists was 42 mr per week and for 13 trained diagnostic radiologists was 106 mr, the highest individual average dose being 230 mr; the highest dosage averaged for a week was 700 mr. In New Zealand, Jamieson[13] found two-thirds of the staff received less than 50 mr per week and only 2 of 24 received between 500 mr and 1 r per week. It has been estimated that the average amount of time spent by radiologists in fluoroscopy in the United States is 50 minutes per week.[14] This length of time combined with average exposure levels would indicate 40 mr per week received from fluoroscopy. If, however, the examiner is not protected by his lead apron, as when standing sideways to the beam, he may receive 200 mr per hour.[15] With care, exposures can be kept below one-tenth of the permissible level.[16]

In a recent unpublished survey of specialists in the Boston area using ionizing radiation, Spalding found the average weekly exposure of the upper arms and chests of 65 radiographers not doing fluoroscopy was 40 mr, while 72 doing some fluoroscopic work received 180 mr. Eleven dentists doing radiographic work received a weekly average exposure of 200 mr. Twelve dermatologists averaged 250 mr weekly and 4 urologists 470 mr weekly. Radioisotope workers receive lower doses than x-ray personnel, only one exceeding 300 mr in any week as against nine in radiology departments.[17]

There are some ways in which the effects of ionizing radiation resemble the aging process. Scattered cells become more variable in size, shape, and chromatin content than the normal; certain functions, such as formation of melanin pigment, tend to decrease; collagen tends to increase and hyalinize; elastic tissue tends to degenerate. Glucksmann[18] stresses the increased differentiation of cells after irradiation.

Experimentation with animals has demonstrated clearly, as in the work of Boche,[19] Blair,[20] and Hursh,[21] that total body radiation tends to shorten the life of an irradiated animal, and, indeed, within the limits of experimentation (from 25 r up to several times the lethal dose), a linear plot of the reduction in longevity with dose could be obtained. Blair[20] differentiates between the shortening of life of animals due to a single dose of radiation and discontinuous chronic radiation. On a single-dose basis he finds about a 20% shortening of life per 500 r, using rodents as the test animals. His chronic irradiation data indicate a shortening of life at the rate of 11% per 1,000 r. In the sequelae of single exposures, the acute radiation syndrome plays an important part. In chronic discontinuous radiation, the acute radiation syndrome does not appear, and hence such serious hazards as overwhelming infections and multiple internal hemorrhages are not factors in shortening of life.

Current Study

Statistical Sources.—In the current study the causes of death of physicians and their age at death are taken as given in the obituary columns of The Journal from Jan. 1, 1930, and continuing for 25 years through 1954. Any one year may include a few deaths occurring in earlier years, but there is no duplication. In the period from Jan. 1, 1930, through Dec. 31, 1954, 82,441 deaths were recorded. The specialty of the physician, if any, was usually stated. The specific cause of death was given in 65,545. In general, causes of death in physicians may be expected to be determined with somewhat greater accuracy than in the general public.

The age at death was stated for 79,027. As age at death is much more easily determined than cause of death and as the American Medical Association has much biographical data on physicians, we believe that our data for longevity are relatively accurate. Furthermore, since some evidence is accumulating to indicate that radiation may shorten life by other than the established radiation-induced diseases, age at death becomes perhaps more significant than cause.

The time of the study included World War II, as a result of which an abnormally large number of younger physicians were killed, and this might tend to reduce the average life span of physicians during this period. However, this should not affect the comparison of mortality and morbidity of those specialists exposed to ionizing radiation with those of specialists and nonspecialists assumed not to have been in significant contact with sources of ionizing radiation. The time is well after that during which unwittingly reckless exposure occurred, and so most of the early martyrs in radiology, who would unduly weight the data, are excluded. However, about 1930 the less cautious radiologists may well have received doses ranging up to 5 r per week, as unshielded glass x-ray tubes producing diffuse beams were in common use.

We have not checked the deaths of specialists against the membership lists of special medical societies, and hence some of the specialists may have been overlooked and included with nonspecialists. Undoubtedly some general practitioners and some nonradiology specialists devoted a portion of their time to radiological work and hence received amounts of ionizing radiation near those received by some of the radiologists. They cannot be identified by the techniques used in this study. However, those thus exposed to ionizing radiation would be included with the unexposed group and hence lessen the difference between the two groups, where there be any, rather than accentuate it.

Life Span.—The natural life span is under genetic control, but in large and heterogeneous populations, such as those dealt with here, genetic factors cannot be evaluated and do not have a significantly different effect. The life span of the several types of component cells of the human body varies materially, from the life of about three days of the lymphocyte and four days of the intestinal mucosal epithelial cell to the total life span of the individual as in the case of heart and striated muscle cells and neurons. The older cells aggregated in an organism age usually with evidence of accumulation of useless metabolic products, such as pigments, and show some cytoplasmic atrophy. While human cells in tissue culture appear to grow and be reproduced asexually indefinitely in a suitable environment, without the culture as a whole showing the appearance of age, the same types of cells grouped into an organism will show evidence of aging with the passage of time. In general, life of an organism ends when sufficient unfavorable stimuli accumulate. These may be such stimuli as external violence; bacterial, protozoal, or viral invasion; accumulation of metabolic products; or ionizing radiation. One may therefore conclude that a population showing a consistently shorter life span than the general is influenced by some unfavorable factors.

As man's environment has been made more favorable, the average age at time of death has increased to 65.6 years for males over 25 years of age in the United States in 1950. However, throughout recorded history, rare men have lived well beyond the average span, and the extreme life span has not lengthened.

Compilations of numbers of physicians in the United States vary between the American Medical Directory and the "Statistical Abstract of the United States." The 1950 edition of the American Medical Association Directory gives about 3,000 less than the statistical abstract. However, since the statistical abstract gives more recent figures, its lists from 1930 to 1953 will be used as giving the base line for total numbers of physicians. In comparing mortality of the medical population with that of the population of the U. S., we have used that group of general population 25 years of age or older, since physicians are practically all over 25 years of age. There were in this adult population group 74,775,836 in 1940; 88,116,411 in 1950, and 92,118,585 in 1953. In 1940 the death rates for this population were 16.1 per 1,000 for all causes as against 14.9 for physicians. The rates of 14.6 per 1,000 in 1950 and 14.6 in 1953 for the adult population contrast with a five-year (1950-1954) average rate for physicians of 14.5 per 1,000. Thus physicians have a mortality rate about the same as that of the general adult population.

The effect of the average age of various groups on morbidity and longevity of their numbers must be considered. Specialists might be expected to be older than nonspecialists, due to the longer training period, but the rapid influx of young men into the medical specialties since World War II has more than compensated for this. Pathologists were selected as a group comparable to radiologists, since they have the same length of training period and the same type of somewhat sedentary, largely institutional work. The two specialties also offer somewhat similar opportunities to physicians with physical handicaps. In 1954 there were 2,309 pathologists, with an average age of 48 years and a median age of 45 years, as compared with 4,038 radiologists, who had an average age of 47 years and a median age of 44 years. Thus the average age of these two groups is practically the same. They differ essentially only in exposure to radiation and in the much greater exposure of pathologists to infection. Pathologists have an average age at death of 62.4 years; the median is 63.3 years.

The average age at death for physicians not known to have contact with radiation is 65.7 years; that for radiologists is 60.5 years; and that for the specialists having some degree of exposure to ionizing radiation (gastroenterologists, tuberculosis specialists, and urologists, but excluding dermatologists) is 63.7 years. Dermatologists, who have been reputed to be somewhat more lax in protecting themselves against sources of ionizing radiation than other specialists, have an average age at death of 62.3 years. The average age at death for United States males over 25 years of age was 65.6 years in 1950.

Induced Diseases.—There are certain disease processes that have been induced by ionizing radiation in experimental animals and by accidental exposure in man and hence may be considered occupational hazards for radiologists and others in contact with sources of radiation. These diseases are cancer of the skin, leukemia, anemia, agranulocytosis, and osteogenic sarcoma. All have been encountered in the radiation-exposed group in the present study. In addition, induction of cancer of other sites may be considered a slight hazard, as radiation is known to be a factor in the production of certain cancers of the lung and possibly other types of malignant tumors. Time of induction of a tumor in man after exposure to ionizing radiation is variable. It may be fairly short (among the atomic bomb survivors in Hiroshima and Nagasaki, Japan, leukemia became more prevalent than among the control population in four years) or long (skin cancer or other neoplasms such as sarcoma have not appeared until 20 or more years after initial exposure).

Leukemia in 1950 killed 3.9 per 100,000 of the total population over 20 years of age. There were 120 deaths from leukemia among physicians during the period 1950-1954, or an average annual rate for the five-year period of 11.2 per 100,000. The death rate from leukemia for all physicians was thus about three times that for the adult population. As would be expected, leukemia shows a definitely higher percentage in the radiologists. In the period 1930-1954, 0.63% of the deaths from specified causes of physicians assumed not to have had exposure to radiation were due to leukemia, as against 2.33% for all specialists in contact with radiation and 3.65% for radiologists. During that same time period, the mean age of the nonradiologists dying from leukemia was 60 years, whereas the radiologists died from the disease at a mean age of 55.8 years.

The five-year average mortality rate from lung cancer for 1950-1954 was 18.3 per 100,000 for the adult population as contrasted with 18.7 for physicians. Too few cases (three only) were reported in radiologists to obtain meaningful figures. Cancer of all other sites had a death rate of 178.4 per 100,000 for the adult population in 1950 as compared with 128.5 for physicians.

Other Diseases.—Not only do radiologists and specialists exposed to some degree of radiation show a shorter mean life span than that of physicians assumed not to be exposed to radiation, but they die younger from practically every cause of death (see table).

Age at Death of Radiologists and Nonradiologists, 1930-1954

Cause	Physicians Not Exposed to Radiation	Radiologists
Neoplasms		
Leukemia	59.4	55.9
Carcinoma of skin	69.0	66.5
Carcinoma of lung	62.8	61.3
Carcinoma other sites	66.7	59.5
Degenerative Diseases		
Coronary disease	66.9	58.6
Myocarditis	72.5	53.0
Heart disease, nonspecific	67.1	62.8
Hypertension	70.7	66.1
Cerebral hemorrhage	69.1	60.0
Nephritis, type unspecified	65.1	64.5
Infectious Diseases		
Septicemia	58.4	46.0
Bronchopneumonia	69.7	63.5
Tuberculosis	56.3	51.3
Peptic Ulcer	63.0	35.5
All Other Stated Causes	66.4	61.9
Causes Not Stated	67.6	61.6

Thus, the nonradiologist dies from cancer, excluding leukemia, cancer of the skin, and cancer of the lung, at a mean age of 66.7 years, whereas the radiologists die of such cancers at a mean age of 59.5 years.

Radiologists die younger than do nonradiologists from every major cause of death with the exception of anemia. Here, the number of cases in radiologists may be too small to be significant. Nonradiologists died at an average age of 61.4 and radiologists at an average age of 63.8.[10] The discrepancy of 28 years in the case of death from peptic ulcer is particularly noteworthy, but the cases among radiologists are so few (three) that they are probably not significant. Thus, it is clear that not only are radiologists subject to certain occupational diseases but, furthermore, radiologists die from almost any cause of death at an earlier age than do nonradiologists. This strongly suggests that radiologists are subject to some common factor that lowers their resistance to disease and hastens the aging process. That this factor is ionizing radiation is strongly suggested by the fact that the practitioners

Experimentation with animals has demonstrated clearly, as in the work of Boche,[19] Blair,[20] and Hursh,[21] that total body radiation tends to shorten the life of an irradiated animal, and, indeed, within the limits of experimentation (from 25 r up to several times the lethal dose), a linear plot of the reduction in longevity with dose could be obtained. Blair[20] differentiates between the shortening of life of animals due to a single dose of radiation and discontinuous chronic radiation. On a single-dose basis he finds about a 20% shortening of life per 500 r, using rodents as the test animals. His chronic irradiation data indicate a shortening of life at the rate of 11% per 1,000 r. In the sequelae of single exposures, the acute radiation syndrome plays an important part. In chronic discontinuous radiation, the acute radiation syndrome does not pear, and hence such serious hazards as overwhelming infections and multiple internal hemorrhages are not factors in shortening of life.

Current Study

Statistical Sources.—In the current study the causes of death of physicians and their age at death are taken as given in the obituary columns of The Journal from Jan. 1, 1930, and continuing for 25 years through 1954. Any one year may include a few deaths occurring in earlier years, but there is no duplication. In the period from Jan. 1, 1930, through Dec. 31, 1954, 82,441 deaths were recorded. The specialty of the physician, if any, was usually stated. The specific cause of death was given in 65,545. In general, causes of death in physicians may be expected to be determined with somewhat greater accuracy than in the general public.

The age at death was stated for 79,027. As age at death is much more easily determined than cause of death and as the American Medical Association has much biographical data on physicians, we believe that our data for longevity are relatively accurate. Furthernore, since some evidence is accumulating to indicate iat radiation may shorten life by other than the established radiation-induced diseases, age at death becomes perhaps more significant than cause.

The time of the study included World War II, as a result of which an abnormally large number of younger physicians were killed, and this might tend to reduce the average life span of physicians during this period. However, this should not affect the comparison of mortality and morbidity of those specialists exposed to ionizing radiation with those of specialists and nonspecialists assumed not to have been in significant contact with sources of ionizing radiation. The time is well after that during which unwittingly reckless exposure occurred, and so most of the early martyrs in radiology, who would unduly weight the data, are excluded. However, about 1930 the less cautious radiologists may well have received doses ranging up to 5 r per week, as unshielded glass x-ray tubes producing diffuse beams were in common use.

We have not checked the deaths of specialists against the membership lists of special medical societies, and hence some of the specialists may have been overlooked and included with nonspecialists. Undoubtedly some general practitioners and some nonradiology specialists devoted a portion of their time to radiological work and hence received amounts of ionizing radiation near those received by some of the radiologists. They cannot be identified by the techniques used in this study. However, those thus exposed to ionizing radiation would be included with the unexposed group and hence lessen the difference between the two groups, where there be any, rather than accentuate it.

Life Span.—The natural life span is under genetic control, but in large and heterogeneous populations, such as those dealt with here, genetic factors cannot be evaluated and do not have a significantly different effect. The life span of the several types of component cells of the human body varies materially, from the life of about three days of the lymphocyte and four days of the intestinal mucosal epithelial cell to the total life span of the individual as in the case of heart and striated muscle cells and neurons. The older cells aggregated in an organism age usually with evidence of accumulation of useless metabolic products, such as pigments, and show some cytoplasmic atrophy. While human cells in tissue culture appear to grow and be reproduced asexually indefinitely in a suitable environment, without the culture as a whole showing the appearance of age, the same types of cells grouped into an organism will show evidence of aging with the passage of time. In general, life of an organism ends when sufficient unfavorable stimuli accumulate. These may be such stimuli as external violence; bacterial, protozoal, or viral invasion; accumulation of metabolic products; or ionizing radiation. One may therefore conclude that a population showing a consistently shorter life span than the general is influenced by some unfavorable factors.

As man's environment has been made more favorable, the average age at time of death has increased to 65.6 years for males over 25 years of age in the United States in 1950. However, throughout recorded history, rare men have lived well beyond the average span, and the extreme life span has not lengthened.

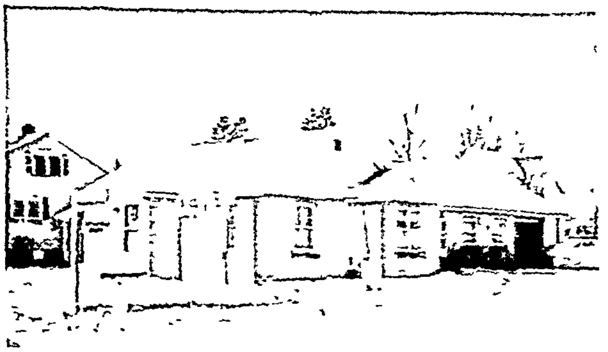
Compilations of numbers of physicians in the United States vary between the American Medical Directory and the "Statistical Abstract of the United States." The 1950 edition of the American Medical Association Directory gives about 3,000 less than the statistical abstract. However, since the statistical abstract gives more recent figures, its lists from 1930 to 1953 will be used as giving the base line for total numbers of physicians. In comparing mortality of the medical population with that of the population of the U. S., we have used that group of general population 25 years of age or older, since physicians are practically all over 25 years of age. There were in this adult population group 74,775,836 in 1940; 88,116,411 in 1950, and 92,118,585 in 1953. In 1940 the death rates for this population were 16.1 per 1,000 for all causes as against 14.9 for physicians. The rates of 14.6 per 1,000 in 1950 and 14.6 in 1953 for the adult population contrast with a five-year (1950-1954) average rate for physicians of 14.5 per 1,000. Thus physicians have a mortality rate about the same as that of the general adult population.

supply houses I have been able to finance all the equipment for the clinic. I hope to bring another physician to Owen within a year to help on the case load." (Dr. Braswell had three patients the day he unpacked, including an obstetric patient who had waited for the new doctor to arrive.)

This story of community leadership and planning is not a story of a handout; Dr. Braswell and Owen, Wis., see eye to eye on that point. He pays no rental the first 6 months, but will pay 24 months' rent during the remaining 18 months. Money collected after repayment to shareholders will go into other civic projects—a swimming pool or another professional building. Businessman Bulgrin told the people of Owen: "Forty years ago some of you may have started farming with a team and plow. It isn't that way anymore. It takes a lot of money and equipment for a young doctor to get started. They need help." It was Bulgrin who had gone to Chicago for help from the American Medical Association's Physicians Placement Service. This office, under the Council on Medical Service, operates as a clearing house for local medical societies across the nation. A large pin-studded wall map in the A. M. A. office indicates doctors and communities seeking each other.

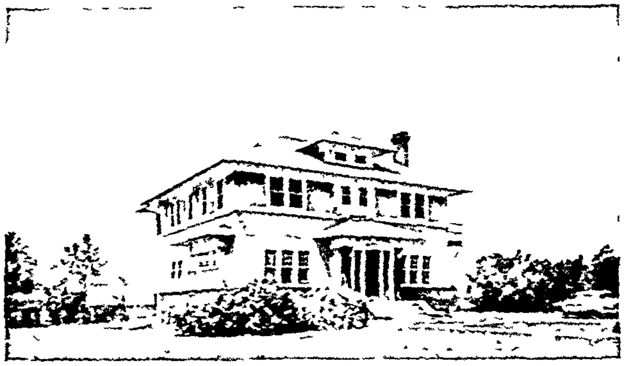
A Pin, a Blizzard, and a Buffalo

One day Miss Dorris Webb, staff assistant, stuck a colored pin into the map at Ennis, Mont. Until a doctor later came there by jeep, to stay, the closest physician was 80 miles away. A blizzard in 1948 isolated the village for 10 days, and a doctor had to be flown in to help a young girl stricken with glandular fever. That crisis jolted the 400 people of Ennis into a fund-raising campaign for a $56,000 clinic-hospital. The money came from card parties, rodeos, a minstrel show, a memorial fund, and auctions of donated goods—including one buffalo. Across the country, Mayor Ed Bouchey of Hillman, Mich., was telling his civic leaders: "Let's put the cart before the horse—build a clinic and doctor's home, and then look for a doctor." In one week $14,000 was raised. The Michigan Health Council's placement service brought in a doctor, to a band concert reception.



The Michigan Health Council's physician placement service brought a doctor to Hillman after this town of 439 decided to "put the cart before the horse—build a clinic and doctor's home, and then look for a doctor."

Fifteen businessmen in Platte, S. D., put up a total of $10,000 to buy a stucco house for conversion into a hospital. It attracted a physician, all right, but big opposition came from one man during a drive to raise $35,000 to remodel the place. He insisted a hospital was not needed. Then, in 1950, during a blizzard in the first winter after the hospital opened, his wife had to be taken there by sleigh for delivery of a baby. You can easily guess who led a second fund drive for that hospital.



Fifteen businessmen put up $10,000 to buy this stucco house in Platte, S. D., so they could convert it into a hospital—and thereby attract a physician to the doctorless community. No state or federal funds were sought.

The A. M. A. has been advising local medical societies to do more than merely name a community to physicians looking for a place to practice. And now many of those on placement lists receive detailed descriptions—even, as in the case of Indiana, lavishly illustrated brochures—describing the community as it will benefit their practice, their recreation hours, their worship, and their families. A special pitch is made to the doctor's wife, because many rural people have discovered the hard way that, if she does not like the town, her husband will not stay there for long.

It Is Happening Across the U. S.

All over the nation, with only few variations, the story is the same: The 300 people of Hookstown, Pa., seek help from the Medical Society of the State of Pennsylvania. They are urged to show that the town needs a doctor, to make the town attractive to him, and to be ready to help him. The advice works. A brochure mailed to names on a placement service list brings 16 physicians to look over an $18,000 home and clinic built with proceeds from a town fair, and one doctor stays. (Later, the same brochure invites industry to the town.) All schools and stores are closed for one day in Bertrand, Neb., so there can be a community auction to build a clinic. By the end of the day $7,000 is raised. Added to other campaign funds, this builds the clinic. A doctor comes to Bertrand. A 12-bed hospital in Salina, Utah, is not much use without a doctor. So all 1,700 people in town are alerted as greeters for physicians responding to placement lists of the A. M. A. and the Utah Medical Society. The one who stays is from far-off Norfolk, Va., Dr. Morris Fine.

Why all this fuss for a doctor? Why is it he cannot set up rural practice in an office of his own, on his own, without community help? The answers lie in modern medicine itself, and in its high standards. "The day of practicing out of the little black bag is gone with the horse and buggy," said Dr. W. W. White, who spurned big-city practice because he preferred the warm-hearted people whose 16-bed hospital attracted him to Faith, S. D.

While the cost of living in rural communities is less than in big cities, capital investment is higher because there are no group facilities used by many medical men. That is why a small town needing modern medical care finds it must pay for the facilities at the outset, rather than depend on ready cash of new doctors.

What ready cash? In years past, a sizable percentage of starting physicians came from well-to-do families. Now, more likely than not, they got their education through G. I. aid, or scraped an existence through medical school and then through the heavy loss-of-earnings period of internship. Only in a Hollywood film does the handsome young doctor pull into the sleepy little town on the 8:12 from Omaha, looking for a place to settle down. Until recently, the town mayor or the chamber of commerce president was getting on that train to plead at the medical school for a doctor. Now placement service is a better solution.

Through War And Peace

The service began during the last world war as an emergency aid for communities whose physicians were being called into uniform. Then returning doctors used the service to set up civilian practice. But as peace bloomed, both doctors and communities kept asking for the help. Here was a permanent thing. Youths just entering medical school were asking to get on the placement mailing lists. One first-year student from St. Louis took his parents to a community listed in Michigan. They liked it, and when he gets his degree next year he hopes to hang his shingle there. Not long ago, a visiting physician from Nigeria, Africa, gathered some community success story data on physician placement from A. M. A. headquarters in Chicago. He explained: "We have the same problem of distribution in my country."

The A. M. A. service is free, and there also is no cost or the service by 43 state medical groups. Any physician or medical student is eligible; A. M. A. membership is not required. And there is no charge to communities, either. Not all placement is for new physicians. Many doctors just want a change of scenery, like the woman orthopedic surgeon who has made at least three moves in recent years. She told the A. M. A. placement office: "I like to change my practice site every year."

Requests are forwarded by the A. M. A. to the medical associations of states preferred by the applicant. He then is mailed detailed listings of communities available. Each community on the list also gets the doctor's name for added contact. At last count there were over 1,000 pins on the A. M. A. wall map indicating physicians and communities trying to get together. This does not include hundreds more names and places on local society placement rolls compiled independently of the A. M. A. files. Many successfully placed physicians say they are as well off financially in rural areas as the average man anywhere in general practice. Actually, figures from the A. M. A. Bureau of Medical Economics and the U. S. Commerce Department show a higher average income from general practitioners in the towns than in the larger cities.

The Pioneers

The theory that community initiative is needed to revive medical service in America's hinterland was fostered chiefly in two states, Kansas and Virginia. The "Kansas Plan" was born after Dr. Franklin D. Murphy became dean of the University of Kansas medical school in 1948 at the age of 32. It was he who convinced communities that it is up to them to provide doctor facilities for rent or eventual sale. Dr. Murphy's model was Mankato, Kan. (population 1,532). The townspeople raised $13,000 in a few days, and soon a half-dozen physicians, lured by state society placement notices, were looking over the town, and being looked over. Dr. R. M. Owensby, who came to visit relatives in Mankato in 1949, stayed.

The plan of the Virginia Council on Health and Medical Care in 1946 was a pioneering kind of placement service. In the growth of a community spirit all across the state, Virginians were comparing clinic-building to churches for ministers and schools for teachers.

The Texas Medical Society spent three years making a survey that disproved what Executive Secretary C. Lincoln Williston last month described as "one of the half-baked ideas some folks still hold that a critical doctor shortage exists in the country today." What the survey did prove was that Texas had a physician distribution problem. In Texas, as in other states, physician placement services are going beyond the problem. Only now, as these new portraits of harmony between physician and rural community come into focus, are some authorities beginning to see more than just a close and needed relationship, more than a successful placement service.

Thomas Hendricks, Secretary of the A. M. A.'s Council on Medical Services, puts it this way: "When a doctorless community goes looking for a physician it primps itself up—and not just with a clinic. The people begin examining themselves and their resources in the light of his glance. They make sure their water and sewage systems are in good shape. They want the doctor's children to attend good schools, and so they put through their long-delayed school expansion program. Religion and churches benefit, too. The result is not merely a new doctor and a clinic. It is a better town, a better place to live—and that attracts more good families. When a community goes courting for a doctor, it is building itself up."

Atomic Warfare.—The trend of world events in the atomic age forces the inevitable conclusion that in future [we] must be prepared to care for mass casualties of a magnitude and abruptness which far exceed any previous experiences in conventional warfare. In planning to meet this challenge, the types and numbers of physical injuries to be expected can be reasonably estimated from the quantities of heat, blast, and radiation that will be unleashed by the atomic explosion. However, the effect of the psychologic trauma accompanying such a destructive weapon in producing mental breakdown or otherwise adversely influencing behavior is not so susceptible of measurement or prediction. Yet the emotional state of the relatively uninjured survivors in atomic attack is of primary consideration, because only by their efforts can there be prompt reorganization for lifesaving aid to and rescue of the seriously injured, or for any effective defense against an immediate enemy assault exploiting such a tactical situation.—Col. A. J. Glass, M. C., U. S. Army, Psychologic Considerations in Atomic Warfare, *United States Armed Forces Medical Journal*, May, 1956.

COUNCIL ON PHARMACY AND CHEMISTRY

REPORT TO THE COUNCIL

The Council has authorized publication of the following report.

H. D. Kautz, M.D., *Secretary.*

PRESENT STATUS OF THE TREATMENT OF TUBERCULOSIS

Col. James A. Wier (MC), U. S. Army

This report is the seventh in a series [1] by the Veterans Administration-Army-Navy group that has been studying the chemotherapy of tuberculosis since 1946. This report is largely a summary of the data presented at the 15th Conference on the Chemotherapy of Tuberculosis, held in St. Louis, Feb. 6-9, 1956. Its purpose is to briefly summarize data presented as a result of cooperative studies as well as to mention reports of pilot studies and other original work of individual hospitals or investigators. For more details on methods and techniques of the cooperative studies, reports of early conferences or the recent summary by Tucker [2] may be consulted.

This report is directed primarily toward the internist and general practitioner of medicine rather than toward the specialist in pulmonary disease or tuberculosis. No effort will be made to report on all papers presented or to interpret any of the more controversial material debated.

Three Basic Chemotherapeutic Regimens

Comparison has been made of 3,250 cases of pulmonary tuberculosis treated for at least four months with one of the three following regimens: 1 gm. of streptomycin given twice weekly plus 12 gm. of aminosalicylic acid (PAS, formerly para-aminosalicylic acid, U. S. P. XIV) administered daily; 1 gm. of streptomycin given twice weekly plus 0.3 gm. of isoniazid administered daily; or 0.3 gm. of isoniazid plus 12 gm. of aminosalicylic acid administered daily. These regimens, which were assigned to patients by random allocation, were continued for 12 months or longer in most instances. Results have revealed no differences regarding x-ray improvement or bacteriological conversion in patients with minimal pulmonary tuberculosis; however, in patients with far-advanced pulmonary tuberculosis, the bacteriological conversion rate at 5 to 8 months and at 9 to 12 months was significantly better in patients receiving isoniazid plus aminosalicylic acid than in those receiving either streptomycin plus isoniazid or streptomycin plus aminosalicylic acid. In these cases, the streptomycin was administered twice weekly. The streptomycin-isoniazid combination produced slightly better results than the streptomycin–aminosalicylic acid combination in the far-advanced cases. Careful evaluation of results and personal experiences of all investigators supported the belief that roentgenographic improvement per se was the least important means of evaluating results of drug therapy, particularly in more advanced and cavitary disease. It was felt that evaluation of cavity closure and bacteriological conversion and eventual relapse rates would be the most reliable guides.

In the evaluation of cavity closure, differences in results with these three regimens were least apparent in patients with small cavities. In patients with cavities no larger than 1 to 2 cm. in diameter, the percentage of cavity closure at 12 months without use of resectional surgery was the same with streptomycin plus isoniazid and isoniazid plus aminosalicylic acid, but only slightly lower with streptomycin plus aminosalicylic acid. In patients with cavities of 2.5 to 3.5 cm., the combination of isoniazid plus aminosalicylic acid was slightly more effective than the other regimens; in patients with cavities larger than 4 cm. in diameter, the isoniazid–aminosalicylic acid combination yielded a significantly higher percentage of cavity closure at 12 months than did the other two regimens. The streptomycin–aminosalicylic acid combination proved least effective. This superiority of isoniazid plus aminosalicylic acid was apparent at each evaluation period.

Bacteriological resistance to streptomycin (equal growth in 10 mcg. per milliliter in vitro) did not differ significantly in the groups treated with streptomycin-isoniazid or streptomycin–aminosalicylic acid. A different picture was presented, however, concerning isoniazid resistance (equal growth in 5 mcg. per milliliter in vitro). There was a significantly higher incidence of patients with organisms resistant to isoniazid when they were treated with streptomycin plus isoniazid than when they were treated with isoniazid plus aminosalicylic acid. This became more apparent at each observation period after four months and was more striking in patients with cavities larger than 4 cm.

In summary, it may be stated that the combination of isoniazid plus aminosalicylic acid was significantly more effective than either of the other two regimens in the treatment of pulmonary tuberculosis, especially in those patients with more advanced disease; in less extensive disease there was no significant difference between the regimens.

Pilot Studies

Triple Drug Therapy.—Two hundred eighty patients were treated for at least eight months with a three-drug combination, streptomycin plus isoniazid plus aminosalicylic acid, as compared to a streptomycin-isoniazid combination or streptomycin plus aminosalicylic acid. Results showed little difference, except that there was more bacteriological conversion at all evaluation points with the first two combinations. The streptomycin was administered twice weekly in all the combinations.

Streptomycin Administration.—Preliminary results in treatment of 142 patients would tend to confirm the British Medical Research Council studies,[3] which demonstrated that administration of 1 gm. of streptomycin plus isoniazid, both given daily, produces less

---

From the Fitzsimmons Army Hospital, Denver.

emergence of organisms resistant to isoniazid than administration of 1 gm. of streptomycin twice a week and isoniazid daily.

Duration of Chemotherapy.—Results of cooperative study comparing the effectiveness of treatment in patients receiving 6 or 12 months of drug therapy after achieving x-ray stability, cavity closure, and bacteriological conversion have been inconclusive. All investigators were in general agreement that drug therapy should be continued for at least a year in all cases and for no less than six months after the achievement of clinical control of the disease as defined previously. Chemotherapy of longer duration should be used in patients with more extensive disease and with so-called open-healed cavities.

Bed Rest.—Cooperative studies to evaluate the need for bed rest have been largely inconclusive. One Veterans Administration hospital has treated all patients for several years on a liberal basis of free activity within the hospital. Their results in a group of 200 patients compare favorably with the over-all results reported from other Veterans Administration hospitals. One Army hospital has established a program to evaluate the importance of modified bed rest as compared to ad libitum ambulation in hospitalized patients. A preliminary report indicated no differences in the results in 95 patients on bed-rest therapy and in 80 patients permitted early ambulation. It was emphasized by all concerned that preliminary hospitalization of tuberculous patients was indicated and initial home care was not recommended, even though it appears feasible to shorten the duration of hospitalization in most patients undergoing original drug treatment.

Individual Drugs

Pyrazinamide.—In 1954, at the 13th Veterans Administration Conference, there had been concern over the use of pyrazinamide because of an apparently high incidence of toxic effects on the liver; however, its effectiveness in animals, when combined with isoniazid, and the results of therapeutic trials in humans, have reawakened more widespread interest in this drug. It has been found that combined pyrazinamide-isoniazid therapy is effective in patients who have never received either drug before. A preliminary report at this conference, on a relatively small number of cases, indicated that this two-drug combination (137 patients treated) was somewhat more effective in bringing about x-ray improvement, bacteriological conversion, and cavity closure than were streptomycin plus isoniazid (78 patients), isoniazid plus aminosalicylic acid (112 patients), or streptomycin plus aminosalicylic acid (115 patients). In all studies reported there is a significant factor of toxic effect on the liver; approximately 10% of the patients receiving pyrazinamide showed abnormal results in liver function tests, and about 3% showed frank jaundice. Most of these conditions, however, revert to normal when the drug is withdrawn. One exception to the reported toxic effect on the liver was in the group of patients previously reported by the Public Health Service, in which the rate of toxicity was much lower. The combination of pyrazinamide plus isoniazid also was effective in patients with organisms resistant to streptomycin and/or aminosalicylic acid. Pyrazinamide alone may be used with reasonable success for periods of 30 to 60 days to cover surgery in patients resistant to other major drugs. Pyrazinamide plus viomycin was believed to produce no better results than those expected with pyrazinamide alone.

Cycloserine.—The effectiveness of cycloserine in the treatment of pulmonary tuberculosis has now been investigated for about two years. A preliminary report on cycloserine alone versus combined isoniazid-aminosalicylic acid therapy has established that cycloserine alone is inferior to this combination in all respects evaluated. Schmidt reported that cycloserine and isoniazid appear to act synergistically against tubercluosis in the monkey. Preliminary clinical reports by Epstein indicate that cycloserine plus isoniazid may be an effective regimen in man. Reports of toxicity, particularly to the central nervous system, have continued This toxicity appears to be related to blood levels of the drug and is higher with levels over 30 mcg. per milliliter. There has been no indication of increased toxicity from the combined use of cycloserine and isoniazid.

Hinconstarch.—A combination of amithiozone, isoniazid, and starch was studied in experiments with animals. It was felt to be about as effective as the amithiozone and isoniazid contained in the combination might be individually, although there was some indication that the toxicity of amithiozone was lessened in the starch combination.

Isoniazid.—Isoniazid is degraded in human subjects into several derivatives, one of these being biologically inactive acetylisoniazid. It has been shown that the degree of this inactivation may vary significantly from individual to individual. The usual chemical assay method (Poet and Kelly) for determining the isoniazid level in serum does not distinguish between the active free isoniazid and the biologically inactive derivatives. As a consequence, some individuals with adequate serum levels determined by the chemical method will have an entirely inadequate level as determined by the bioassay methods, indicating that in these individuals there should be little therapeutic effect from the isoniazid used. Variations of free isoniazid in the urine reflect the free (biologically active) isoniazid in serum. In some of these individuals the simultaneous administration of aminosalicylic acid will elevate the level of biologically active isoniazid in the serum, probably by competing for the acetylation mechanism.

Thoracic Surgery

Surgical Resection.—Consolidated data presented at the conference indicated that 1,307 pulmonary resections were done during the last year. The percentages of types of operations for 1954-1955 were pneumonectomy, 5%; lobectomy, 39%; and segmental and wedge resection, 56%. Mortality rates for these procedures were pneumonectomy, 21%; lobectomy, 4%; segmental resection, 1.3%; and wedge resection, none. The overall rates of mortality for the period 1953 to 1955 inclusive were pneumonectomy, 16.5%; lobectomy, 3.3%; segmental resection, 1%, and subsegmental resection, none. The rate of serious complication as evidenced by empyema was pneumonectomy, 18 5%; lobectomy, 4 7%, segmental resection, 4%; and subsegmental resection, 0 8%. The incidence of complication is higher in the patient previously treated, but with tubercle bacilli still susceptible to the drugs being used, than in a patients receiving treatment for the first time; complications are most frequent in patients previously treated whose tubercle bacilli are drug resistant.

Resection of Closed Lesions.—One Veterans Administration hospital reported on a follow-up of patients with pulmonary tuberculosis with closed lesions in whom surgical resection or medical treatment was administered by random selection. Four of 43 patients in whom resection of closed lesions was added to medical treatment had relapses; 3 of 56 in whom resection was not done had relapses. In general, an increasing lack of enthusiasm was noted among the investigators for resection of closed necrotic lesions in patients receiving adequate chemotherapy.

Morphology and Bacteriology of Closed Lesions.—Data from the cooperative study were presented on bacteriological examination of 1,367 surgically resected lesions, of which 64% were closed lesions, 13.5% were open lesions, and 22 5% were mixed. Seventy per cent of the closed lesions were negative for tubercle bacilli by culture, whereas 40% of the open and 44% of the mixed lesions were negative. It was noted that, the larger the closed lesion, the higher the percentage of bacteriological positivity, and the longer the period of preoperative chemotherapy, the fewer the number of positive lesions. The duration of preoperative chemotherapy seemed to have no relation to the percentage of positivity of open lesions.

Nonpulmonary Tuberculosis

Miliary and Meningeal Tuberculosis.—The favorable trends noted with miliary and meningeal tuberculosis reported previously are continuing. A two-year follow-up has revealed 95% survival of patients with miliary tuberculosis treated with streptomycin-isoniazid, with or without aminosalicylic acid, the two-year survival rate in patients with meningitis similarly treated is 80%. Most of these patients have received triple therapy, but all have received isoniazid and streptomycin. These results are significantly better than were accomplished previously with a combination of streptomycin and aminosalicylic acid.

Genitourinary Tuberculosis.—One investigator, expanding on the results of chemotherapeutic regimens in genitourinary tuberculosis, indicated that triple therapy has shown about 5% better results than any combination of two drugs. He again emphasized the trend toward less surgical intervention in renal tuberculosis. He recommended that drug therapy for most cases of renal tuberculosis be continued for at least 24 months

Some Special Problems

The Open-Negative Tuberculous Cavity.—The open-negative tuberculous cavity is defined as an empty space lined by hyalinized connective tissue with no sign of specific inflammation in the wall and with no exudate in the space. Ninety-eight surgically resected cavities were examined. Twelve showed open healing on pathological examination; 55 cavities were active clinically, and on pathological examination 31 were clinically open-healed with negative preoperative bacteriology. Of these clinically open-healed cavities, two-thirds were active on pathological examination. Only 4 of 12 open-healed cavities (pathologically) had typical thin-walled appearance as evidenced by a preoperative x-ray. In some instances, patients with open-healed cavities were treated with streptomycin plus aminosalicylic acid, indicating that this phenomenon is not necessarily the result of treatment with isoniazid as has been suggested.

The in Vitro Action of Antituberculosis Agents Against Multiplying and Nonmultiplying Organisms.—Further evidence was presented that indicated that both streptomycin and isoniazid are most active against tubercle bacilli that are actively multiplying and that they have little effect on those that are not multiplying or are in a resting state.

Summary

As data accumulate on large numbers of patients with pulmonary tuberculosis treated with long-term combined chemotherapy, it is increasingly evident that most patients undergoing an initial course of therapy do well on any of the adequate drug regimens. Significant differences occur only in patients with far-advanced disease who are selected on the basis of large cavities or multiple bilateral cavities. In these cases the best results have been obtained when isoniazid and aminosalicylic acid are given daily in combined therapy. These findings suggest that no rule of thumb can be dictated that will apply to chemotherapeutic treatment of all patients with pulmonary tuberculosis. In these problem cases, other factors are arising that further complicate the proper treatment of the individual. These include the different rates of inactivation of the chemotherapeutic agent in the patient being treated, the significance of the open cavity remaining in a patient who is always bacteriologically negative, and the development of resistance of the bacterial organisms to the chemotherapeutic agents used.

References

1. Reports to the Council on Pharmacy and Chemistry (*a*) Effects of Streptomycin on Tuberculosis in Man, J A.M.A. **135**: 634 (Nov 8) 1947, (*b*) Streptomycin in Treatment of Tuberculosis Current Status, ibid **138**: 584 (Oct. 23) 1948, (*c*) Current Status of Chemotherapy of Tuberculosis in Man: Summary Report, ibid **142**: 650 (March 4) 1950, (*d*) Chemotherapy of Tuberculosis in Man Present Status, ibid. **147**: 253 (Sept. 15) 1951, (*e*) Chemotherapy of Tuberculosis in Man Present Status, ibid. **154**: 52 (Jan 2) 1954, (*f*) Present Status of Treatment of Tuberculosis in Man, ibid **158**: 829 (July 9) 1955.

2 Tucker, W. B Comparison of Effects of Four Variables in Antimicrobial Therapy of Pulmonary Tuberculosis I. Report of Cooperative Study of Veterans Administration, Army, and Navy, April, 1949, to January, 1951, Am. Rev. Tuberc. **72**: 718 (Dec.) 1955.

3. Various Combinations of Isoniazid with Streptomycin or with P.A S. in Treatment of Pulmonary Tuberculosis, Seventh Report of British Medical Research Council, Brit. M. J. **1**: 435 (Feb. 19) 1955

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

FURTHER PROGRESS IN SPECIFIC THERAPY OF TUBERCULOSIS

GUEST EDITORIAL

H. Corwin Hinshaw, M.D.

Each year some hundreds of physicians and surgeons gather to learn the latest results and opinions concerning specific drug therapy of tuberculosis as revealed at the Conference on Chemotherapy of Tuberculosis, sponsored by the Veterans Administration and the armed forces. A report to the Council on Pharmacy and Chemistry concerning developments in this field as reported at the 15th conference appears elsewhere in this issue of The Journal (see page 471). This continuing cooperative project, surely the largest in the history of medicine, has involved more than 50 hospitals and at least 15,000 patients. In addition to supplying factual data and a digest of opinions to physicians everywhere, this conference constitutes a powerful educational force within the VA and the armed forces. Never before has it been demonstrated so well that unique research opportunities in the federal services are offered to physicians with a scholarly bent.

The accumulated data convince me that several almost equally effective therapeutic regimens have been established by this great research project. The superiority of aminosalicylic acid combined with isoniazid is demonstrated only by statistical analysis of extensive data, for any margin of superiority is slight and seems to apply only to bacteriological results. In other respects no convincing difference is observed between several of the regimens studied. To the practicing physician this appears to indicate that any one of the various combinations of streptomycin, isoniazid, and aminosalicylic acid may be used with confidence. Often the individual patient's tolerance and comfort will be the deciding factor in the choice of therapeutic regimen. Furthermore, what is best for the statistical "average" case may not be best for the individual. Thus, an appeal is being made for clinical judgment in choice of therapy rather than for adherence to protocol. Such judgment is employed by the very capable physicians in government service; the patients selected at random for research constitute a minority of those treated in many institutions.

Attention is directed to the observation that daily administration of streptomycin again appears to offer advantages over twice-weekly administration when this drug is combined with isoniazid. This fact, shown recently by British observers, does not necessarily conflict with earlier conclusions of the VA-armed forces project, because the latter work was done before the discovery of isoniazid and conclusions apply to combinations of aminosalicylic acid and streptomycin only. The toxicity of streptomycin when administered daily has often been exaggerated and is now diminished by the use of streptoduocin, a mixture of dihydrostreptomycin and streptomycin. Studies are under way in some civilian institutions to determine if streptomycin given every 48 hours will have a sustaining antibacterial effect comparable to that of streptomycin given daily.

Finally, I must contradict the popular impression that tuberculosis therapy has become a standardized routine. Each of these great conferences brings to light more problems than are solved. Intense efforts are being expended to further shorten the period of hospitalization and to lessen the hazard of relapse. If these are successful, every taxpayer will benefit, as well as the patients involved, for tuberculosis continues to be the most costly and devastating of the chronic infectious diseases in the United States and throughout the world.

Clinical Professor of Medicine, Stanford University School of Medicine, San Francisco.

PORTRAITS IN HARMONY

When a community puts on its Sunday best to woo a doctor into its fold, that is a love story. But it is more than that. Elsewhere in this issue (page 468) is an article entitled "Portraits In Harmony." It is the story of how local medical societies, through their placement services, are helping rural areas reverse the trend of general practitioners going to big cities. The towns are doing this by campaigning for contributions and investments, and by donating time and labor to create the one thing most young doctors cannot afford outright: facilities to meet the demands of modern medicine. The doctor is not given a handout; instead he properly and willingly pays for his clinic in rent or gradual purchase. These efforts are building communities—and thereby building America.

MEDICINE AT WORK

Elsewhere in this issue (page 468) is a section entitled Medicine at Work. This is a new column, beginning with this issue of The Journal, which will be published from time to time and which will feature attempts of the medical profession and other groups interested in health to solve medical problems facing this nation. The American Medical Association has many committees and councils organized to help meet these problems; so do other organizations. Much also is done by civic-minded groups and individuals, as is told in the story "Portraits in Harmony." Too little, however, is known of such efforts, and, as a result, often there is criticism because of lack of information when there should be commendation because of actions taken. It is hoped that this reporting will permit members of the A. M. A. to be better informed about what their organization is doing and about what other groups are attempting to accomplish in the health field. It is also hoped that the information will be shared with all, whether they are physicians or not, who have a genuine interest in meeting the medical needs of this nation.

LONG-RANGE EFFECT OF EXPOSURE TO RADIATION

Because of the wide publicity given to conflicting statements, there has been much confusion in the public mind regarding the long-range effects on the human race of exposure to various ionizing rays. The statements that atomic explosions caused no damage to descendants of the people in the bombed cities of Japan on the one hand and that atom bomb testing has already seriously undermined the genetic basis of all mankind on the other present extremes, both of which are in error.[1] It is important that the truth be recognized. All radioactive materials, whether naurally occurring radium or artificially produced isotopes, emit rays, the most important of which from a genetic standpoint are gamma rays. In emitting such rays these elements undergo a process of decay or transformation into a more stable form. X-rays used chiefly for medical diagnostic purposes may also, by their scattered radiation, provide a significant amount of genetic damage. The effects of the radiations to which we are all exposed have been intensively studied by several committees of the National Academy of Sciences, and two reports that give the most authoritative views now available have been published.[2] These are worthy of wide dissemination. As with most things on earth, processes involving radiation are neither good nor bad in themselves. When properly understood and handled they may be made to serve man in useful ways, but like fire and electricity their potential dangers must be known and appropriate precautions must be taken when they are so used.

A certain amount of radiation, emanating from cosmic rays and other natural sources, has always been present in our environment. This is called background radiation, and it is estimated that in 30 years the average dose to which the gonads are exposed is between 4.3 and 5.5 r, depending on the altitude at which a person lives, because the exposure is greater at higher altitudes. The period of 30 years is chosen because most children are born before their parents are over 30 years old. It is further estimated that in the first 30 years of life the average exposure from diagnostic x-rays is about 3 r. Radioactive fall-out from testing atomic weapons, if such testing were to be carried on at the present rate, would give an average 30-year exposure of about 0.1 r, although estimates vary from 0.02 to 0.5 r. In any case, as compared with that from diagnostic x-rays, it is small but nevertheless significant.

Genes are present in all body cells, and mutations in these genes may be produced by heat, chemical action, or radiation. Such mutations are of significance only when they involve the reproductive cells. A certain amount of mutation has always taken place as a result of background radiation, but every added source of radiation increases the chances for additional mutations. Mutant genes are usually recessive, so that for maximal effect they must be present in both parents, but even in the dormant stage they are carried along from generation to generation. They almost always lead to some harmful effect, so that the offspring inheriting the new characteristic may be stillborn, be so handicapped as to be unable to survive, be unable to reproduce, or be handicapped for life with a defect that shortens life or reduces fertility. Thus the more harmful the mutant gene the sooner it dies out when natural selection is allowed to exert its evolutionary force. Modern medical science, however, tends to salvage many of these handicapped persons and to retard the natural extinction of their kind.

Geneticists are now agreed that, although certain levels of exposure to radiation are alarmingly dangerous, there is no such thing as a safe level because all radiation from whatever source is potentially dangerous from the genetic viewpoint. Because the disabilities and deaths due to radiation-induced mutations are spread out thinly over many generations, the cost in human life and happiness is difficult to measure and the individual sufferers cannot trace their trouble to its exact source. With these facts in mind, certain recommendations can be made. A system should be set up whereby every person will keep a record of his exposure to x-rays throughout his entire life. The use of diagnostic x-rays should be held to a minimum consistent with sound medical diagnosis and care, and greater efforts should be made to shield the gonads, especially in patients under 30 years of age. The radioactivity of our natural environment should be kept under constant review. Should special circumstances arise where greater exposure than the permissible level is required for one or another purpose, persons not likely to have any more children had best be assigned. Protective devices have been built into atomic installations consistently, and this trend must be continued both in them and in research laboratories. Furthermore, more convenient means than those now available must be found for disposing of radioactive wastes from such installations. All risks attendant on the use of atomic energy must be carefully weighed against the expected benefits. In the solution of some of these problems a beginning has been made. There are, however, still potentially dangerous gaps in our knowledge, and filling these gaps is a matter of the utmost urgency.

---

[1] Muller, H. J.: Genetic Damage Produced by Radiation, Science **121**: 837-840 (June 17) 1955.

[2] Biological Effects of Atomic Radiation. Summary Reports, National Academy of Sciences—National Research Council, 1956. Biological Effects of Atomic Radiation: Report to the Public, National Academy of Sciences—National Research Council, 1956.

PROCEEDINGS OF THE CHICAGO MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN CHICAGO, ILL., JUNE 11-15, 1956

The actions of the House of Delegates at the Chicago Meeting are herewith abstracted so that the readers may have this information in digest form. The official proceedings will be made available, as in the past, in a booklet, which will be sent to all members of the House of Delegates and officers of the American Medical Association by the Secretary. This booklet will not be available for several weeks.—ED.

Preliminary Report of Reference Committee on Credentials

Dr. Raymond F. Peterson, Chairman, Montana, reported that 192 delegates of a possible 196 had been qualified and seated, and the Speaker, Dr. E. Vincent Askey, announced that a quorum was present.

Invocation

The Very Reverend James M. Maguire, President of Loyola University, pronounced the following invocation:

O God, we pause at the opening of this national convention of physicians to acknowledge gratefully and filially Your omnipotence, Your sublime holiness, and, in a special way, Your loving kindness and care for Your children. From the deep natural instincts that You have implanted in the hearts of earthly fathers and mothers, we know that You, Who art father of us all, look upon a good done to one of Your children as a service of love and devotion even to Yourself. How deep, then, must Your love be for the physician who goes about ministering to the ills and assuaging the pain of Your children. Grant, O heavenly Father, to those who minister to the afflicted body a deep realization and a constant awareness of the infinite value of the human soul that gives form and life to the body. May their ministrations for the life and health of the body always assist the patient on his way You, his eternal Father in heaven. Amen.

eport of Reference Committee On Rules and Order of Business

Dr. Herbert H. Bauckus, Chairman, New York, presented the report, which was adopted:

eference Committee on Rules and Order of Business (1) that the Speaker be authorized to vary the of business if necessary adjustments become evident, un- s such changes are objected to and otherwise ordered by the House; (2) that the list of seated delegates as certified to the Secretary by the Credentials Committee shall constitute the official roll call and record of the House attendance; (3) that the Speaker be allowed to grant the privilege of the floor to such persons as may be presented by the President or Chairman of the Board of Trustees and to others who will aid in the deliberations of the House; (4) that the Speaker recess the House at times to be determined by him best suited for the comfort of the House members unless countermanded by the vote of the House.

Address of Dr. Lowell T. Coggeshall

Dr. Lowell T. Coggeshall, Special Assistant for Health and Medical Affairs, U. S. Department of Health, Education, and Welfare, was introduced by the Speaker, and delivered the following address:

Mr. President, Members of the House of Delegates of the American Medical Association, Officers of the Association, and Guests: It is indeed a very pleasant assignment to appear before you this morning in behalf of Secretary Folsom who wished to come, but the pressure of other matters has prohibited his attendance here as it has on many other similar matters. It is an especially pleasant task to appear before you because I am somewhat in the position of the hometown boy coming back home. I might say, parenthetically, that there are many times in Washington I wish these tasks would come a little more often, but there doesn't seem to be a satisfactory substitute for the business at hand. I know you have a very crowded agenda and lots to do, and I am not going to appear before you long. I have no prepared speech. I am reminded of a remark of Secretary Wilson the other night. Speaking about prepared speeches, he said, "From now on, I am going to write my own speeches so that I will be dead certain when I find a foot in my mouth that I will know whose foot it is." So, if I have a foot in my mouth this morning, I shall know for certain whose foot it is.

I would like to report to you more as a member of your organization, rather than as a representative of the government in Washington, about how things are going in Washington as seen from a very busy schedule in the past few months. I accepted this assignment rather reluctantly, not to minimize the importance of the task, because I believe the Secretary's position in medicine is probably the single most important position held by any one man today. The potentialities for good and the potentialities for harm are equally present. I have had a very pleasant experience, however, in Washington on the whole. Primarily my pleasant experience stems from the association with this organization. I was told when I went down there that I should have my head examined for accepting the post. I did not believe it was true then; I do not believe it is now. I was told that you got little credit for anything good that was done, they expected you to do better, and you got all sorts of blame for everything that went wrong. I would like to thank particularly the members of the American Medical Association, the Liaison Committee, and the Legislative Committee.

The policy of the Department of Health, Education, and Welfare at this time is one of an open door. We solicit opinions and we attempt to evaluate those that are presented to us, and they are multiple as you can be assured. There are certain positions that we have to take and that you would expect one of your representatives to take in relation to the over-all progra that may not be entirely consonant with the thinking of t organized body of this Association. On the other hand, I wish to assure you, with conviction and sincerity, that the over-all objectives of the Department of Health, Education, and Welfare, as they apply to the practice of health and medicine in this country, do not vary from the objectives of this organization.

It is particularly pleasant for me to tell you that I am working with Secretary Folsom, one of the most forthright, intelligent noncompromising individuals that I know of. His guide line is, will it be best for everyone concerned? In saying that, I am sure I express the sentiments of many others who come in contact with him.

First, may I point briefly to the over-all task. The Department of Health, Education, and Welfare is a very complex organization simply because it has in it the many facets, the many organizations, that have more or less existed independently. Into this organization come the three primary functions, namely, the function of health, of education and of welfare. Mr. Folsom is an expert in the field of welfare; Mr. Harold Hunt, former superintendent of schools in this city, is primarily concerned with education, and I have the responsibility of advising the Secretary on matters of health.

In this particular organization, as far as the government is concerned, is the enormous department of the Public Health Service. I do not know whether any of the members of the Public Health Service are here this morning, but may I say to you that my admiration and respect go to them as a very dedicated group working to the best of their ability, and they merit your full support. Let us take, for example, the poliomyelitis situation, one of the most dramatic, most emotional situations that has appeared on the scene in the past few years. After seeing it from the inside, I am not surprised at the furor in connection with the distribution of this vaccine. I am surprised that it wasn't worse. I am happy to report to you today that June will probably result in the largest release of this vaccine that has occurred in any month. The Public Health Service has been guided very carefully by its technical experts, including Dr. Salk, and has heeded their advice. By another year, we hope to be out of the vaccine distribution business entirely, putting it on the same basis as any other beneficial vaccine now available. I would like to say at this time that the more children we can get immunized in the forthcoming weeks, the better off we shall be. There was every reason for the program to go wrong, as I say. I am reminded of my short stay in Ann Arbor early in the war when they built the Willow Run plant. Everything was wrong—transportation was not available, there was no housing, there was no food, the labor market was not there, everything was wrong; but less than a year from the day it was started, bombers were rolling off at the rate of one an hour. People have criticized the poliomyelitis program from the standpoint of its statistical evaluation, distribution, and everything else. However, the end-results coming today from Texas, Washington, Rhode Island, and Florida show that there is about an 80% reduction in the number of paralytic cases of poliomyelitis already this year. These are not isolated instances

To go on very quickly, I would simply close by saying that we are primarily concerned at this time with legislative matters. Of particular interest to this group is the bill S. 7225 that all of you are so much interested in. Here, as you know, the Secretary took a very forthright position, studied the matter thoroughly from all its aspects and made his decision that he was opposed to this for the reasons that have been well known to you. In this respect, I think you cannot and never will understand the pressures that were exerted to have a contrary opinion expressed. We are not happy about some of the turns of events there in lowering disability when everything is being done to improve the working conditions for man and extending the longevity of his working period. But there are certain compromises that will be made in spite of everything.

I would point out to you, which you probably know, that the attitude in Washington, particularly in the House and Senate, is that health is the most wonderful thing in the world and we do not support it sufficiently. I will give you one short example of that. Last year the operating budgets for the National Institute of Health were 102 million dollars. The Secretary, with the advice of the people in the National Institute of Health, outside scientists, medical deans, and many others, thought that an increase of 15 million dollars that was rationally worked out would be to our best interest. This came up before the Appropriations Committee of the House and the budget was hiked another 9 million dollars, from 102 million to 126 million dollars. Then the House made it up to 135 million. When it got into the Senate, it was pointed out that there was lack of imagination in the Department of Health, Education, and Welfare, there was no foresight, and, said they, "You do not know how much money needs to be spent, and we are going to hike it to 182 million dollars." This was done, an increase of 82% in one year. This will be cut back, but I only draw it to your attention to indicate the attitude of the present Congress.

It is our attitude in the Department of Health, Education, and Welfare—and I would not stay there five minutes if it were not so—that we must improve the health of the people by doing those things that are healthy, that we must give more to rehabilitation rather than make more attempts to get people on various pension plans or other subsidies. More attention should be given to occupational hazards, because we are going into increased occupational hazards as we become more and more industrialized. We must concern ourselves with the health aspects of radiation energy.

All these things are highly essential, and we are not trying to put the government in the business of running medicine. For any of you who are concerned that inside the government at the present time there is an insidious movement in this direction, I can assure you with every conviction and sincerity that just the opposite is true.

Finally in closing, again I would like not only to pay my respects but to give my thanks to the Washington Office of the American Medical Association, Dr. Tom Alphin, and his associates. They have been very ready to express their view, the position of your organization. There has been no attempt to pressure. The office in Washington and the headquarters office of the Association have been most helpful.

As I have said, in spite of the opinions that I received before I went to Washington, I accepted this post, although with some reluctance, but the experience has been very pleasant and just the opposite of what I had been told it would be. I hope that my services in Washington will be evaluated more on the basis of the job that I do rather than the speeches I give. Thank you very much!

Resolution Regarding President Eisenhower

Dr. James Z. Appel, for the delegation from Pennsylvania, presented the following resolution:

> *Resolved*, That the House of Delegates of the American Medical Association, sitting in annual session in Chicago, Illinois, this 11th day of June, 1956, wishes to express to Dwight D. Eisenhower, President of the United States, its happiness on his present favorable progress toward recovery from his recent serious illness and its sincere hope for a rapid return to complete and robust health.

Dr. Appel moved, and the motion was seconded by several, that the resolution be adopted and that a copy of it be forwarded to the President of the United States over the signatures of the President of the American Medical Association and the Speaker of the House of Delegates. The Speaker received the unanimous consent of the House for the resolution to be considered at once without referral to a reference committee, and the House unanimously adopted the resolution and Dr. Appel's motion.

Citation to Dr. Carl M. Peterson

Dr. Ross T. McIntire of Chicago, former Chairman of President Eisenhower's Committee for Employment of the Physically Handicapped, was given the privilege of the floor for the presentation, posthumously, of a citation to Dr. Carl M. Peterson, late Secretary of the Council on Industrial Health of the American Medical Association.

The citation, in the form of a memorial plaque, was read by Dr. McIntire as follows:

The President's Committee on Employment of the Physically Handicapped Honors Posthumously Carl. M. Peterson, M.D., for a lifetime dedicated to the increased health, welfare and employment opportunity of his fellowman. As Medical Committee Chairman of the President's Committee, he labored long to bring the concept, "Ability Counts, not Disability," to all members of the medical Profession.

As Secretary, Council on Industrial Health, American Medical Association, he was the pivot around which many of the great advances in industrial medicine centered in the past two decades.

As a man, a physician, an administrator, a friend, husband and father, he impressed all with his vigor, fairness and vision. Our country and her handicapped men and women of today and tomorrow have much for which to thank this tireless man whose untimely death in the performance of duty saddened all those who knew him.

The Executive Committee of the President's Committee has authorized this Testimonial to their departed member, and the Medical Committee has caused it to be inscribed for presentation to and permanent retention by the American Medical Association.

Edward C. Holmblad, M.D. Chairman, Medical Committee

Melvin J. Maas, Chairman President's Committee

The plaque was accepted on behalf of the American Medical Association and its Council on Industrial Health by Dr. William P. Shepard, Chairman of the Council.

Contribution to American Medical Education Foundation

Dr. F. Lee Stone, President of the Illinois State Medical Society, presented to Dr. Elmer Hess, in the absence of Dr. Louis H. Bauer, President of the American Medical Education Foundation, a facsimile check from the Illinois society to the Foundation in the amount of $164,940.

Dr. Harold M. Camp, Secretary of the Illinois State Medical Society, explained to the House the facts behind the contribution, as follows:

Mr. Speaker and Gentlemen of the House: During the past three and one-half years, since an allocation of $20 from each member's dues has been given to the AMEF, the Illinois State

Medical Society has given a total of $678,680 for medical education. In addition to the check which has just been presented, as of June 1, 1956, there will be additional payments during the remainder of this year which will bring the total for 3½ years from dues from members to above $700,000. We have been informed that this amount represents more than 12% of all the monies contributed from every source through the AMEF.

Adoption of Minutes of Boston Clinical Meeting

The minutes of the Clinical Meeting held in Boston, Nov. 29-Dec. 2, 1955, were adopted as printed and distributed to the members of the House of Delegates.

Distinguished Service Award to Dr. Walter L. Bierring

Dr. Gunnar Gundersen, Chairman, Board of Trustees, presented the names of three physicians selected by the Board from the list of nominations for the Distinguished Service award, so that the House of Delegates might elect one to receive the award. The nominees were Dr. Walter L. Bierring, Des Moines, Iowa; Dr. Emil Novak, Baltimore; and Dr. Tom Douglas Spies, Birmingham, Ala. Dr. Bierring was elected recipient of the Distinguished Service award of the American Medical Association for 1956.

Remarks of President of American Medical Education Foundation

Dr. Louis H. Bauer, President, American Medical Education Foundation, addressed the House as follows:

I am sorry that I was not in the House when the presentation of the check from the Illinois State Medical Society was made. I think you will agree that it is a very large check in more than one sense. I would like you to know that today's gift includes monies received from the Illinois society for a total of $650,000 since 1953 and, added to this, specialty medical groups and the woman's auxiliary within that state have contributed another $118,000. The total amounts contributed to medical schools from both the Foundation and the National Fund for Medical Education since they were started is something over $9,500,000, of which the American Medical Education Foundation has given $4,600,000, and of the amount which has come to the Foundation, 12% of it has come from the Illinois State Medical Society. I think that is something that might make the rest of you sort of hang your heads. I do not know of any group that has gone all out the way Illinois has from the start. There are some other states that are coming along now, too, but it certainly gives us a goal to shoot at, and I think that everybody in this House, everybody in the medical profession, and certainly everybody in the medical schools owes a tremendous debt of gratitude to the Illinois State Medical Society, which has pioneered in the contributions and has gone out ahead of everyone else in making these funds available for the freedom of medical education.

I have here an Award of Merit from the American Medical Education Foundation to the Illinois State Medical Society for outstanding contribution to the preservation and continuation of the high standards of medical education in the United States of America, and I should like to present this to Dr. Stone and Dr. Camp, if they would come up here to receive it.

Dr. Stone accepted the Award of Merit with an expression of appreciation.

Address of the Speaker, Dr. E. Vincent Askey

The Speaker presented the following address, which was referred to the Reference Committee on Reports of Officers:

We have endeavored, at each meeting of the House, to call attention to a few parliamentary considerations with which we all should be familiar.

We have found that most misunderstandings arise because of really minor details. Rules are rules and should be followed—as a rule. However, by martinet-like stickling to form rather than intent we may defeat the best interests and desires of the majority. Hence, some leniency in interpretation is always wise unless the rights of others are jeopardized. Firmness is in order when basic rights are in danger or violated with injustice.

A motion is never carried until announcement of the vote by the Chair has been made. You will notice that your Speaker always waits a reasonable time after the vote before announcing the result. This is deliberate and sometimes is due to question as to the result. It allows time for a request for a division call. At other times it is to allow a member to record or change his vote. At other times it is to allow a member to reopen the discussion if he has found something important and if he is entitled to the floor. If discussion is reopened, then the whole vote must be retaken as some members may have changed their minds. No member can be expected to vote until his mind is satisfied completely unless discussion has been limited or closed by a two-thirds vote and the previous question called. If the result of the vote has been announced then discussion is ended and can be reopened only by motion to reconsider or to rescind. A motion to reconsider can be made only by one who voted on the prevailing side because our Bylaws direct us to follow Robert's Rules of Order. Some courts of law have held that where no specific rule is stated in the Bylaws any member may move reconsideration. Robert's Rules, we believe, constitute that specific rule in our case. A motion to rescind needs a two-thirds vote to carry unless notice has been given.

Appeal from a decision of the Chair may be made on any ruling which is one of opinion but not a matter of fact, such as a stipulation in the Bylaws. Appeal cannot be made, however, if other intervening business has been transacted. Appeal must therefore be made promptly or not at all.

In my letter to you you will remember I discussed somewhat the procedure of introduction of reports and new business or resolutions. Two main matters of business are considered by the House, exclusive of the stated addresses of officers and the routine of elections and similar procedures. These are:

(1) *Previously Considered Items.*—These are matters which have been before the House previously and have been referred to some committee for study and report or to the Board of Trustees for study and report or action. Also included are other matters which have been considered by the Board of Trustees since the last meeting of the House and which it is deemed wise to report to the House. These are official committee reports or supplementary reports of the Board of Trustees.

Matters described under category (1) will be allowed to be presented by the Chairman, or designated individual, in detail as deemed necessary by that Chairman. (Chairmen are cautioned that they will not be popular with the House if they do not use good judgment in briefing their presentation.) After presentation, assignment to the proper reference committee will be made. Debate before the reference committee will then be in order.

(2) *New Items for Consideration.*—These are matters which, as such, have not been before the House and are a priori approaches to problems brought to the House by individuals or delegations of members. These are our resolutions.

There was some criticism from the last meeting, constructive criticism, and I wrote to you and asked that you send it, and I appreciate your feelings in these cases. I feel that perhaps I rushed the resolutions through a little bit fast in Boston. I do not want them to be given in detail because then we go the other way, but I feel that a good solution of that would be as follows:

Matters described under category 2, which are the resolutions, shall first be called by number. Each resolution has been assigned a definite number, depending on the order in which your Secretary's Office received the resolutions. As you get up to give the resolution, please state, "This is No. so-and-so." It will be called by number so that there will not be any trouble. When you get up, in addition to the number, give the name of the delegate presenting the resolution and for whom he is presenting it. There is a title to the resolution. Please read the title of the resolution. Then I am going to ask you to do the thing which my good friend, Jim Reuling, insisted upon, and I agree with him; read the "Resolved" portions of your resolution, leaving out the "Whereases." The "Whereases" are arguments in favor of and should be before the reference committee for your argument and will be taken up there. If we hold to this plan, we shall save a great deal of time, and yet we shall get adequate understanding of the resolution in my opinion. Then the Chair will assign it to the proper reference Committee.

In your folders you will find resolutions, supplementary reports and listings of them by letters and numbers showing the name of the reference committee to which they are referred, including the chairman of the committee, so if you miss what the chairman says, just get your packet out and read where it was assigned. We have tried in all ways to help you to be perfectly clear at all times as to where everything before the House is.

I want to congratulate this House at this time. I have had marvelous cooperation in connection with resolutions. Ordinarily, on the morning of a meeting the Speaker goes into the Secretary's office and finds 50 or 55 resolutions waiting for him, and to assign them to the proper committee without knowing what they are is a job for your Speaker and Vice Speaker. This morning I went in and Miss McGovern said, "We have only one more so far." You may have some out there waiting for me, you may fool me, but we have most of them in our hands, I am sure. I appreciate that, and ask for your continued help.

Further, I want to call attention to the fact that this is not the only day on which resolutions may be introduced. They may be introduced willy-nilly on Wednesday. On Thursday, however, they may be introduced if they come from the sections or are an emergency, or if they are presented by unanimous consent, so we may have more resolutions. If we get late resolutions, they obviously cannot be put in your hands mimeographed. If you remember, last time we had a little trouble because everybody went around the table and reached over and pushed them and shuffled them like a deck of cards, and nobody got what he reached for. So I have got this table over here, and, if you noticed, there is a rope up there, and I am going to have the Master Sergeant and his fellows standing there, and they are only going to let you go through in one line. The resolutions will be placed numerically, and as you go by pick them up numerically and don't reach over because if you do the Sergeant-at-Arms is going to flash his badge on you.

All business adopted by the House is transmitted by the Secretary and General Manager to its proper destination. The Board of Trustees, however, is obligated by the laws of the State of Illinois, under which the American Medical Association is incorporated, to decide whether any action is legally correct and if the financial requirements are wise. The Board must control all action. At times legal counsel advises the Board that portions of resolutions if carried out would result in legal penalties and the Board of Trustees must therefore estop all action. Some part of the resolution may be legal, however, and by direction the Board must carry that part out even though the main object of the resolution is impossible of accomplishment. Each reference committee should therefore study every item before it very carefully and request our Law Department to give advice where indicated before reporting on the matter to the House.

Reference committee reports will be called for in order as deemed most appropriate by the Speaker. We shall appreciate notification at once as soon as the chairman has his report ready.

In election voting the Secretary will read the names of delegates in order as listed by states for the roll call. The Chairman of Tellers will verify each name as the ballot is cast. In other voting by division count or ballot, the Tellers will determine the vote and report the result to the Speaker.

Your Speaker wishes to compliment this House on its usual astuteness and efficiency. We fear that soon you will attain such perfection that we shall have no more room for innovations of procedure. However, that reminds me of a quotation whose author I do not know. I often repeat it to myself when I feel a little self-satisfied: "For never yet hath any man attained to such perfection but that time or use hath brought addition to his knowledge, or made correction or admonished him that he was ignorant of much that he had thought he knew."

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr. William L. Estes Jr., Chairman, Pennsylvania, presented the following report, which was *adopted:*

Address of the Speaker.—Vincent Askey is a magnificent presiding officer of the House. His thoughtful and thorough concentration on the improvement of our knowledge and familiarity with parliamentary procedure, and the mobilization of every feature to facilitate the business of the House to lose as little time as possible in routine so that the concentration of our members can be upon intelligent consideration of the business at hand, deserves the plaudits of his confreres. The introduction and identification of new members is a splendid innovation. A leniency and some latitude in the interpretation of rules is always wise, unless, as he has stated, the rights of others are thereby jeopardized. Explanation of a motion to reconsider, and that it can be made only by one who voted on the prevailing side, is timely; likewise that a motion is never carried until an announcement of the vote by the Chair and its relation to the question of further discussion has been properly clarified. Other often misused or misunderstood parliamentary procedures, such as the motion to rescind and an appeal from the decision of the Chair, have been accurately outlined.

The introduction of dividers and separate compartments in the folders of every member for the material for each reference committee should make for better filing of our documents and for easy access to them. If these compartments were removable from the folder, there would be an added convenience. The detailed outline of the method of handling previously considered items and the spelling out of the method to be pursued in the introduction of resolutions will and has already improved the despatch with which this routine can be carried out.

Most timely is the reminder that the Board of Trustees, in compliance with Article VIII of the Constitution, is obligated by the laws of the State of Illinois, under which we hold our charter, to decide as to the legality of all action taken by the House. Your committee has been advised that members of the Association's Law Department are available to consult with each reference committee of the House. Therefore we would particularly reemphasize the Speaker's admonition that "each reference committee should study every item before it very carefully, and request our Law Department to give advice where indicated before reporting on the matter to the House."

Astuteness and efficiency, to which the Speaker refers, certainly rest likewise on his broad shoulders, and from that source, in many respects, have been contagious to members of the House. He deserves our grateful thanks for his outstanding contributions to better and more expeditious procedure by this deliberative body.

Introduction of New Delegates

The Speaker introduced 19 new members of the House of Delegates with the following remarks:

I have in my hand the last available list of the new members, and I wish as I call their names that they would stand up because I feel that these new members should be made welcome. I think some of us remember when we were neophytes in this House and did not know many men and it was a little bit difficult to orient ourselves. I am sure that if we put the old right hand out and make them feel at home and introduce ourselves to them, they will be very happy. After I read this list, if there are other new members sitting in the House for the first time, if they will please announce their names to me, I shall introduce them and be happy to do so.

The new delegates are: Drs. Cyril J. Attwood, California; Edward E. H. Munro, Colorado; Gordon B. Wilder, Indiana; W. Vinson Pierce, Kentucky; Robert van Lieu Campbell, Maryland; Henry F. Howe and Nicholas S. Scarcello, Massachusetts; Earl F. Leininger, Nebraska; Coy S. Stone, New Mexico; James Greenough and Dan Mellen, New York; Elias S. Faison, North Carolina; Wilkie D. Hoover, Oklahoma; C. Henry Bloom, Pennsylvania; Troy A. Shafer and Leopold H. Reeves, Texas; W. Linwood Ball, Virginia; Charles L. Leedham, Section on Military Medicine; Francis M. Forster, Section on Nervous and Mental Diseases.

In Memoriam

The Speaker presented the following list of members of the House of Delegates and/or officers of the American Medical Association notice of whose death had been received since the 1955 annual meeting. The dates following the names indicate the years of service in the House or as officers of the Association.

Abt, Isaac A., Chicago, Section on Diseases of Children (Pediatrics) 1919-1935; Received Distinguished Service Award, 1948.
Bartlett, Charles J., Connecticut, 1925.
Chase, Peter Pineo, Rhode Island, 1948.
Colt, James D. Sr., Kansas, 1933-1935.
Crouch, John B., Colorado, 1935.
Cunniffe, Edward R., New York, 1929; 1932-1936; 1938-1944; Member, Judicial Council, 1936-1954; Chairman, Judicial Council, 1944-1954.

Curtis, Arthur H., Chicago, Section on Obstetrics, Gynecology, and Abdominal Surgery, 1932-1934.
Frothingham, George E., Michigan, 1923-1926.
Hayes, Robert H., Illinois, 1941-1951.
Hess, Julius H., Chicago, Section on Pediatrics, 1951.
Hunt, Preston, Texas, 1938, 1940.
Koch, Otto W., Missouri, 1929.
Kurth, Harold R., Massachusetts, 1951, 1954-1955.
Luce, Henry A., Michigan, 1924, 1931-1946.
McGoldrick, Thomas A., New York, 1936-1953, *Vice President,* 1947-1948; Member, Council on Medical Service, 1944-1952.
Merritt, Edward L., Massachusetts, 1938, 1939
Moncure, Philip St. L., Virginia, 1935.
Newton, George A., New York, 1938
Pettit, Joseph A., Oregon, 1918, 1920-1925, Member, Board of Trustees, 1925-1935.
Porter, John M., Kansas, 1948-1953.
Pratt, Joseph H., Boston, Section on Practice of Medicine, 1914.
Randel, Henry A., California, 1953.
Reese, George W., Pennsylvania, 1926, 1930
Ross, William H., New York, 1932-1935, 1941.
Scott, Arthur C. Jr., Texas, 1949-1955, Member, Council on Medical Service, 1955-1956.
Shanklin, Eldridge M., Indiana, 1927-1928.
Simpson, Leo F., New York, 1950-1951.
Skipp, William M., Ohio, 1938, 1942-1955
Stevenson, James, Oklahoma, 1944-1954, Member, Council on Constitution and Bylaws, 1951-1955.
Stewart, James L., South Dakota, 1902
Taylor, H. Marshall, Florida, 1923-1924, 1926, 1933.
Thompson, Sam E., Texas, 1934-1936, 1938-1939, 1941-1943
Van Duzen, Rex E., Texas, 1949.
Watkins, W. Warner, Arizona, 1924.
Whitacre, Rolland J., Cleveland, Section on Anesthesiology, 1955.
Whitehill, James L., Pennsylvania, 1948-1955.

The House rose in silent tribute to the memory of its deceased members.

Presentation of Distinguished Guests

The following distinguished guests were introduced by the Speaker:

Dr. Lon W. Morrey, Editor, Journal of the American Dental Association.

Dr. E. H. Volwiler, President, American Drug Manufacturers' Association.

Mr. Ray E. Brown, President, American Hospital Association.

Miss Frances L. A. Powell, Secretary, American Nurses Association.

Dr. Ronald Robertson, Vice President, American Pharmaceutical Association

Dr. Robert K. Cutter, *President, American Pharmaceutical Manufacturers'* Association.

Mr. August Pritzlaff, Past President, American Association for Health, Physical Education, and Recreation

Mrs. Alice F. Sturgis, Parliamentarian, American Bar Association.

Sir Alexander Murphy, *Past President,* Queensland Branch, British Medical Association.

Dr. Tomio Ogata, University of Tokyo, Japan.

Dr. Moshe Sherman, President, Israel Medical Association.

Remarks of President of Woman's Auxiliary, Mrs. Mason G. Lawson

Mrs. Mason G. Lawson, President of the Woman's Auxiliary to the American Medical Association, was introduced by the Speaker and addressed the House as follows:

Mr. Speaker, Members of the House of Delegates, and Distinguished Guests: Again it is my pleasure to bring you up to *date on the activities* your Woman's Auxiliary and to extend to you the greetings of our now 73,639 members with their best wishes and the pledge of *continued cooperation in any project* or program which you deem suitable for Auxiliary participation.

The *figures* contained in *this* report must *of necessity* be incomplete because our fiscal year runs from July 1 to June 30 and some of our reports cannot be completed until that date.

No other woman's organization has a stronger or more unifying bond than does the Women's Auxiliary, first because of our membership restrictions which require that we be wives of doctors of medicine who hold membership in their respective county and state *medical societies* and in the American Medical Association. We do have a few members in some states and territories who *hold a close relationship to a* physician, such as mothers or sisters of unmarried physicians. We also have a category of associate membership for those wives whose husbands are members in good standing of their county and state medical associations but who are not members of the American Medical *Association.* I am happy to report to *you* that this number is rapidly decreasing, because we feel that we have brought a little pressure on the wives, and they wish to hold active membership in our Auxiliary rather than associate membership

Secondly, because of our close relationship to the medical profession we have a common purpose. We have never deviated from our original concept of the function of a group such as ours, which is defined as follows in our constitution· "To assist the American Medical Association in its program for the advancement of medicine and public health." Fortunately unity does carry with it uniformity. There are such a variety of programs and projects in which our states and counties are currently engaged that it would be impossible in the short time to mention them all. However, knowing that you share my pride in the accomplishments of our organization, I hope you will permit me the liberty of a little dignified boasting.

All but one of our state auxiliaries have participated in financial assistance to our medical schools through contributions to the *American Medical Education Foundation. This year* we changed our fiscal policy and therefore had no carryover from the previous *year's contributions.* We are proud to report that our AMEF contribution to date, and remember we still have until June 30, is $83,234.46. This does not include the 10% of our current budget, $6,502.50, which the Board of *Directors* will recommend to the House of Delegates as our AMEF contribution for the year. This will bring our total to $89,736.96. Together with the $15,699.18 credited to the Auxiliary in the 80 Dimes Campaign our over-all total for 1955-56 will be $105,406 14. *We are very* proud to report to you that since 1951 our Auxiliary has contributed $305,590.16 *to the American Medical* Education Foundation. Our Board of Directors will also recommend to our House *of Delegates $100 to continue our* membership in the World Medical Association, $100 to the Crusade for Freedom, $100 to the Student A. M. A. Foundation for loans to students, and $100 for the Committee on Careers in Nursing.

Second in popularity among our projects was the sale of *Today's Health* subscriptions. Our subscriptions increased to 57,711 over last year's total of 53,214. Recruitment of Nurses and Other Medical Personnel ranked first in the number of counties participating, but ranked *third in the number of* state projects You *may* be *interested to know* that this *year,* auxiliaries throughout the country made available for nursing education $148,331.52. The total amount for loans to student nurses was $42,475.77. The total amount for scholarships for student nurses was *$100,876.75.* The total for postgraduate *study* was $3,050 The total for practical nurses was $1,009.29.

All states have been active in medical legislation and we are confident that our efforts in this field have been recognized b our legislators.

Ninety-three per cent of our states report programs in safety rural health and community health studies, 85% were active in civil defense programs. Forty states are promoting some type of mental health program. Under a variety of projects many of our *states* have *programs* relating to better child health and better care of our aging population.

Progress has been made in three new projects Eighty four counties have made surveys of the contributions made by physicians in time and money to charity and *community* affairs Forty-six counties have participated in science fairs, and the Auxiliary is providing chaperones for the two young ladies from California and Oklahoma who are attending this convention as national winners. Thirty states have completed a "*Who's Who*" in the medical auxiliary, listing each member's activities and membership in lay organizations.

Including the 34 constituent auxiliaries which *I* visited this year, I have attended 77 meetings of various American Medical *Association* departments and national organizations Sixteen additional state meetings were covered by other officers *and* chairmen, and 16 additional national and regional meetings were covered by this group. Throughout my *travels I* have been impressed with a much closer affiliation between the state medical associations and their auxiliaries and the *increasing* trend in directing our activities in useful channels. We appreciate your encouragement and we hope that we shall always merit your confidence.

I must express my grateful thanks to Dr. Ernest B Howard, who as our liaison *officer* between the Auxiliary *and our* Advisory Committee, has given us invaluable service. My thanks *also to* Dr. Lull and all of the American Medical Association personnel, and most *especially to* our Advisory Committee headed by Dr Blasingame. All of them and all of *you* have assisted *us in* our program of service to the *medical* profession and to our individual communities. It has been a great pleasure this year to have served you through the Auxiliary. I appreciate so much the many courtesies which you, and the House of Delegates, have extended to me and which you, individually, have extended to me when I have visited your states. Thank you very much.

Message from President Eisenhower

Dr. Elmer Hess, President of the American Medical Association, informed the House that he had talked with General Snyder, the President's physician, earlier in the morning (Monday, June 11) and that General Snyder had told him that the President of the United States sends his best greetings to this House of Delegates with gratitude for the services rendered to his Administration and was very hopeful that we would have a very, very wonderful meeting; his blood pressure was normal, his temperature was 99, his pulse was in the high 70's, and he had been sitting in his chair for a few minutes

Address of the President, Dr. Elmer Hess

Dr. Elmer Hess, President, delivered his address, which was referred to the Reference Committee on Reports of Officers. (See Dr. Hess' address in THE JOURNAL, June 23, 1956, pages 734-738.)

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr. William L. Estes Jr., Chairman, Pennsylvania, read the following report, which was adopted

Address of the President.—In the discussion of his address with Dr. Hess by your committee, the topics to which he referred were taken up in order. We believe he is sound in stating that there should be not only loyalty by each physician to his medical school but also loyalty to medical education as a whole, and that support of medical education by the practicing physician is a must in spite of any existing local conflicts, if we are going to stimulate industry to contribute annually large sums for this purpose and if we wish to keep government out of the operation of medical schools. Dr. Hess calls attention to serious differences of opinion between the educators in our medical schools and the privately practicing medical profession, largely the result of misunderstanding, and suggests that most of these differences should be ironed out at the local level around the conference table, and that medical teachers should be active members of county and state as well as national organizations Your committee believes that this is a tremendously important and pressing problem, and that it can only be solved satisfactorily at the local level. We would recommend that, through appropriate channels, this matter be referred to the constituent state medical societies, and likewise through the membership of this House reporting back to the various state medical societies. This would be for implementation when and where it would seem necessary by way of the local county medical societies.

Dr. Hess deplores the many controversies leading to litigation in the realm of hospital-physician relationships and believes those, likewise, can best be resolved by local level conferences of the organization implicated. He suggests that careful study of two reports recently submitted to the House, the report of the Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals and the report on Private Practice Medical School Faculty Members, will be helpful in reaching bases for agreement.

It is gratifying to learn that through conferences with various governmental agencies we have been able to broaden our contributions to the solution of many national health problems.

Dr. Hess' report on our relations with the American Legion is of great interest, particularly to know that problems of mutual interest are still under consideration by the Committee on Federal Medical Services of the Council on Medical Service.

Your reference committee certainly agrees in the importance of participation by the American Medical Association in the prevention of the great holocaust that results from the appalling increase in casualties from traffic accidents. We would likewise recommend attendance by all interested members of the House at the panel discussion on medical aspects of crash injuries to be held at 9 a. m. Friday, June 15, 1956, in Room A on Navy Pier.

Dr. Hess' concern for the problem of the aging is shared by most of us, and we agree that the most important problem—how to keep these people healthy, happy and occupied—has not yet been satisfactorily solved. Your committee would recommend that part of Dr. Hess' report concerning problems of the aging be referred for implementation to the Committee on Aging of the Council on Medical Service.

Your committee is also impressed by the importance of the national survey on mental health now being conducted with the cooperation of our Council on Mental Health, the American Psychiatric Association, and many other groups, and would concur with Dr. Hess' recommendation that it should receive every assistance and implementation possible at the local level. Also, we concur in his recommendation that prepaid voluntary health insurance, because of its wide acceptance by the public, should receive unremitting exploration for potential new fields for coverage on a sound actuarial basis.

In connection with Dr. Hess' reference to Social Security and the question of compulsory or voluntary inclusion of physicians, your committee believes it would be well to point out that the American Medical Association has been concerned with two phases of the problem—(1) the constant expansion of the Social Security program, and (2) the inclusion of physicians—and that in Dr. Blasingame's supplementary report from the Board of Trustees, presented to the House on Monday, the position of the Association concerning Social Security problems has been very ably presented.

The activities of the Law Department are well pinpointed by Dr. Hess, and we would suggest that these should be better publicized. One of the important developments of the sectional meetings of the medical profession with members of the American Bar Association has been the development of codes for action between state medical societies and local bar associations. The importance of conferences such as these can be better realized when it is understood that 60% of the cases in ligitation countrywide have some medical implication. Your committee would recommend that the program of sectional meetings between the medical profession and the American Bar Association should be expanded, and that consideration be given likewise to the expansion of the Law Department as indicated.

The tremendous field of effort that the Council on Medical Service represents, the need for better attendance at county meetings, and more complete perusal of THE JOURNAL are other important comments from our President. Payment of dues for membership in the American Medical Association is a matter of great concern. Your committee is informed that the question of dues is under study by the Board of Trustees at present. Dr. Hess' reference to this problem certainly points up important elements for consideration

Dr Hess' description of the present status of physicians' relations to the labor movement and the position of certain labor leaders concerning health insurance has far-reaching implications We must be on sound ground in our negotiations concerning mutual problems. Your committee concurs in Dr. Hess' belief that as long as we can continue to produce good medical care at reasonable cost and as long as we respect the workers' rights in their own fields of organization, we shall continue to have friends in the ranks of labor.

We can all approve Dr. Hess' admonition concerning participation as individuals in our rights as citizens and exerting our rights of franchise.

Elmer Hess has proved a superlatively magnificent ambassador for American medicine. His keen perception, his intuitive sense of impending problems, his quick reaction to change a planned program of procedure according to the situation that develops or exists, his direct and forthright approach, his integrity, and an abiding sense of humor have carried him and the organization he has so well represented into a higher echelon of security and understanding. His declaration and interpretation of the basic principles on which American medicine is founded and has its being have widened the horizons of appreciation and friendship for those who toil for the sick and have strengthened his confreres in their efforts to eliminate the ills of the medical body politic. Elmer Hess has earned the admiration, thanks, and plaudits of his constituents.

Address of the President-Elect, Dr. Dwight H. Murray

Dr. Dwight H. Murray, President-Elect, delivered an address, which was referred to the Reference Committee on Reports of Officers. (See Dr. Murray's address in THE JOURNAL, June 23, 1956, pages 738-740.)

REPORT OF REFERENCE COMMITTEE ON REPORTS OF OFFICERS

Dr William L. Estes Jr., Chairman, Pennsylvania, presented the following report, which was adopted:

Address of the President-Elect.—In his opening paragraphs Dr. Murray states that he believes the greatness of the American Medical Association depends upon its long and outstanding service in the public interest, its tireless efforts to promote the art and science of medicine, and its constant adherence to the principles of freedom and individual enterprise. This is indeed indicative of his broad approach to the task that lies ahead.

His reference to the opportunities for the general practitioner in hospitals is timely and can be taken to heart. His statement that general practitioners desire only the right to make available to their patients all of the modern advances of medical science, *without discriminatory* restrictions unrelated to professional attainment, comes with the voice of authority from one who has so splendidly represented that group in high places. His warning against a growing tension between general practice and specialization should be a matter of concern to us all. Your committee would echo his admonition that, instead of factional differences, we should be thinking rather in terms of the medical profession as a whole and of our responsibility to the American people to provide ever better care for our patients.

In reviewing the results of the public opinion survey of the medical profession and of the American Medical Association, Dr. Murray particularly points out that the public tends to be critical of us for high fees, for coldness and impatience, for lack of frankness, and for unavailabilty, and that these findings should not be ignored. Steps should be taken to eliminate these criticisms, and the job is one for the individual physician. Another criticism is excessive time spent by patients waiting in our offices to see us. The survey shows that patients are complaining twice as much about long waiting as about fees. Brief concentration on this problem and the introduction of a few efficiency measures should eliminate in large part this habit-forming practice.

Your committee would commend the wisdom of frank explanation to the patient of his illness, so that he has a clear concept of its nature and its course as stressed by Dr. Murray. The patient comes to us because he is concerned about his physical condition. Honesty and frankness in explaining the diagnosis and treatment required will dispel a great deal of anxiety and inspire confidence. While there properly are exceptions to this proposal as an invariable practice, a greater tendency to take time to explain will pay splendid dividends in better public relations. Dr. Murray also highlights his concern for the better care of the aging and the aged to insure good health in old age and the relief of the physical pains and disabilities of the aged.

Dr. Murray concludes by predicting revolutionary changes in the practice of medicine in the years ahead, and indicates the responsibility of the medical profession to exert its influence to the end that any changes would be to the best interests of the public and that voluntary health insurance programs should play a beneficial role by successfully competing with the more pernicious closed panel practices coordinated with third party financing. He further stresses the importance of evaluating accurately the plan proposed by the cooperating committee on graduates of foreign medical schools, of which the American Medical Association is a parent member, designed to test and evaluate foreign-trained physicians, which has been presented to the House.

It is not difficult to foresee a splendid year of accomplishment ahead for one who has had so magnificent a background of service and record of achievement and understanding of organizational problems as Dwight Murray, and as he takes up his task as President of the Association, he can be assured of the full cooperation of his many friends and constituents.

Report of the Board of Trustees

The Speaker referred items in the report of the Board of Trustees as printed in the Handbook of the House of Delegates (see THE JOURNAL, May 12, 1956, pages 156-159) to reference committees as indicated:

Financial Statement, Council on Medical Physics, Committee on Rehabilitation, American Surgical Materials Association, Annual and Clinical Meetings, Closing of the Print Shop, Report of the Auditor, and Report of the Treasurer were referred to the Reference Committee on Reports of Board of Trustees and Secretary.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, read the following report, which was adopted:

Financial Statement.—Your reference committee reviewed the Financial Statement of the Board of Trustees. Certain of the Trustees appeared before the committee for purposes of information and clarification. We note with satisfaction the increased revenues from both subscriptions and advertising in THE JOURNAL and other magazines. While there was also an increase in costs, these have more than been offset by the revenues obtained. The increase in advertising revenues for *Today's Health* is understandably less than from the other journals and its publication is a slight drain on the Association's resources. However, as a public relations vehicle we believe it is serving a very useful purpose.

Council on Medical Physics.—Your reference committee approves the action of the Board of Trustees on the formation of a Council on Medical Physics replacing the former Council on Physical Medicine and Rehabilitation.

Committee on Rehabilitation.—Your reference committee concurs with the recommendation of the Board of Trustees. This refers to the establishment of a Committee on Rehabilitation as requested by the action of the 1955 interim session of the House of Delegates in Boston. The Board of Trustees amended the report to read: "*It is believed that rehabilitation problems should be assigned to an intra-Association liaison group with representation from all interested American Medical Association councils, sections, and committees dealing with the subject.*"

Your committee supports the recommendation of the Board that this House of Delegates rescind the previous action for the reasons stated by the Board of Trustees, and recommends that the Board of Trustees be given authority to set up this committee as outlined in that portion of their report, without including representatives from each of the scientific sections.

American Surgical Materials Association.—Your reference committee approves the action of the Board of Trustees in sponsoring the establishment of the American Surgical Materials Association.

Annual and Clinical Meetings.—Your reference committee notes that the House of Delegates and Board of Trustees have approved the places and dates for the annual meetings from 1957 through 1960 and for the clinical meetings in 1956, 1957, and 1958.

Closing of the Print Shop.—Your reference committee studied in great detail that portion of the report of the Board of Trustees regarding the closing of the print shop. The decision reached by the Board to close the print shop at the headquarters building and to contract for the printing work with an outside firm was activated by the Headquarters Survey Report (the so-called English report), approved by the House of Delegates at the Atlantic City meeting in 1955.

There appeared before your committee for purposes of information and clarification the Chairman of the Board of Trustees, other members of the Board, the Secretary and General Manager, and the Editor of THE JOURNAL. Mr. L. E. O'Neill, President of the Chicago Typographical Union No 16, who wrote a letter to each delegate about this matter, also appeared before the committee at our invitation. He expressed the hope that if present arrangements are not satisfactory the Union may be permitted to confer with the Board of Trustees in an attempt to have the material again printed in the Chicago area.

Your reference committee agrees with the action of the Board of Trustees in its decision, following the instructions of the House of Delegates, and recommends approval of this portion of the report.

The Auditor's and Treasurer's Reports.—Your reference committee reviewed the Auditor's and Treasurer's Reports. It is satisfied after consultation with members of the Finance Committee of the Board of Trustees that the changes in investment policy, based on the best advice obtainable, are in the best interests of the Association and approves their efforts in the conservation of the Association's resources.

Military Status for the Public Health Service and Voice of America and Radio Free Europe were referred to the Reference Committee on Legislation and Public Relations.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, presented the following report, which was adopted:

Military Status.—Your committee wishes to state that S. 2587 has been passed and is now a public law. This gives the President authority to order military status for the Public Health Service commissioned corps in time of national emergencies, and was the intent of Resolution No. 1 which was referred to the Board of Trustees by the House of Delegates in June, 1955.

Voice of America and Radio Free Europe.—Your reference committee wishes to thank the Board of Trustees for the information contained in its report.

Chamber of Councillors to the Reference Committee on Miscellaneous Business.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, submitted the following report, which was adopted:

Establishment of Chamber of Councillors.—This was requested by a resolution passed by the House of Delegates at its meeting in Boston. The Board of Trustees has the power to seek advice from qualified persons outside the medical profession on an *ad hoc* basis. Your reference committee approves the action of the Board of Trustees that this resolution be not adopted.

Improvement of the Care of the Patient to the Reference Committee on Hygiene, Public Health, and Industrial Health:

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. Martyn A. Vickers, Chairman, Maine, read the following report, which was adopted:

Improvement of the Care of the Patient.—At its Boston Meeting the House of Delegates approved a supplementary report of the Board of Trustees recommending that physicians of the United States do everything possible to improve patient care and accept responsibility for providing necessary leadership for establishment of Joint Committees for the Improvement of the Care of the Patient at state and local levels; however, the House requested definition and clarification of what groups would constitute the Joint Committees. This portion of the present report of the Board of Trustees defines and clarifies the composition of state and local committees for the Joint Commission for the Improvement of the Care of the Patient, and thus adoption is recommended.

Scientific Sections and Membership of Council on Medical Service to the Reference Committee on Amendments to the Constitution and Bylaws.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, presented the following report, which was adopted:

Scientific Sections.—Your committee has considered the portion of the report of the Board of Trustees under the title of Scientific Sections. It was noted that the Board of Trustees requested a review of the pertinent sections of the Constitution and Bylaws of the Association dealing with the scientific sections and concluded: "In summary it seems clear from the provisions of both the Constitution and the Bylaws that the purpose of the Scientific Assembly is to provide a forum for a discussion of the scientific aspects of medical practice. All other aspects, social [sociological], political, economic, etc., are within the purview of the House of Delegates." With this summary your committee agrees, and by so agreeing admonishes the scientific sections that anything on their programs other than scientific material would seem to have no place in their deliberations.

Membership of Council on Medical Service.—This reference committee also had referred to it that portion of the report of the Board of Trustees relating to the membership of the Council on Medical Service. The Council on Medical Service last March recommended to the Board of Trustees that the membership on the Council be increased to nine members and asked that consideration be given to the advisability of eliminating provision for ex officio members. The Board of Trustees concurred in the recommendation of the Council and transmitted it to the House for consideration and appropriate action. After due consideration, your reference committee believes that the work of the Council would be facilitated if the ex officio members were eliminated, except for the immediate Past President, and three elected members added for them. This will give the Council nine members elected by this House, rather than six as presently constituted. It therefore recommends that:

(1) The first sentence of Chapter XI, Section 2, (C) of the Bylaws be amended to read as follows: "The Council on Medical Service shall include nine Active or Service Members."

(2) The second sentence of Chapter XI, Section 2, (C) of the Bylaws be amended to read as follows: "All members shall be elected by the House of Delegates for terms of five years so arranged that at four annual sessions the terms of two members expire and at one annual session the term of one member expires."

(3) The last sentence of Chapter XI, Section 2, (C) of the Bylaws be eliminated, so that the new Chapter XI, Section 2, (C) of the Bylaws will read: "The Council on Medical Service shall include nine Active or Service Members. All members shall be elected by the House of Delegates for terms of five years so arranged that at four annual sessions the terms of two members expire and at one annual session the term of one member expires."

SUPPLEMENTARY REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, read the following supplementary report, which was adopted:

Your reference committee has given further consideration to that portion of the report of the Board of Trustees relating to the membership of the Council on Medical Service. In order to comply with the expiration dates for terms of office of members of the Council as specified in the amendment to Chapter XI, Section 2 (C) adopted yesterday (June 13, 1956) by the House of Delegates, it will be necessary that the initial terms of office of two of the three new members of the Council be for periods of less than five years. Your Reference Committee therefore recommends that:

Chapter XI, Section 2 (C) of the Bylaws be further amended by adding the following sentence: "The initial terms of the three new members of the Council arising out of the increase herein provided for shall be for periods as proposed by the Board of Trustees."

Foreign Medical Graduates and Accreditation of Hospitals to the Reference Committee on Medical Education and Hospitals:

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, stated that the portion of the report of the Board of Trustees concerning foreign medical graduates would be considered by the reference committee with the report of the Council on Medical Education and Hospitals.

Dr. Klump submitted the following report, which required no action:

Accreditation of Hospitals.—This paragraph announces the selection of Dr. Raymond F. Peterson, Butte, Mont., a member of the House of Delegates, to fill the unexpired term of Dr. Rolland Whitacre as one of the representatives of the American Medical Association on the Joint Commission on Accreditation of Hospitals and requires no action.

Supplementary Reports of the Board of Trustees A to J

Supplementary reports of the Board of Trustees were presented to the House by the Chairman and members of the Board as follows: Supplementary report A by Dr. Gunnar Gundersen, Chairman, and Dr. F. J. L. Blasingame who presented an additional statement on social security; B by Dr. Leonard W. Larson; C by Dr. David B. Allman; and the remainder by Dr. Gundersen. The reports were referred by the Speaker to reference committees as indicated at the beginning of each report.

A. OASI Polls

Supplementary report A was referred to the Reference Committee on Legislation and Public Relations.

The House of Delegates, at the Boston meeting, recommended to state societies (Resolution No. 16) that they poll their entire memberships on the question of inclusion of physicians under the Old Age and Survivors Insurance provision of the Social Security Act, and that the results of these polls by the state societies be transmitted to the Board of Trustees. The Board wishes to report the following results from the polls that have been taken:

Although the questions asked and other features of the polls varied considerably, *it can be concluded that the polls taken by* 34 state associations and two territorial associations indicate opposition to compulsory coverage of physicians under Old Age and Survivors Insurance; of these 34 polls, 23 indicate some support of voluntary coverage, and 1 indicates a neutral position on such coverage. Nine state associations will take no poll; three of these sent reports of actions by their councils opposing compulsory coverage and not opposing voluntary coverage, and a fourth state furnished part of its results of a 1954 poll which could not be interpreted for the present purposes. Three state association polls are still in process (May 31). Finally, only three polls could be interpreted as *favoring compulsory coverage*, and only one of the three was conclusive.

In connection with this subject attention is called to an article by Dr. F. J. L. Blasingame entitled "The History of Social Security," which appeared in the Nov. 19, 1955, issue of The Journal.

Social Security

Perhaps the most important single issue confronting the public and medicine today is the proposal to amend the Social Security Act now being debated in the United States Senate. The fate of medical care in this country is literally hanging in the balance. The legislative outcome may well have serious consequences for our profession. The status of this legislation has been reviewed in the progress report of the Committee on Legislation, and the Chairman of that committee will make some additional comments. It is my purpose to distinguish clearly between two proposals of medical interest relating to the Social Security System with which we have been concerned and to emphasize the profound difference between them in their effect on medical practice.

The proposed amendment to the Social Security Act embodied in H.R. 7225, which would establish a cash benefit under the Old Age and Survivors Insurance System for disabled beneficiaries beginning at age 50, constitutes a serious threat to American medicine. It is obviously one important step on the road to a system of complete federal medical care. No government can long provide cash benefits as a right under a so-called social insurance system without eventually injecting itself into the physician-patient relationship. It will necessarily become a responsibility of government to regulate the medical care and the rehabilitative programs that are associated with the payment of the cash benefits. Because of this undesirable impact on medicine, the incalculable cost to the public, the inhibiting effect on the patients' will to be rehabilitated, and for other reasons which have been detailed in many communications to you from our Washington Office and the Committee on Legislation, we have properly opposed this proposal and recommended that a careful nonpartisan study be made of disability as it relates to employability for the purpose of determining the best possible methods of conducting constructive programs in this area.

The *second* proposal to which this House has addressed itself on several occasions is Social Security coverage of physicians. We have repeatedly expressed our opposition to compulsory coverage but have indicated that we would not oppose voluntary inclusion. We have endorsed as an alternative the Keogh-Jenkins bills *providing for the* setting aside of a limited amount of current income into a fund with the privilege of deferred taxation and withdrawal, at the then taxable levels, of those contributions at the age of 65. It is imperative that we distinguish clearly between this problem of coverage of physicians and the far more dangerous disability proposal. The fact should be recognized that the shape of medical practice in the future is not directly related to the inclusion or exclusion of physicians under OASI. It is a matter of vital importance to us as individuals, but it cannot, per se, stimulate further government intrusion into medical care. On the other hand, the disability amendment obviously brings the Social Security Administration closer to the regulation of medical care than ever before. It is highly important that the medical profession understand this distinction and understand it clearly so that the impact of these two fundamentally different proposals may be placed in their proper perspective. Public understanding of the potential implications of disability coverage under OASI is urgently necessary so that a political atmosphere can be created that will stifle rather than nurture such growth. We have powerful friends in this effort whose full force and effective cooperation we must sustain.

H.R. 7225 contains no provision for compulsory coverage of physicians, so therefore it is not an issue in Congress at this time. Furthermore, the polls that have been taken indicate clearly that the vast majority of our members support the stand that you have taken against compulsory coverage. The disability amendment may or may not be adopted by the Senate this very week. If it is defeated and its defeat is sustained by the Conference Committee in the House of Representatives, we shall have been given a moratorium, but only a moratorium, of perhaps two years in which to prepare for the next onslaught. Let us devote our energies and our most mature judgment to this fundamental question so that we may counter similar proposals in the future with evidence so incontravertible and alternative measures so obviously effective and consistent with the structure of our Republic that the defeat of such measures will be inevitable. Finally, there should be no feeling of defeatism. If we can stem this tide now, we can win a lasting victory provided we appreciate fully the significance of these disability proposals and sustain our present active interest.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, submitted the following report, which was adopted:

Supplementary Report of Board of Trustees A on O. A. S. I. Polls, presented by Dr. Gundersen, Chairman of the Board of Trustees.—Your committee is of the opinion that the polls, as they have been conducted, are of questionable value, primarily because of the number of variables present in the questionnaire as sent out by the various state and county societies. Your committee believes that if a poll of this magnitude is to have any significance, the questionnaire should be composed by those individuals of the American Medical Association who are familiar with the Social Security Act in its entirety and then be made available to state or county medical societies.

Supplementary Report of Board of Trustees A on Social Security, presented by Dr. F. J. L. Blasingame, Trustee.—This report is of such an excellent nature that any comment would be superfluous. Your committee wishes to commend the Board of Trustees and Dr. Blasingame on this report and recommends that each member of the House of Delegates call it to the attention of his constituent society, and that the Board of Trustees have it published in an early issue of The Journal.

B. Commission on Medical Care Plans

Supplementary report B was referred to the Reference Committee on Insurance and Medical Service.

The Board of Trustees is gratified to note the progress being made by the Commission on Medical Care Plans in dealing with a most important and complex problem. It acknowledges the tremendous amount of data which have been assembled and analyzed by the Commission. The Board expresses the hope that the Commission will see fit to publish whatever data and information it considers to be of interest and value to the medical profession and the public in order that they, too, may benefit from this exhaustive research, even before final recommendations are arrived at by the Commission.

The Board recognizes the importance of the next phase of the Commission's endeavors; namely, the determination of the effect of these plans on the quality and quantity of medical care provided and the legal and ethical status of the arrangements utilized by the various plans. It is in sympathy with the Commission's recommendation that a suitable consultant be employed to assist in developing a technique to accomplish the objectives mentioned in its report.

The Board recommends, however, that the Commission explore first the possibility of conducting further inquiry by interviews, visits, or some other pilot study technique among a group of representative plans and medical societies. This approach would delineate those areas and elements with which it is concerned and assist it in arriving at criteria for the further evaluation of these plans.

It has been suggested to the Board that a national Congress on Medical Care Plans be held, possibly this Fall, under the sponsorship of the American Medical Association through its Councils on Medical Service and Industrial Health and the Commission on Medical Care Plans. The Board is inclined to favor such a suggestion, since it would provide a common meeting ground at which representatives of all types of medical care plans throughout the country could present valuable information and exchange opinions. The knowledge gained from such a meeting would fill many current informational gaps.

The Board concurs in the Commission's expression of need for a statement of desirable objectives, scope, facilities, and personnel requirements of occupational health programs and is requesting the Council on Industrial Health to undertake this project.

SECOND PROGRESS REPORT OF COMMISSION ON MEDICAL CARE PLANS

Introduction

In its first progress report to the Board of Trustees in October, 1955, the Commission on Medical Care Plans detailed at considerable length the broad scope of the responsibilities delegated to it. It also stated that recommendations would be forthcoming only when its members felt they were in full possession of all facts that would enable them to arrive at conclusions consonant with its stated goals and objectives. This obligation to the medical profession and the public it serves had dictated the necessity for painstaking research and thorough study of all conceivable elements and factors entering into the consideration of (1) the nature and methods of operation of the various types of plans through which persons receive the services of physicians; (2) the effect of these plans on the quality and quantity of medical care provided; and (3) the legal and ethical status of the arrangements used by the various plans.

Status of Research

On April 28 and 29, 1956, the Commission met to review the results of seven distinct areas of research completed by the staff and cooperating organizations over the past six months. Out of the meetings of the full Commission and deliberations of the four committees into which the Commission had been divided, there developed the unanimous feeling that a sufficient amount of statistical data had been developed. Thus, phase 1 of the Commission's objectives, which was the measurement of the major quantitative and historical aspects of its studies, was acknowledged to have been completed. The seven areas of research involved:

1. A detailed study of 305 Miscellaneous and Unclassified Plans (at least two-thirds of which are presumed to fall within the scope of this study) to secure uniform data on structure, method of organization, medical services provided, and other significant characteristics;
2. Analyses of Blue Shield and other Medical Society Approved Plans to produce information on the characteristics of such prepayment mechanisms as well as the payments for the 29 most common surgical procedures;
3. A study of contract provisions of the most widely held and most liberal policies issued by insurance companies writing individual and family surgical and medical expense policies;
4. A similar survey among insurance companies issuing group surgical and medical expense policies;
5. A survey among almost three thousand medical directors of inplant medical programs to determine the characteristics and medical and ethical relationships involved in industry programs;
6. The use of the same study schedule to secure various types of information with regard to occupational disability programs (Workmen's Compensation); and
7. The preparation of a 185 page compilation integrating the policy statements of the House of Delegates with Judicial Council decisions relative to pertinent sections of the Principles of Medical Ethics from 1847 to the present date.

Problems Presented Through Three Areas of Study

Three categories of medical care plans illustrate the nature of the problems to which the Commission must next address itself.

1. *Miscellaneous and Unclassified Plans.*—One hundred and seven plans (other than Blue Shield, Medical Society Approved, commercial insurance, and certain fraternal organizations) covering over 3,500,000 persons, returned the detailed questionnaire. The plans fell into several categories which had been previously defined and classified as cash indemnity, service, closed panel open to the general public, closed panel limited to specific industries, unions, or fraternal groups, or a combination of the foregoing. The returns are considered to be a cross section of the more than 200 plans previously identified by the Commission. They adequately meet the requirements of objective 1 of the Commission's study. They present an adequate sampling of the different programs in existence today. Enrollment, type of sponsorship, eligibility, types of medical services rendered, number of physicians employed on full or part-time basis, organizational structure, and other quantitative elements are clearly detailed.

The Commission next attempted to achieve objectives 2 and 3 by determining (a) what effect, if any, these plans have on the traditional patient-physician relationship, (b) whether the introduction of a third party tends to disturb it and results in an inferior quality of medical care, (c) whether there are plans in which the participating physician is violating the Principles of Medical Ethics, (d) whether these plans will encourage the corporate practice of medicine, and (3) what the proper relationship, if any, will be between the medical profession and these third party mechanisms.

The Commission reports candidly to the Board of Trustees that these questions were difficult to answer. To illustrate the nature of the problem, information provided by four plans, selected at random from among the 107 specially prepared summaries of the returns, was reviewed and evaluated. The Commission was convinced that its opinions, observations, and knowledge of the operations of these plans could not provide the complete answers to these basic questions. It had yet to determine (1) those criteria whereby the quality of medical care can be established and measured, and (2) what are the actual existing ethical and professional relationships.

The Commission believes that a questionnaire survey inevitably reflects the bias of the persons completing the form. For example, a plan may appear to conform to the Principles of Medical Ethics on the survey response, but actually may be rendering an inferior quality of medical care. On the other hand, it is conceivable that although professional relationships and arrangements may appear to indicate violation of the Principles, subsequent study of the local situation and other factors may dispel this impression. In any event it is apparent to the Commission that answers to the basic questions that it has posed will require continued intensive research and investigation.

Recommendation: Faced with the problem of determining how to secure information which does not lend itself to a mail questionnaire technique, the Commission accordingly recommends to the Board of Trustees that a consultant be sought and employed to aid the Commission in developing a project-design to secure the information it deems essential for the further evaluation of this group of Miscellaneous Plans. The elements to be included in such a study are criteria to determine the quality of medical care provided, ethical relationships, and evaluation of medical services by participants in the plans.

2. *Industry Programs Providing Nonoccupational Medical Care.*—The results of the survey of inplant nonoccupational medical programs renders further support to the above recommendation. Data were secured which enabled the Commission to analyze the characteristics of 244 inplant programs providing various forms of medical care to more than 1,440,000 persons. On the basis of information contained in these responses, it appears likely that in certain industrial programs the presence of third parties in varying degrees (a) may affect the traditional patient-physician relationship, (b) may introduce elements which affect the quality and quantity of medical care, and (c) may occasionally raise questions of violations of the Principles of Medical Ethics. Moreover, since a number of medical care programs in industry possess characteristics similar to those in the Miscellaneous and Unclassified category, and inasmuch as appropriate criteria were not available to measure the quality of medical care, the techniques developed through the recommendation already made would undoubtedly assist in reaching some conclusions with respect to plans in industry.

Recommendations:—Based upon the findings of its survey, the Commission recommends that a clear statement of desirable objectives, scope, facilities, and personnel requirements of occupational health programs is needed. Such a statement to supplement the Principles for Evaluating Union and Management Health Centers, which were approved by the House of Delegates in Boston on Dec. 1, 1955, should be prepared by a duly authorized and appropriate committee of the American Medical Association.

The Commission calls attention to the fact that among the various findings of the survey there is revealed the presence of a specific problem area involving relationships between the medical director in inplant programs and the general practitioner.

3. *Occupational Disability Programs—Workmen's Compensation.*—The findings of this survey lend further substantiation to the statements regarding major issues in compensation which were presented in the first progress report. These issues are (1) choice of physician; (2) supervision of medical treatment; (3) supervision of medical costs; (4) medical testimony; and (5) rehabilitation.

In this area of study, too, the Commission felt that it did not have appropriate criteria for measuring the quality of medical care, except in so far as statutory limitations of workmen's compensation laws affect the quality. The Commission understands that the Council on Industrial Health is conducting studies of these programs.

Conclusion

The Commission has accumulated sufficient quantitative data in connection with its various areas of study. Its next task is to develop a plan for eliciting the information with respect to objectives 2 and 3 that has not yet become available. Continuing evaluation and refinement of the material collected to date will take place at future meetings of the Commission.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, read the following report, which was adopted:

Supplementary Report of Board of Trustees B.—Your reference committee considered supplementary report of the Board of Trustees B on Progress Report of Commission on Medical Care Plans, presented by Dr. Leonard W. Larson, Trustee and Chairman of the Commission. Your committee recommends the acceptance of this report and of the progress report of the Commission, and wishes to commend the Commission on its excellent progress as reported.

C. Progress Report of Committee on Legislation

This report covers the period from Sept. 1, 1955, to June 1, 1956. It includes activities of the Committee in preparation for the 2d Session of the 84th Congress, which convened in January, 1956, as well as the activities of the Committee during the session. During the period covered by this report, the Committee met three times, in Boston, Washington, and Chicago. A detailed outline of the Eisenhower administration's health program was presented to the Committee by Assistant Secretary of Health, Education and Welfare Roswell B. Perkins. Important new bills were considered for the first time, and modified versions of previous legislation were reconsidered. Methods of implementing the Association's position on all of these measures were discussed. This report pictures the most significant developments during the period.

REGIONAL LEGISLATIVE CONFERENCES

As part of the continuing effort of the Committee to establish closer and more effective liaison with state and local medical societies and individual members of the Association, six Regional Legislative Conferences were held in the fall of 1955. Each conference lasted a full day and included discussion of the organization and operation of the Association's legislative program, proposed federal health re-insurance and mortgage loan guarantees, treaties and their effect on the practice of medicine, veterans' medical care, tax-deferred retirement plans for physicians, current problems in military medicine, federal aid to medical education, and disability benefits under Title II of the Social Security Act.

One of the most important features of these conferences was the opportunity afforded participants to express their own views on these subjects and to ask critical questions of members of the Committee and the Association staff. The Committee feels that such conferences are of great value in alerting the leaders of state and county units of organized medicine to legislative developments of national significance and in obtaining more effective support of medicine's legislative objectives. Proceedings of each conference were distributed to all participants and, on request, to many physicians unable to attend. The conferences provided the basis for discussion of national legislation in local and state meetings, and parts of the proceedings have been widely reprinted in state medical journals and county bulletins.

PERMANENT AND TOTAL DISABILITY BENEFITS

The major legislative activity of the Association during the period covered by this report dealt with the proposal to pay cash disability benefits under Title II of the Social Security Act to covered individuals at the age of 50. This measure passed the House of Representatives in July, 1955, with no hearings, virtually no debate, and by an overwhelming vote of 372 to 31. It was apparent from the outset that the political appeal of this proposal, particularly in an election year, would make it extremely difficult to defeat.

During the fall of 1955, members of the Committee on Legislation, assisted by members of the headquarters staff and personnel from the Washington Office, met with the leaders of medicine in fifteen key states to organize effective opposition at the state level. Analyses of H. R. 7225 explaining its full implications were prepared and circulated widely within and without the profession.

Early in December, Dr. Elmer Hess, as President, wrote to every member of the Association outlining the dangers inherent in the measure and requesting assistance in explaining these dangers to members of the Congress. The response of individual physicians and medical organizations has been both heartening and effective. Never in recent years has the profession been so nearly unanimous on a subject. These efforts were instrumental in impressing members of the Senate with the dangerous implications of the disability benefit proposal.

Medical testimony on H. R. 7225 was heard by the Senate Finance Committee on Feb. 9, Feb. 22, and Feb. 23, 1956. Dr. David B. Allman and Dr. F. J. L. Blasingame presented the testimony of the Association on Feb. 23. Witnesses representing 17 state associations, 3 county societies, and 5 other medical organizations were heard by the Committee. The witnesses, consisting of physicians engaged in general practice and specialists in virtually every branch of medicine presented a well-rounded picture of the medical problems in determining disability and treating patients with physical or mental impairments.

Fortunately the Eisenhower administration and a substantial majority of the Senate Finance Committee opposed the provision of cash disability benefits under Title II of the Social Security Act. After hearings lasting several months, the Committee voted 11 to 4 to remove this feature from the measure. On May 25, H. R. 7225, with the disability benefit section deleted, was reported to the Senate. The debate on this bill is probably starting either this morning or it will start tomorrow morning in Congress, in the Senate, and it will be a determined effort to reinstate the disability provision in this bill. Of course, we do not know how long this debate is going to last. The vote may be taken this week or it may be delayed for a week or a month.

MILITARY MEDICINE

At the time of the extension of the "Doctor-Draft" law in June, 1955, the Association recommended to Congress that steps be taken to correct the basic causes for physician shortages in the armed services. A major portion of the legislative activities in which the Committee has engaged during the period covered by this report relates to measures designed to carry out these recommendations.

Studies made in the Department of Defense, prompted in part by the insistence of the Association that corrective action be taken, led to the introduction of legislation substantially improving the status of military medical officers. The Association vigorously supported enactment of this proposal and the restoration of the increased incentive pay originally recommended by the Department of Defense but deleted by the Bureau of the Budget. That pay was in part restored and the Career Incentive Bill passed the House. Upon the strong recommendation of witnesses for the Association, the additional incentive pay was further increased by the Senate, and the Career Incentive Act became law on April 30, 1956. It is believed that this legislation will provide the basis for a sounder approach to the medical manpower problems of the armed services.

The Department of Defense also supported the enactment of a bill to authorize medical care for military dependents in both military and civilian facilities. The original version of this bill was heavily weighted to favor the utilization of military facilities. As a partial result of the testimony presented by the Association before the House Armed Services Committee and the work of the Washington Office, a greatly improved Dependent Medical Care Bill was passed in March. The Senate passed an amended version of the bill and a version compromising the differences between the House and the Senate bills was reported by a conference committee and subsequently adopted. The new Dependent Care Bill requires the Secretary of Defense to contract for medical care for dependents but does not spell out the particular type of program to be followed in utilizing the service of civilian physicians. The amended and improved version of the bill finally came out and became law on June 7, 1956, and is known as Public Law No. 569.

The Committee on Legislation has vigorously opposed a House measure authorizing the appointment of osteopaths as military medical officers. As this bill passed the House last July, it would have required the Armed Services to commission osteopaths. The Senate added an amendment requiring that the Surgeon General of the appropriate service specifically approve the appointment of any osteopath. The House has not agreed to accept the Senate changes, so we still do not know as of today just exactly what will happen there.

MISCELLANEOUS LEGISLATION

The Committee on Legislation has been active in connection with numerous other bills. Among these measures are the Jenkins-Keogh bills; legislation relating to federal participation in the construction and maintenance of state soldiers' homes; the authorization of a National Morbidity Survey; the Alaska Mental Health bill; federal aid to medical education and research facility construction; military status of the Public Health Service commissioned corps in time of emergency; Congressional inquiries on narcotics, barbiturates, and amphetamines; the Water Pollution Control Act Extension; and various appropriations, including Civil Defense medical appropriations, Poliomyelitis Vaccination Assistance Act appropriations, and appropriations for the continuation of the Veterinary Corps in the Army and the Air Force. Oral testimony or letters and statements explaining the Association's views have been presented on all of these measures to appropriate committees of the Congress. In addition to furnishing assistance to the 29 witnesses who appeared before the Senate Finance Committee on H. R. 7225, 12 other witnesses have appeared on behalf of the Association before various committees during the period covered by this report. On 22 occasions the views of the Association have been presented to committees by means of written statements.

Since activity is considerably accelerated during the closing days of Congress, the final action on many of the foregoing measures is unknown. At the time of the preparation of this report, however, the status of the principle measures is as follows:

The Jenkins-Keogh bills have been approved by the House Committee on Ways and Means, but not yet reported to the floor of the House. Strong sentiment for their enactment has been expressed by nearly one-fourth of the members of Congress.

The National Morbidity Survey Bill and the Water Pollution Control Act Extension have passed the Senate and have been favorably reported in the House.

The Alaska Mental Health Bill has passed the House and has been favorably reported in the Senate.

The Public Health Service Status Bill has become law.

CONCLUSION

In closing this report, it is particularly fitting to note the Committee's profound appreciation for the invaluable assistance received from the Board of Trustees, the Washington Office, the Woman's Auxiliary, the officers and staff of the Association, and state and county medical societies. The keen interest and effective cooperation of an ever-increasing number of individual physicians has been a source of great satisfaction to the Committee, for which the members are profoundly grateful.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, read the following report, which was adopted:

Supplementary Report of Board of Trustees C on Progress Report of Committee on Legislation.—This report was covered in detail. Your committee recognizes the value of the regional legislative conferences. It believes, however, that the work of the Committee could be even more effective if a representative of the Committee could appear before the House of Delegates and representative members of each state society to discuss legislative matters on a national level. Your reference committee wishes to compliment the Chairman of the Committee on Legislation for his progress report and to commend the Committee for its continued fine work.

D. MEDICAL HALL OF FAME

Supplementary report D was referred to the Reference Committee on Miscellaneous Business.

Resolution No. 25 (Atlantic City, 1955) recommending a study of the establishment of a Medical Hall of Fame in the United States was reviewed by the Board of Trustees. In its study several factors relating to expense, available space, and similar projects already established by the federal government and other bodies were disclosed. The Board requests, therefore, that it be permitted to continue its investigation of the matter with the hope that a definite report will be available at the Clinical Meeting in Seattle.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, presented the following report, which was adopted:

Supplementary Report of Board of Trustees D on Medical Hall of Fame.—This supplementary report concerned a study of the establishment of a Medical Hall of Fame. The Board requests permission to continue its investigation as to expense, available space, etc., with a report to be made at the Clinical Meeting in Seattle. Your reference committee agrees.

E. Neoplastic Diseases

Supplementary report E was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health.

The Council on Industrial Health, at its meeting in January, 1956, called attention to the fact that statistical information is needed for comparing cancer in the industrial population with that in the general population. It believes that the excellent study recently made by the Division of Occupational Health and the National Cancer Institute of the Public Health Service should be a continuing study, reported every few years.

The Council further stated that the natural occurrence of diseases in the United State fluctuates over the years as the result of many factors. The effective treatment of infection, decline in neonatal mortality and various other advances in American medicine have increased life expectancy, thereby emphasizing the medical, social, and economic importance of chronic diseases. Inasmuch as malignant neoplasms form an increasingly important segment of medical practice, a need for continuing evaluation of progress in the management of clinical cancers requires accurate statistics of the incidence of specific anatomical types of malignant neoplasms in relation to age and sex. Investigation of the incidence of cancer in association with exposure to environmental hazards requires standardized rates of risk to specific anatomical types of cancer in relation to age and sex as accurate standards of reference for comparison with specific types of exposure.

The Council recommends, therefore, and the Board concurs in this recommendation, that the agencies already concerned with compiling vital and health statistics on the morbidity and mortality of neoplastic diseases be encouraged to continue and expand their activities in this field as a major and important contribution to the control of cancer.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. Martyn A. Vickers, Chairman, Maine, submitted the following report, which was adopted:

Neoplastic Diseases.—This deals with a study recently made by the Division of Occupational Health and the National Cancer Institute of the Public Health Service, and it recommends continued cooperation of these agencies in compiling vital statistics of the morbidity and mortality of neoplastic diseases and expand their activities in the field as a major and important contribution to the control of cancer.

F. American Medical Association Dues

Supplementary report F was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

The Board of Trustees referred to its Finance Committee the recommendation of the House of Delegates (Boston, 1955) that consideration be given to a dues increase for the benefit of the American Medical Education Foundation and for other purposes. At its meeting on May 19, 1956, the Finance Committee thoroughly discussed the recommendation from the House of Delegates. The following report was submitted to the Board and was approved for presentation to the House:

In view of the fact that income was in excess of expense for 1955, the Finance Committee feels that it cannot recommend that an increase in dues be proposed to the House of Delegates at this time. However, because of the increased activities being undertaken by the Association's councils, committees, and departments, it is getting more and more difficult to balance the budget and a probable increase in dues must be faced. If the activities of the Association continue to expand over those of the past year, as all trends indicate, either the Association activities will have to be curtailed or the state associations must undertake more of these responsibilities. The Finance Committe recommends that the following action taken by the House of Delegates in June, 1955 be reiterated:

> Your Reference Committee (on Reports of Board of Trustees and Secretary) is in hearty accord with the suggestion to the House in this and future sessions that each delegate seriously consider organizational, financial, and personnel problems involved when they recommend that a new council or study committee be formed for this or that activity.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, presented the following report, which was adopted:

Supplementary Report of Board of Trustees F on American Medical Association Dues.—Your reference committee approves of this statement of the Board of Trustees.

G. Professional Liability Insurance

Supplementary report G was referred to the Reference Committee on Reports of Board of Trustees and Secretary.

The Board of Trustees considered the following report of the Law Department relative to its study of professional liability insurance and claims prevention programs, in which the Council on Medical Service concurs, and with its approval submits it to the House of Delegates for consideration.

STUDY OF PROFESSIONAL LIABILITY INSURANCE AND CLAIMS PREVENTION PROGRAMS

In accordance with the request of the Board of Trustees and the House of Delegates, the Law Department has continued its study of Medical Professional Liability. Some of the activities mentioned in the report of Nov. 21, 1955, have been initiated, others have been completed.

Opinion Survey.—A questionnaire, designed to obtain the opinion of individual physicians concerning professional liability, has been pretested. During the month of June it will be sent to a random 5% sample of Association members. The responses should give an indication of the number of claims and suits that have been brought against physicians, the amount of professional liability insurance carried by physicians, the percentage of physicians who carry professional liability insurance, and a consensus as to the best way to cope with professional liability claims and suits. All of this information will be broken down by age group, medical specialty, and geographical location.

Analysis of Reported Cases.—An analysis of all the reported cases for the past 20 years for every state is about 80% completed. It is estimated that when this project is finished, about 750 cases will have been reviewed. It is expected that these cases will disclose a wealth of information, and indicate the legal trends in the various states.

Preparation and Publication of Special Articles.—Eleven physicians and attorneys have been asked to write articles on various aspects of medical professional liability. It is planned to publish each article in a separate issue of THE JOURNAL. Thereafter all the articles will be reproduced in booklet form.

Insurance Experience and Rates.—Thirty-one of the known insurance companies writing professional liability insurance in this country have been contacted and requested to cooperate with the Law Department in this study. These companies have been asked to supply extensive statistical data relative to professional liability claims and suits filed. To date, with the assistance of the Council on Medical Service and the National Bureau of Casualty Underwriters, liaison has been established with 10 companies. Other carriers will be contacted within the next two months. These insurance companies can make an invaluable contribution to this study by furnishing information which to date has not been available on a national basis.

Statutes of Limitations.—A detailed study of the statutes of limitations of each state relating to medical professional liability suits has been completed.

Professional Liability Claims Involving Physicians in Government Service.—Letters have been sent to the armed forces, Veterans Administration, Public Health Service, and Department of Justice in an effort to obtain information on the causes, number and disposition of professional liability claims and suits against government physicians, as well as the role the government plays in assuming responsibility. Generally speaking, the legal principles governing professional liability of civilian physicians are equally applicable to government physicians. Simply stated, the government physician is personally responsible for negligence that results in injury to his patients in the same manner and to the same extent as if he were in private practice. If, however, the injured patient elects to proceed against the United States under the Federal Tort Claims Act and receives a judgment against the United States, the physician is relieved from pecuniary liability. Because of the guarantee of solvency and the relative ease of collectability of judgments against the government, professional liability suits are usually brought against either the government alone, or the Government as a co-defendant with the physician.

Conclusion.—The Law Department has obtained fine cooperation from those who have been asked to assist it. If this spirit continues, the Director of the Department is confident that answers to most of the questions on professional liability which physicians have been asking for many years will be obtained.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, read the following report, which was adopted:

Professional Liability Insurance.—Your reference committee considered the report of the Law Department relative to its study of Professional Liability Insurance and Claims Prevention Program, in which the Council on Medical Service concurs. It was pointed out in discussion that Alaska and Hawaii were not included in the survey, but your committee feels that they should be. Your committee hopes the constituent associations will lend their efforts to help the Law Department to clarify this vexing problem. Inasmuch as the report is merely a progress report of information, no action need be taken at this time.

H. Areas of Understanding

Supplementary report H was referred to the Reference Committee on Insurance and Medical Service.

The following report, approved by the Council on Medical Service, was considered by the Board of Trustees and approved for submission to the House of Delegates:

The Committee on Federal Medical Services has studied and reviewed the proposed statement concerning VA medical affairs and the ten areas of possible understanding between the American Medical Association and the American Legion in accordance with the letter of March 30, 1956, addressed to the Council on Medical Service from the Board of Trustees. The Committee is of the opinion that the American Medical Association and the American Legion should continue to cooperate in an effort to provide the finest medical care for all segments of the American public, with special emphasis on the obligations of a grateful nation toward those who have suffered disability as a result of military service. It is the further recommendation of the Committee that both organizations should join in aggressively seeking an adequate program of prevention and treatment of mental disorders. The Committee has found no reason to suggest revision of the fundamental American Medical Association concept that it is contrary to the public interest to approve VA medical care for disability unrelated to military service. In consequence it feels that those suggested areas of understanding which conflict with this position cannot be endorsed.

The Committee recommends that the members and staff of the Liaison Committee be thanked for their efforts and activities and that the Committee on Federal Medical Services be authorized to make a continuing study of all aspects of VA medical activities under the basic policy established by the American Medical Association House of Delegates in June, 1953.

The Board of Trustees calls attention to the fact that the special Liaison Committee was discharged on Feb. 11, 1956.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, submitted the following report, which was adopted:

Supplementary Report of the Board of Trustees H on Areas of Understanding.—Your reference committee gave long audience to those who would inform it on this matter. After due deliberation, your committee recommends approval of this report with the following addendum to follow the words "in June, 1953," in the next to the last paragraph of the report: "Inasmuch as the 1953 policy of the American Medical Association House of Delegates adds certain temporary exceptions in respect to the Veterans Administration care of nonservice-connected disabilities, such as those of neuropsychiatric or tuberculous origin, it is recommended that a reconsideration of these temporary exceptions be made by the Council on Medical Service, through its Committee on Federal Medical Services, with a view to adjusting these exceptions in more realistic fashion to the needs of areas in this country where local facilities do not exist for the care of mental disease, tuberculosis, and other chronic disabilities as well."

I. National Civil Defense

Supplementary report I was referred to the Reference Committee on Medical Military Affairs.

The following report was received by the Board from the Council on National Defense and was approved for submission to the House of Delegates for its consideration and action:

The continued existence of our nation and the survival of our people depend upon a complete and effective national defense on both the military and civilian level. Inasmuch as the existence of weapons which release energy equivalent to millions of tons of TNT is now a fact, an enemy attack employing thermonuclear weapons in the megaton range could result in millions of our citizens being killed or injured. The effective handling of mass casualties following such an attack requires new procedures and medical skills using every physician and all ancillary personnel in the country.

It is therefore the solemn duty of the medical profession, including every individual physician in the country, to exercise his skills, knowledge, and best judgment to prevent human suffering and loss of life and to assume responsibility for solution of the complex medical problems arising from instantaneously produced mass casualties.

The Council and the Board of Trustees recommend that the House of Delegates express its grave concern over the present inadequacy of our national civil defense effort. An efficient and practical medical civil defense should be developed by the best minds in our nation as an absolute necessity to national survival, and the physicians of our country, individually and in associated bodies, must assume the basic responsibility of preparing for and assuming the management and care of mass casualties during a grave national disaster. The Board of Trustees recommends further that the Council on National Defense study and report on a plan and organization by which the medical profession can be mobilized to meet the current and future need for an adequate national medical civil defense preparedness plan.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. William C. Chaney, Chairman, Tennessee, presented the following report, which was adopted:

National Civil Defense.—In considering supplementary report I of the Board of Trustees your committee is impressed with the serious and important responsibilities of the Council on National Defense with respect to its activities concerning medical disaster preparedness and emergency medical services. Your committee agrees with the Council and the Board of Trustees that the continued existence of our national and the survival of our people depend upon a complete and effective national defense on both the military and civilian levels. This committee is convinced that an enemy attack employing thermonuclear weapons could result in millions of our citizens being killed or injured, and that the effective handling of mass casualties following such an attack requires new procedures and medical skills using every physician and all ancillary personnel in the country.

Your committee believes it is the solemn duty of each individual physician to exercise his skills, knowledge, and best judgment in preventing human suffering and loss of life. Therefore, physicians should assume responsibility for solution of the complex medical problems arising from instantaneously produced mass casualties. Your committee endorses the proposition that an efficient and practical medical civil defense should be developed by the best minds in our nation as necessary to national survival.

Your committee received with interest the statements from members of the Council pertaining to studies and plans that are currently in progress: (1) to assist state medical societies in promoting and developing active programs for emergency medical services; (2) to obtain information on the emergency care of casualties by specialty groups; (43) to act as a liaison with these groups to aid them in defining their role so that a comprehensive emergency medical service program can be realized; and (4) to define and integrate the special medical training for allied medical and health groups. Your committee commends the Council on its accomplishments, and is impressed with its grasp of the problem. Your reference committee recommends that the Council on National Defense complete its plan for an organization by which the medical profession can be mobilized to meet the current and future need for an adequate national medical civil defense program.

J. Veterinary Corps

Supplementary report J was referred to the Reference Committee on Medical Military Affairs.

The following recommendation of the Council on National Defense was approved by the Board of Trustees for submission to the House of Delegates:

The Congress legislated to establish the Army Veterinary Corps in the National Defense Act of June 3, 1916, and reaffirmed its action in the Army Organization Act of 1950, and the United States Air Force recognized the military necessity for a veterinary service and administratively established a Veterinary Corps in 1949.

Military veterinarians have made and continue to make valuable contributions to medical science of both military and civilian significance. They have played a vital role in successfully protecting the health of troops from food-borne and animal diseases throughout two world wars and the Korean conflict and currently are responsible for inspection of food used by the Armed Forces. The professional capabilities, military training, and centralized control of the Army and Air Force Veterinary Corps have established them as indispensable components of the over-all preventive medicine program and as important paramedical elements in the event of atomic disaster. The officers of this corps, trained and being trained in radiobiology, radiotoxicity, and radioassay as these pertain to foodstuffs and food-producing animals subjected to the effects of nuclear detonations, comprise a group whose technical knowledge and capabilities will be of inestimable value to both military and civilian populations in the event of atomic disaster and would be difficult of replacement. Officers of the Army and Air Force Veterinary Corps, trained and being trained in the medical care of human casualties, are being relied upon to assist medical officers in the event of atomic disaster. The elimination of military veterinarians will substantially increase the armed forces' requirements for medical officers to assume many of the functions performed by the former and thereby reduce the number of physicians available for the medical care of the civilian population. The Council on National Defense believes that the proposal of the Secretary of Defense would deprive the Armed Forces of important operational elements that function to protect the health of our soldiers, sailors, and airmen at home and overseas, and recommends therefore that the American Medical Association vigorously oppose any action by the Department of Defense that would "reassign, discontinue, or obtain through contractural arrangements the various functions performed by the Army and Air Force Veterinary Corps."

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. William C. Chaney, Chairman, Tennessee, read the following report, which was adopted:

Your reference committee approves in principle supplementary report J pertaining to the military Veterinary Corps. Your committee notes that the Congress legislated to establish the Army Veterinary Corps in the National Defense Act of June 3, 1916, reaffirmed its action in the Army Organization Act of 1950. The United States Air Force recognized the military necessity for a veterinary service and administratively established a Veterinary Corps in 1949.

Military veterinarians have made and continue to make valuable contributions to medical science of both military and civilian significance. They have played a vital role in successfully protecting the health of troops from food-borne and animal diseases throughout two World Wars and the Korean conflict, and currently are responsible for inspection of food used by the armed forces. The professional capabilities, military training and centralized control of the Army and Air Force Veterinary Corps have established them as indispensable components of the overall preventive medical program and as important supporting medical elements in the event of atomic disaster. Your committee further notes that the officers of this Corps, trained in radiobiology, radiotoxicology, and radioassay which pertain to foodstuffs and food producing animals subjected to the effects of nuclear detonations, comprise a group whose technical knowledge and capabilities will be of inestimable value to both military and civilian populations in the event of atomic disaster and would be difficult of replacement. Officers of the Army and Air Force Veterinary Corps, trained and being trained in the medical care of human casualties, are being relied upon to assist medical officers, in the event of atomic disaster. Your committee is impressed with the contention that the elimination of military veterinarians will substantially increase the Armed Forces' requirements for medical officers to assume many of the functions performed by the former and thereby reduce the number of physicians available for the medical care of the civilian population.

For these reasons, your committee recommends that this House of Delegates oppose the elimination of military veterinarians. Your committee further recommends that a copy of the report and action be sent to the President of the United States, members of the Armed Services Committees and Appropriations Committees of the Senate and House of Representatives, including telegraphic copies to the Secretary of Defense and the Surgeons General of the Army, Navy, and Air Force.

Report of Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals

Dr. Wendell C. Stover, Chairman of the special Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals, presented the following report, which was referred to the Reference Committee on Medical Education and Hospitals.

At the annual meeting of the House of Delegates in June, 1955, the following resolutions relating to the Joint Commission on Accreditation of Hospitals were introduced: Resolution No. 3 on Accreditation of Hospitals, introduced by Dr. Joseph B. Copeland on behalf of the Texas delegation; Resolution No. 15 on Accreditation of Hospitals, introduced by Dr. James Q. Graves for the Louisiana delegation; Resolution No. 17 on Board of Mediation for Joint Commission on Accreditation of Hospitals, introduced by Dr. George F. Gsell on behalf of the Kansas delegation; Resolution No. 20 on Activities of Joint Commission on Accreditation of Hospitals, introduced by Dr. George A. Unfug on behalf of the Colorado delegation; Resolution No. 59 on Hospital Accreditation, introduced by Dr. John F. Burton on behalf of the Oklahoma delegation; and Resolution No. 67 on Accreditation of Hospitals, introduced by Dr. Elmer P. Weigel on behalf of the New Jersey delegation.

The above-named resolutions were considered by the Reference Committee on Medical Education and Hospitals, which made the following recommendations:

". . . that the Speaker of the House of Delegates be requested to appoint a special committee to review the functions of the Joint Commission on Accreditation of Hospitals to consist of seven members, none of whom shall be members of the Council on Medical Education and Hospitals or of the Joint Commission on the Accreditation of Hospitals. This special committee should be instructed to make an independent study or survey and report its findings and recommendations to the House of Delegates at the next annual meeting. All physicians and hospitals are urged to pass on to this special committee any observations or suggestions concerning the functioning of the Joint Commission on Accreditation of Hospitals."

Two resolutions introduced in the House, December, 1955, by Dr. Clark Bailey for Kentucky were also referred to the Committee.

Committee Procedure

As a result of this directive by the House, the Speaker appointed a seven-man committee which has held five meetings with 100 per cent attendance by the members.

Letters and Publicity.—To obtain as much factual data as possible and to give physicians and hospital administrators throughout the country an opportunity to express their views on the functions of the Joint Commission letters were sent to state medical associations and large component medical societies, and to the American Hospital Association for distribution to state hospital associations. Notices and news items were published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the Secretary's Letter. These letters and news items informed physicians and medical organizations of the creation of the Committee and requested them to notify their members—through journals, bulletins, newsletters, or a special mailing to their memberships—of the Committee's desire for information on the following:

1. The general understanding by physicians of the functions of the Joint Commission.
2. Whether the method of appeal from an adverse ruling regarding accreditation is satisfactory.
3. The effect on the individual physician's hospital connections due to actions of the Joint Commission.
4. Whether any organizations not now represented should have official representation on the Joint Commission.
5. The effect of the Joint Commission's requirements concerning such matters as staff meetings.
6. The pros and cons of separating administrative and professional accreditation functions in the inspection of hospitals.
7. Constructive suggestions for improving the hospital accreditation program.

Interviews.—To obtain background information the Committee, at its various meetings, interviewed (1) the Director and staff of the Joint Commission at the Commission's offices; (2) representatives and some of the Commissioners of the American Medical Association, American Hospital Association, American College of Surgeons, and American College of Physicians; (3) representatives of the American Academy of General Practice, including national officers and state delegations; and (4) surveyors of the member organizations of the Joint Commission. A detailed letter was also received from the Canadian Medical Association.

As a result of its studies the Committee found that the dissatisfaction with the functions of the Joint Commission, as intense as it is in some localities, is not as widespread geographically as this Committee had been led to believe. It is also evident that much of the criticism is based on misunderstanding and misinformation.

History of Accreditation

A Hospital Standardization Program was begun by the American College of Surgeons in 1920 the purpose of which was ". . . to create in the hospital an environment which will assure the best possible care of the patient." The American College of Surgeons conducted this program until December, 1951, when it became too expensive, at which time they proposed to turn it over to the American Hospital Association. The American Medical Association then took definite action and it was agreed that both medical and hospital groups should be represented in the program. On December 15, 1951, the Joint Commission on Accreditation of Hospitals was established.

Make-Up of the Joint Commission

The Joint Commission is an independent entity incorporated under the laws of the State of Illinois as a nonprofit corporation. As a separate corporation it functions within the limitations of its articles of incorporation, which set forth its charter powers, and the bylaws of the corporation, which enumerate its activities and plan of organization. The American Medical Association is a member organization of the Joint Commission in common with other member organizations.

According to the Bylaws of the Joint Commission on Accreditation of Hospitals, Article IV, Section 1, "The Members of this corporation shall be American College of Physicians, American College of Surgeons, American Hospital Association, and American Medical Association." A subsequent amendment authorized membership of the Canadian Medical Association.

Article IV, Section 2, of the bylaws states: "Additional organizations may be admitted to membership in this corporation upon the written approval of all members."

Article VI, Section 1, of the bylaws specifies that, "The affairs of the corporation shall be managed by a Board of twenty (20) Commissioners."

At present the Board of Commissioners consists of the following:

BOARD OF COMMISSIONERS
Chairman, LeRoy H. Sloan
Vice Chairman Julian P. Price
Treasurer, Mr. Stuart K. Hummel
Secretary, Kenneth B. Babcock

AMERICAN COLLEGE OF PHYSICIANS
*1956—Willis M. Fowler, Iowa City
1957—LeRoy H. Sloan, Chicago
1958—Alexander M. Burgess, Providence, R. I.

AMERICAN COLLEGE OF SURGEONS
1956—Walter C. MacKenzie, Alberta, Canada
1957—Warren H. Cole, Chicago
1958—John I. Brewer, Chicago

AMERICAN HOSPITAL ASSOCIATION
1956—Hon. John Milton George, Q. C., Manitoba, Canada
1956—Mr. Stuart K. Hummel, Milwaukee
1956—Jack Masur, Washington, D. C.
1957—Frank R. Bradley, St. Louis
1957—Rt. Rev. Msgr. Donald A. McGowan, Washington, D. C.
1958—Mr. Ray E. Brown, Chicago
1958—Albert W. Snoke, New Haven, Conn.

AMERICAN MEDICAL ASSOCIATION
1956—Dwight H. Murray, Napa, Calif.
1956—Herman G. Weiskotten, Skaneateles, N. Y.
1957—Gunnar Gundersen, LaCrosse, Wis.
1957—Stanley R. Truman, Oakland, Calif.
1958—Julian P. Price, Florence, S. C.
1958—Raymond F. Peterson, Butte, Mont.

CANADIAN MEDICAL ASSOCIATION
1957—E. K. Lyon, Ontario, Canada

ADVISORY COMMITTEE
LeRoy H. Sloan, American College of Physicians
Paul R. Hawley, American College of Surgeons
Edwin L. Crosby, American Hospital Association
George F. Lull, American Medical Association
A. D. Kelly, Canadian Medical Association
Kenneth B. Babcock, Chairman, Joint Commission on Accreditation of Hospitals

---

*Designates year appointment terminates

As the term of each Commissioner expires the Member organization reappoints him or selects a replacement. In the case of the American Medical Association these Commissioners are appointed by the Board of Trustees.

Article VII, Section 1, of the bylaws states: "The officers of the corporation shall be a Chairman, a Vice Chairman, a Secretary and a Treasurer and such other officers as the Board may authorize, all of whom, *except the Secretary, shall be elected from members of the Board of Commissioners.*" These officers are elected at each annual meeting of the Board.

Article VIII, Section 1, of the bylaws states: "There shall be an Advisory Committee composed of the chief administrative officer of each Member or such other person as the Member may designate, and the Director of this corporation. The Director shall act as Chairman of the Advisory Committee."

The expenditures of the Commission for 1955 were $96,192.69. Appropriations by the parent organization are prorated according to the proportion of members on the Commission: American Medical Association, 6/20ths; American Hospital Association, 7/20ths; American College of Surgeons, 3/20ths; American College of Physicians, 3/20ths; and Canadian Medical Association, 1/20th.

In addition, surveyors are employed by each individual Member organization, and they are supplied in the following proportion: American College of Surgeons, 4; American Hospital Association, 5 (including 2 part-time); American Medical Association, 10 (including 2 part-time); and Canadian Medical Association, 2. The surveyors for the American Medical Association also survey residency and internship programs, and the surveyors for the American College of Surgeons survey cancer clinics.

The Committee is cognizant of the fact that the Joint Commission is a relatively new organization and is still in a state of evolution. As new problems arise, improvements in the operations of the Commission are made. For example, recently a major change was made in the survey report forms by eliminating the "point scores."

The Committee is conscious of the importance and prestige of hospital accreditation by the Joint Commission, specifically in those areas of the country where emphasis is placed upon accreditation by Blue Cross, insurance companies, and other agencies, such as the United Mine Workers Welfare and Retirement Fund.

Standards for Hospital Accreditation

Since many members of the House have probably not had an opportunity to review the "Standards for Hospital Accreditation," the Committee believed it important to reproduce the latest revision in its entirety. The following are the standards for hospital accreditation as revised and published by the Commission on January 28, 1956.

BASIC PRINCIPLES

The following outlines the basic principles necessary for accreditation of a hospital by the Joint Commission on Accreditation of Hospitals. They are arranged in three sections according to the major functional divisions of a hospital.

I. ADMINISTRATION

Physical Plant—The buildings of the hospital must be constructed and arranged to insure the safety of the patient and promote his welfare.

Governing Body—The governing body has the legal and moral responsibility for the conduct of the hospital as an institution. It is responsible to the patient, the community, and the sponsoring organization. Its official representative is the chief administrative officer of the hospital.

Facilities for the following services are essential:

Dietary
Medical Records
Pharmacy or Drug Room
Clinical Laboratory, and pathological services
Radiology
Medical Library

II. MEDICAL STAFF

The medical staff is responsible to the patient and to the governing body of the hospital for the quality of all medical care rendered to patients in the hospital and for the ethical and professional practices of its members.

III. NURSING

There must be a graduate registered nurse on duty at all times and professional nursing care must be available for all patients at all times.

STANDARDS FOR METHODS OF PROCEDURE

I. ADMINISTRATION

A. Physical Plant

The buildings of the hospital must be solidly constructed with adequate space and safeguards for each patient. Space provided shall not be less than required by existing legal codes The hospital shall provide:

1. Fire protection by installation of rigid controls and written fire control plans, the elimination of fire hazards, the installation of necessary safeguards such as extinguishers, sprinkling devices, fire barriers, etc., to insure rapid and effective fire control.
2. A sanitary environment to avoid sources and transmission of infections.
3. Facilities for isolation of patients with communicable diseases, especially in obstetrical, newborn, and pediatric sections.
4. Emergency lighting in operating, delivery and emergency rooms, nursery and stairwells.
5. Adequate diagnostic and therapeutic facilities.

B. Governing Body

The governing body is legally and morally responsible for the conduct of the hospital. In the discharge of its duties, it places the responsibility for the medical care of the patient in the hospital primarily upon the medical staff. For effective performance the governing body should do the following

1. Adopt bylaws in accordance with legal requirements
2. Meet at regular stated intervals.
3. Appoint committees. There should be an Executive Committee and others as indicated for special purposes
4. Establish a formal means of liaison with the medical staff preferably by a Joint Conference Committee.
5. Appoint members of the medical staff.
6. Appoint a qualified hospital administrator who is the official representative of the governing body. The administrator is responsible for the conduct of the hospital, and provides liaison among the governing body, the medical staff, the nursing staff, and other departments of the hospital.

C. Essential Services which must be maintained.

1. *Dietary Department*
   a. There shall be an organized department directed by qualified personnel and integrated with other departments of the hospital.
   b. Facilities shall be provided which meet the requirements of the local sanitary code for the storage, preparation, and distribution of food for the general dietary needs of the hospital. These shall include facilities for the preparation of special diets.
   c. There shall be a qualified dietitian on full time or on a consultation basis and in addition, administrative and technical personnel competent in their respective duties.

d. There shall be a systematic record of diets, correlated with the medical records.

e. Departmental and interdepartmental conferences shall be held periodically.

2. *Medical Records Department*

a. Administrative Responsibilities

(1) There shall be a medical record maintained on every patient admitted for care in the hospital.

(2) Records shall be kept inviolate and preserved for a period of time not less than that determined by the Statute of Limitations in the respective state.

(3) Qualified personnel adequate to supervise and conduct the department shall be provided.

(4) A system of identification and filing to insure the rapid location of a patient's medical record shall be maintained. The unit number system is suggested; however, a serial number system or modification of this is acceptable.

(5) Records should be indexed according to disease, operation, and physician and should be kept up-to-date.

(6) All clinical information pertaining to a patient should be centralized in the patient's record.

(7) The Standard Nomenclature should be used as a nomenclature and is preferred if medical records are coded.

b. Medical Staff Responsibilities

(1) The medical record must contain sufficient information to justify the diagnosis and warrant the treatment and end results.

(2) Only physicians and members of the house staff are competent to write or dictate medical histories and physical examinations.

(3) Current records and those on discharged patients should be completed promptly.

(4) Records must be authenticated and signed by the physician.

c. The medical record should contain the following information:

(1) Identification data
(2) Complaint
(3) Present illness
(4) Past history
(5) Family history
(6) Physical examination
(7) Consultation
(8) Clinical laboratory reports
(9) X-ray reports
(10) Provisional diagnosis
(11) Tissue report
(12) Treatment: Medical and Surgical
(13) Progress notes
(14) Final diagnosis
(15) Summary
(16) Autopsy findings

3. *Pharmacy or Drug Room*

a. There shall be a pharmacy directed by a registered pharmacist or drug room under competent supervision.

b. Facilities shall be provided for the storage, safeguarding, preparation, and dispensing of drugs.

c. Personnel competent in their respective duties shall be provided in keeping with the size and activity of the department.

d. Records shall be kept of the transactions of the pharmacy, and correlated with other hospital records where indicated. Such special records shall be kept as are required by law.

e. Drugs dispensed shall meet the standards established by the United States Pharmacopeia, National Formulary, New and Non-official Remedies, British Pharmacopeia, or Canadian Formulary.

f. There should be an automatic stop order on dangerous drugs.

4. *Laboratories*

a. Clinical

(1) A clinical laboratory adequate for the individual hospital must be maintained in the hospital.

(2) Provision shall be made to carry out chemical, bacteriological, and serological examinations.

(3) Facilities should be available at all times.

(4) Personnel adequate to supervise and conduct the service should be provided.

(5) Urinalysis and at least a hemoglobin or hematocrit should be routine examinations on all admissions.

(6) Signed reports should be filed with the patient's record and duplicate copies kept in the department.

b. Pathological

(1) The services of a pathologist must be provided as indicated by the needs of the hospital.

(2) All tissues removed at operation should be sent for examination. The extent of the examination should be determined by the pathology department.

(3) Signed reports of tissue examination should be filed with the patient's record and duplicate copies kept in the department.

(4) Tissue reports should be indexed according to pathologic diagnosis.

c. Blood Bank

Facilities for procurement and safe-keeping of blood should be provided or readily available.

5. *Radiology*

a. The hospital must maintain radiological services according to the needs of the hospital.

b. The radiology department shall be free of hazards for patients and personnel.

c. The interpretation of radiological examinations shall be made by physicians competent in the field.

d. Signed reports should be filed with the patient's record and duplicate copies kept in the department.

e. Reports should be indexed according to radiological diagnosis.

6. *Medical Library*

a. The hospital must maintain a medical reference library according to the needs of the hospital.

b. Facilities should be provided to meet the requirements of the services in the hospital.

c. Basic textbooks and current periodicals should be available and catalogues according to the needs of the hospital.

d. Personnel should be provided to assure efficient service to the medical staff.

D. Services which may be maintained

1. *Medical Social Service Department.* If a department is maintained:

a. There shall be an organized department directed by a qualified medical social service worker, and integrated with other departments of the hospital.

b. Facilities shall be provided which are adequate for the personnel of the department, easily accessible to patients and to the medical staff, and which assure privacy for interviews.

c. Records of case work shall be kept. Such records shall be available only to the professional personnel concerned.

d. Departmental and interdepartmental conferences shall be held periodically.

2. *Emergency Service.* If a service is maintained:

a. There shall be a well organized department directed by qualified personnel and integrated with other departments of the hospital.

b. Facilities shall be provided to assure prompt diagnosis and emergency treatment.

c. There shall be adequate medical and nursing personnel available at all times.

d. Adequate medical records on every patient must be kept.

e. There shall be a written plan for the care of mass casualties and this plan should be coordinated with the in-patient and out-patient services of the hospital.

II. MEDICAL STAFF

A. Responsibilities

The governing body of the hospital must obviously delegate the responsibility of medical functions to the medical staff, including recommendations as to the professional qualifications of all who practice in the hospital. The medical staff is responsible for the quality of medical care rendered to patients in the hospital. Maintaining high standards of medical care will depend upon the character of the staff and the effectiveness of its organization to carry out the following duties:

1. Selection of those recommended for staff appointments and hospital privileges.
2. Constant analysis and review of the clinical work done in the hospital.
3. Support of medical staff and hospital policies.
4. Maintenance of adequate medical records.
5. Procurement of autopsies (a minimum of 20 to 25 per cent of hospital deaths).
6. Holding of necessary consultations. Except in emergency, consultation with another qualified physician shall be required in all first Caesarean sections and in all curettages or other procedures by which a known or suspected pregnancy may be interrupted. The same requirement shall apply to operations performed for the sole purpose of sterilization on both male and female patients. Included in consultations required under this Standard are all those which are required under the rules of the hospital staff. In major surgical cases in which the patient is not a good risk, and in all cases in which the diagnosis is obscure, or when there is doubt as to the best therapeutic measures to be utilized, consultation is appropriate. Obviously, judgment as to the serious nature of the illness and the question of doubt as to diagnosis and treatment rests with the physician responsible for the care of the patient. It is the duty of the hospital staff through its chiefs of service and Executive Committee to see that members of the staff do not fail in the matter of calling consultants as needed. A consultant must be well qualified to give an opinion in the field in which his opinion is sought. A satisfactory consultation includes examination of the patient and the record and a written opinion signed by the consultant which is made part of the record. When operative procedures are involved, the consultation note, except in emergency, shall be recorded prior to operation.

B. Membership

1. *Appointment*

a. Procedure

Staff appointments are made officially by the governing body. Recommendations are customarily made by the active staff, and in no case should a governing body make an appointment to the staff without such a recommendation.

b. Qualifications

Members of the staff must be qualified legally, professionally and ethically for the positions to which they are appointed.

c. Tenure

Limited terms of appointment are preferred but not required. The prevailing custom is for a term of one year, with reappointments continued as long as qualifications remain satisfactory.

2. *Categories*

The privileges of each member of the medical staff shall be determined on the basis of professional qualifications and demonstrated ability.

a. Active Staff

Regardless of any other categories having privileges in the hospital, there shall be an active staff, properly organized, which shall perform all the organizational duties pertaining to the medical staff. These shall include:

(1) Maintenance of the proper quality of all medical care and treatment in the hospital

(2) Organization of the medical staff, including adoption of rules and regulations for its government (which require the approval of the governing body), election of its officers, and recommendations to the governing body upon all appointments to the staff and grants of hospital privileges.

(3) Other recommendations to the governing body upon matters within the purview of the the medical staff.

b. Other Categories of the Staff

In larger hospitals, and in some smaller hospitals the medical staff may include one or more of the following categories in addition to the Active Staff but this in no wise modifies the duties and responsibilities of the Active Staff.

(1) Honorary Staff

The Honorary Staff shall be former active Staff, retired or emeritus, and other physicians of reputation whom it is desired to honor.

(2) Consulting Staff

The Consulting Staff shall be recognized specialists willing to serve in such capacity. A member of the Consulting Staff may also be a member of the Active Staff, but only if the two appointments are made.

(3) Associate Staff

The Associate Staff shall be those members who use the hospital infrequently or those less experienced members undergoing a period of probation before being considered for appointment to the Active Staff.

(4) Courtesy Staff

The Courtesy Staff shall be those who desire to attend patients in the hospital but who, for some reason not disqualifying, are ineligible for appointment in another category of the staff.

(5) Privileges of the Hospital
Privileges of the hospital may be extended to other qualified physicians under the same conditions as apply to the Courtesy Staff.

C. Organization

1. Officers

There shall be a President or Chief of Staff, a Vice President or Vice Chief, a Secretary, and such other officers as may be necessary for the government of the staff. These officers shall come from the Active Staff and shall be elected by the Active Staff, unless this is precluded by hospital organization.

2. Bylaws

Bylaws conforming to the principles expressed by the Joint Commission on Accreditation of Hospitals shall govern the staff.

3. Committees

The complexity of committee organization depends upon the size and composition of the medical staff of the individual hospital. A small staff may wish to function as a committee of the whole. Others may wish to combine committee functions in two or three committees. The structure of committee organization is a decision to be made by the medical staff so long as the following required committee functions are carried out:

a. Executive Committee
The Executive Committee shall co-ordinate the activities and general policies of the various departments, act for the staff as a whole under such limitations as may be imposed by the staff, and receive and act upon the reports of the Medical Records, Tissue and such other Committees as the medical staff may designate. The Executive Committee shall meet at least once a month and maintain a permanent record of its proceedings and actions.

b. Qualifications or Credentials Committee
The Qualifications or Credentials Committee shall review applications for appointment and reappointment to all categories of the staff. They shall delineate the privileges to be extended to the applicant and make appropriate recommendations to the staff.

c. Joint Conference Committee
The medical staff members of the Joint Conference Committee shall represent the staff in meetings with the governing body of the hospital or a committee of that body. This Committee shall be a medico-administrative liaison committee and the official point of contact among the medical staff, the governing body, and the administrator.

d. Medical Records Committee
The Medical Records Committee shall supervise and appraise the quality of medical records, and shall insure their maintenance at the required standard. The Committee shall meet at least once a month and submit to the Executive Committee a report in writing which will be made a part of the permanent record.

e. Tissue Committee
The Tissue Committee shall study and report to the staff, or to the Executive Committee of the staff, on the agreement or disagreement among the pre-operative, post-operative and pathological diagnoses and on whether the surgical procedures undertaken in the hospital were justified or not. This study will also include those procedures in which no tissue was removed. The report to the Executive Committee shall be in writing on at least a monthly basis.

4. Staff Meetings

The sole objective of staff meetings is improvement in the care and treatment of patients in the hospital. This is facilitated by a thorough review and analysis of the clinical work done in the hospital on at least a monthly basis.

a. There are three patterns for medical staff meetings which will accomplish this purpose:
   (1) Monthly meetings of the active staff, not less than twelve in each calendar year.
   (2) In well organized and departmentalized hospitals, departmental conferences and clinicopathologic conferences may be substituted for meetings of the entire staff, provided that an adequate review of the clinical work done in the hospital is covered by one or another of such conferences, and further provided that at least one meeting of the entire Active Staff is held during each quarter of the year. At such meetings a report of the review of the medical work of the hospital must be presented by the Executive Committee. In very large hospitals where attendance requirements are obviously met by departmental meetings and where physical facilities are not available for large audiences, the Commission may accept departmental meetings in lieu of meetings of the entire medical staff.
   (3) In hospitals where adequate review of the medical work in the hospital is carried out by the Medical Records and Tissue Committees, and appropriate study and action is taken by the Executive Committee on not less than a monthly basis, one meeting of the entire Active Staff must be held during each quarter of the year. At such meetings a report of the medical work of the hospital must be presented by the Executive Committee.

b. Active Staff attendance shall average at each meeting at least 75 per cent of the active staff who are not excused by the Executive Committee for just cause. Each active staff member shall attend 75 per cent of staff meetings unless excused by the Executive Committee for just cause.

c. In addition to matters of organization, the programs of such meetings must include a report of the Executive Committee and be limited largely to the review of current or recent cases in the hospital. Scientific programs not associated with the work of the hospital do not meet this requirement.

d. Business or other executive sessions of the staff shall be conducted by the Active Staff and other categories of the staff may be excluded.

e. Adequate minutes of all meetings shall be kept.

D. Departmentalization

Division of the staff into services or departments to fulfill medical staff responsibilities promotes efficiency and is recommended in general hospitals with 75 or more beds. Functional division of the medical staff into more than the minimal medical and surgical services is frequently desirable in larger hospitals. It is necessary that each autonomous service or department be organized and function as a unit. The following are considered minimal.

1. Personnel

Personnel of each service or department shall be qualified by training and demonstrated competence, and shall be granted priviliges commensurate with their individual abilities.

2. Chief of Service or Department

The chief of service or department shall be the member of the service or department best qualified by training and experience, and demonstrated ability for the position. He shall be responsible for the general character of the professional care of the patients on his service or department, and make recommendations as to qualifications of its members. His duties shall also include recommendation to the administrator as to the procurement of drugs, supplies, instruments, and equipment to insure maximum benefit to the patient. Additional duties of the chief of service or department shall include the following:

- a. Surgical—Recommendations as to sterile procedures and operating room policies.
- b. Obstetrical
  - (1) Supervision of care of newborn, if there is no organized service responsible for the nursery;
  - (2) Recommendations as to sterile procedures and delivery room policies.
- c. Clinical Laboratory
  - (1) Participation in staff and departmental meetings;
  - (2) Reporting upon all specimens examined, and maintaining a duplicate file of these reports in the department. This includes all tissues removed in the hospital.
- d. X-Ray Department
  - (1) Participation in staff and departmental meetings;
  - (2) Reporting upon all examinations and treatments, maintaining a duplicate file of these reports in the department,
  - (3) Insuring that safety precautions as to radiation and fire are observed strictly.

3. Conferences

Each service or department should have frequent, periodic conferences, attended by all its members, to consider clinical and organizational problems peculiar to the service. Records of these meetings shall be kept, become part of the records of the medical staff, and be available for inspection.

E. Departments which may be maintained

1. Anesthesia

The organization of the Department of Anesthesia shall be comparable to that of the other services of the medical staff. In addition, there shall be required in every case:

- a. Preanesthetic physical examination with findings recorded;
- b. Anesthetic record on special form,
- c. Postanesthetic follow-up, with findings recorded.

2. General Practice Department

A Department of General Practice shall be an organized segment of the medical staff comparable to that of other staff departments with the following modifications:

- a. The responsibilities of this department shall be limited to administration and education. It shall not be a clinical service and no patients shall be admitted to the department. If and when desirable, however, the department may be made responsible for conducting the outpatient clinic in whole or in part.
- b. Since the Department of General Practice will not have a separate service, the members of the General Practice Department shall have privileges in the clinical services of the other departments in accord with their experience and training, on recommendation of the Credentials Committee. In any service in which any general practitioner shall have privileges, he shall be subject to the rules of that service and subject to the jurisdiction of the chief of the clinical service involved.
- c. The medical staff should give to the General Practice Department such administrative responsibilities in the conduct of medical affairs as are desirable to meet the needs of the hospital.

3. Rehabilitation Department

The organization of the Rehabilitation Department shall be comparable to that of other departments of the hospital.

4. Outpatient Department

The Outpatient Department shall be organized into sections (clinics) the number of which shall depend on the degree of departmentalization of the medical staff, available facilities, and the needs of the community.

- a. Organization and Personnel
  There shall be such professional and non-professional personnel as are required for efficient operation.
- b. Facilities
  Facilities shall be provided to assure the efficient operation of the department.
- c. Medical Records
  Medical records shall be maintained, and correlated with other hospital medical records.
- d. Conferences
  Conferences, both departmental and interdepartmental, shall be conducted to maintain close liaison between the various sections within the department and with other hospital services.

5. Dental

The dental staff shall conform in general to standards established for the medical staff. In addition:

- a. Members of the dental staff must be qualified legally, professionally and ethically for the positions to which they are appointed.
- b. Patients admitted for dental services shall be admitted on a surgical service and shall be the responsibility of the chief of that service.
- c. Adequate medical survey by a member of the medical staff shall be done on each patient before dental surgery. Indicated consultations shall be held in complicated cases.

III. NURSING DEPARTMENT

Adequate care of the hospital patient requires well-organized and efficient nursing. All hospitals must meet the following requirements for accreditation:

A. Functions and Responsibilities

Nursing care for all patients is a primary responsibility of the nursing department, which must function in close relationship with other services of the hospital, both administrative and professional. This requires the establishment of a departmental plan of administrative authority with a definite outline of responsibilities and duties for each category of nursing personnel. This shall deal not only with patient care, but also with the educational responsibilities of the nursing department. Adequate nursing service must also be provided for the surgical suite, delivery rooms, clinics and other services of the hospital in keeping with the size and degree of activity.

B. Personnel

Personnel engaged for administrative or professional duties must be qualified by training and experience, and demonstrated ability for their assignments. All hospitals must provide nursing personnel to meet the following minimum requirements:

1. Director of Departments.
2. Assistant to the Director for evening and night services
3. Department or floor supervisors.
4. An adequate number of professional nurses and ancillary personnel for bedside care.

Nurses assigned to care for obstetrical patients and the newborn must not have other duties which may create danger of infection being carried to this service.

C. Records

Adequate records shall be maintained.

D. Departmental Meetings and Conferences

Meetings of the nursing staff, or of each department staff, shall be held at least monthly for discussion of nursing problems related to care of patients and administration.

Key Questions Considered by Committee

The Committee reviewed many facets of the problem of hospital accreditation. Following are a number of the key questions considered:

A. Should accreditation be continued? The Committee as well as all of those persons interviewed unequivocally are of the definite opinion that hospital accreditation should be continued.

B. Commission Membership: Although it might be advantageous to limit the membership of the Joint Commission to the Americal Medical Association alone or to the American Medical Association and the American Hospital Association, historic, legal, and other considerations have brought the Committee to the conclusion that it would be advisable to maintain the present representation. Admission of other organizations is a matter for the Joint Commission to consider, but the Committee believes the present representation is adequate. This Committee recommends that the American Medical Association representation always include at least one general practitioner, as has been customary in the past. The Committee also recommends that the other representatives of the American Medical Association continue to be rotated among the various specialties.

C. Activities of the Commission: (1) Should the Commission "punish" hospitals which discriminate against general practitioners? The Commission is not a punitive organization. It is set up ". . . to create in the hospital an environment which will assure the best possible care of the patient."

While the Commission has been blamed for some of the rejections of applications for staff appointments, it is the hospital board itself which approves or disapproves the appointment on the recommendation of the staff.

The Committee calls attention to the fact that in some areas staff appointments are based on board accreditation or member ship in specialty societies. The Committee strongly believes that these appointments should be based solely upon the physician's professional ability and ethical conduct without regard to his classification as a general practitioner or a specialist.

The Committee supports the stand of the Commission as published in section II-E-2 of the "Standards for Hospital Accreditation." This states, "A Department of General Practice shall be an organized segment of the medical staff comparable to that of other staff departments with the following modifications:

"a. The responsibilities of this department shall be limited to administration and education. It shall not be a clinical service and no patients shall be admitted to the department. If and when desirable, however, the department may be made responsible for conducting the outpatient clinic in whole or in part.

"b. Since the Department of General Practice will not have a separate service, the members of the General Practice Department shall have privileges in the clinical services of the other departments in accord with their experience and training, on recommendation of the Credentials Committee. In any service in which any general practitioner shall have privileges, he shall be subject to the rules of that service and subject to the jurisdiction of the chief of the clinical service involved.

"c. The medical staff should give to the General Practice Department such administrative responsibilities in the conduct of medical affairs as are desirable to meet the needs of the hospital."

The Committee again invites attention to the fact that appointments are made by the Board of the individual hospital on recommendation of the staff—not by the Joint Commission on Accreditation of Hospitals. It is the Board and staff which are responsible in each local situation.

(2) Is there a method of "appeal"? Yes, Article III, Section 8 of the bylaws states, "Hospitals which fail to receive initial accreditation or re-accreditation, or whose accreditation is revoked, shall, upon written request, be entitled to a hearing thereon before the Board of Commissioners or a subcommittee thereof designated by the Board for that purpose."

The Committee is of the opinion that there is misunderstanding by hospitals concerning procedure to be followed if acceditation is denied or withdrawn. If deficiencies admittedly exist and are the reason for denying or withdrawing accreditation, the hospital may request a re-survey when the deficiencies have been corrected. This is in no sense an appeal. If a hospital is denied accreditation, or it is withdrawn, and the hospital believes the reason for that action is not based on a proper survey or a proper evaluation of facts by the Joint Commission, it may ask the Commission to reconsider its actions. This is in the nature of an appeal and is provided for as noted in the above quotation.

When a hospital fails to receive accreditation, or accreditation is withdrawn, the Committee believes that the Joint Commission should simultaneously notify the administrator of the hospital and the chief of staff of the right to and the method of appeal of the decision.

(3) Should there be a final court of appeal higher than the Commission? The Committee has discussed the question of whether there can be an appeal to a body higher than the Joint Commission, but because of the organization of the Joint Commission, believes it is not feasible.

(4) Should the Commission report the results of a survey to the staff as well as the administrator? The Committee recommends that copies of the final report on the survey of the hospital which has been surveyed must be sent to both the administrator and the chief of staff of the hospital.

(5) Is the Joint Commission an autonomous body? Yes.

(6) Do the American Medication Association members on the Commission act as individuals or as representatives of the Association? They act as representatives of the American Medical Association. The Committee requests that the Board of Trustees of the American Medical Association include in its annual report to the House of Delegates a report on the activities of the Joint Commission.

D. Activities of Surveyors: (1) Should surveyors be employed entirely by the Commission? The present method of employing surveyors by each member organization promotes confused lines of authority, conflicting interests and loyalties, and administrative inefficiency; therefore the Committee recommends that the surveyors be employed by and be responsible to the Joint Commission. Attention is invited to the fact that the Joint Commission is not concerned with residencies and internship approval, which the American Medical Association will continue to survey.

(2) Should the surveyor have a joint meeting with staff or its representatives and the administrator after his survey? It should be mandatory that the field representative be accompanied by the administrator and a representative of the staff at the time of the survey. Further, he should meet with the administrator and the executive committee of the staff or its representatives following the survey for a review of the findings.

(3) Should new surveyors be better indoctrinated? The Committee believes that there should be closer liaison between the Joint Commission and its field representatives. They should be more adequately trained and immediately informed as to changes and interpretations in surveying procedures; they should be instructed to create excellent public relations understandings between the Commission, the profession, the hospital, and its personnel. Further, the surveyors should be indoctrinated with the ideas and ideals of the medical profession and the function of the hospital and its place in the community. The Committee believes that these objectives will be better accomplished when all surveyors are employed and supervised by the Joint Commission.

E. Staff Meetings and Attendance: Should the number of staff meetings and attendance be regulated by the Joint Commission? The Committee approves of the type and of the number of staff meetings laid down in the regulations of the Joint Commission, but it is of the opinion that compulsory attendance should not be required by the Commission but should be left to the discretion of the local staff.

F. Miscellaneous: (1) Should the American Medical Association accredit professional functions and the American Hospital Association administrative? After thorough study the Committee does not believe administrative and professional functions in accreditation can be separated but believes accreditation of the hospital should be done by the Joint Commission and accreditation of internship and residency programs should continue to be the function of the American Medical Association through its Council on Medical Education and Hospitals.

(2) Should there be physician representation on administrative bodies of the hospitals?

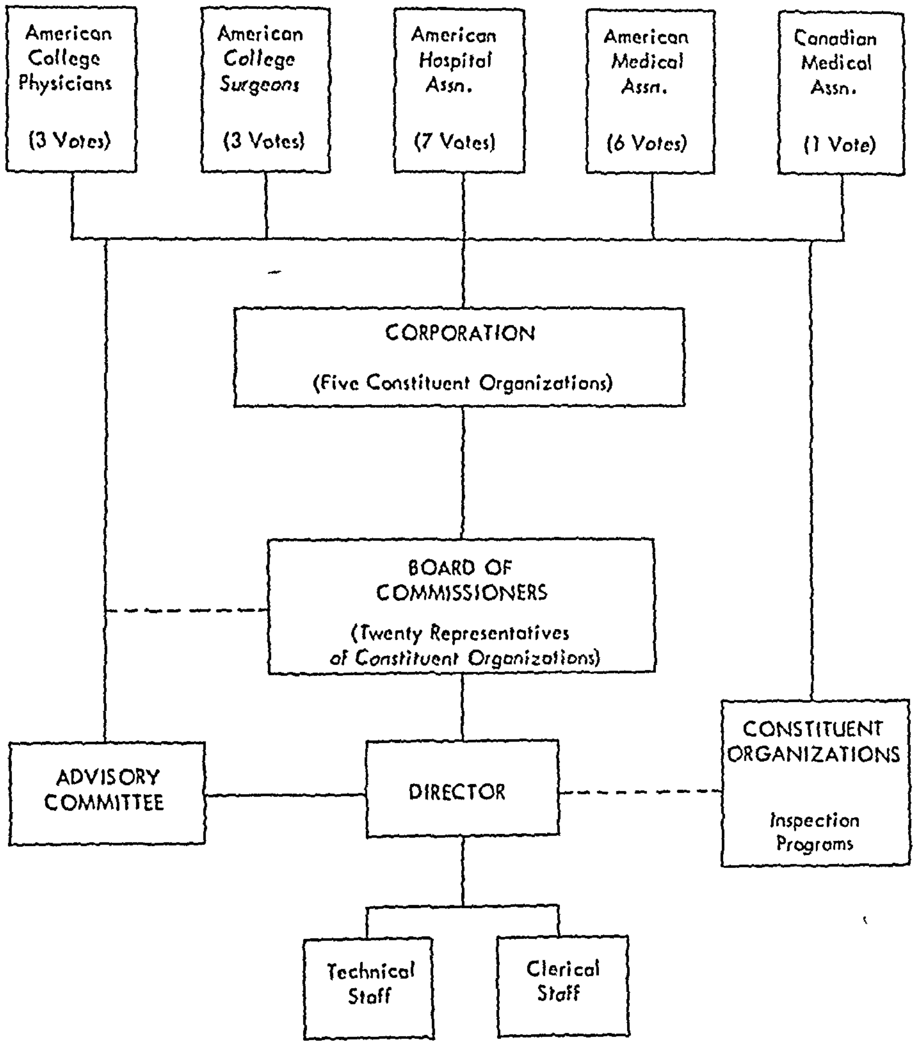
The Committee has reviewed the Report of the Joint Committee on Hospital-Psysician Relationships of the boards of trustees of the American Medical Association and American Hospital Association dated June, 1953. This statement suggests several methods by which the medical staff may have access to the hospital governing board including voting representation by members of the medical staff on the board. This Committee believes that it is desirable to have such staff representation on the governing bodies of hospitals and recommends that the Joint Commission encourage such representation. The Committee also urges medical staffs to request their boards of trustees to accept a medical member even if he serves only as a non-voting member.

(3) Should Blue Cross and other groups withhold payment from non-accredited hospitals until the Commission has had time to survey all hospitals? The Committee believes it should be made clear that any decision to pay claims or benefits, either in full or in part, depending on the accreditation of a hospital is an independent decision of Blue Cross and other groups. This decision cannot and should not be dictated or influenced by the Joint Commission.

The Committee is informed that the Joint Commission has not been able to inspect and accredit all hospitals seeking accreditation. It is reasonable to expect, however, that this will be accomplished in good time. The Committee is confident that Blue Cross and other groups will take into consideration the practical problems associated with the accreditation program so as not to work inequity on their subscribers.

CORPORATE STRUCTURE

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS


American College Physicians (3 Votes)
American College Surgeons (3 Votes)
American Hospital Assn. (7 Votes)
American Medical Assn. (6 Votes)
Canadian Medical Assn. (1 Vote)
CORPORATION (Five Constituent Organizations)
BOARD OF COMMISSIONERS (Twenty Representatives of Constituent Organizations)
ADVISORY COMMITTEE
DIRECTOR
CONSTITUENT ORGANIZATIONS Inspection Programs
Technical Staff
Clerical Staff

December 15, 1951
mjn

(4) Should there be an educational campaign to acquaint the profession with the function rules and regulations of the Joint Commission on Accreditation of Hospitals? The Committee recommends that the American Medical Association conduct an educational program within the profession to inform its membership of the purposes of the Joint Commission.

The Committee recommends that each county medical society seriously consider devoting one meeting during the course of the year to a discussion of this particular problem and recommends that the state associations incorporate a symposium on this subject in their annual meeting programs.

(5) Should the Commission be concerned about the number of staffs to which any physician belongs? The Committee feels that staff membership in individual hospitals is a personal privilege and is of no concern to the Commission.

(6) Do the rules of the Commission discriminate against smaller hospitals? No, but it is recommended that the Commission give serious consideration to establishing standards which may vary depending upon the size of the hospital. Each hospital should be judged on its own merits and efficiency, regardless of size.

(7) Should a general practice section of a hospital be recognized? The Committee feels that the section on general practice in a hospital can never be clinical in nature because it is a part of the whole staff. However, as pointed out in Article V, Section 2 of the "Principles for Establishing Medical Staff By-Laws, Rules and Regulations—May, 1955," "A department of general practice may be organized. It is to be administrative and educational in function only. Patients admitted by members of this department will be admitted to the appropriate clinical department."

(8) Should the Joint Commission concern itself with questions of illegal or unethical contracts between hospital and physicians? Yes. The Commission in accomplishing its objective of assuring the best possible medical care of the patient must concern itself with every practice which prevents the patient from receiving the best possible care.

In the opinion of the Committee the existence of such practice must be determined at local level because the laws of the several states are not uniform. The effect of particular questioned practies should best be discussed by the field representative, the chief of staff, and the administrator at the joint meeting of these parties recommended in paragraph D. (2) above.

(9) Should the American Medical Association hold educational meetings to correlate the functions of the hospital Board of Trustees, the hospital administrator and the professional staff? Insofar as hospitals were established to provide the best possible care for the patient it is incumbent upon the American Medical Association to further these ideals at every opportunity. The Committee recommends that the American Medical Association hold annual national or regional educational meetings for this purpose.

Conclusions

1. Accreditation of hospitals should be continued.
2. The Joint Commission should maintain its present organizational representation.
3. The Board of Trustees should report annually to the House of Delegates on the activities of the Joint Commission.
4. Physicians should be on the administrative bodies of hospitals.
5. General practice sections in hospitals should be encouraged.
6. Staff meetings required by the Joint Commission are acceptable, but attendance requirements should be set up locally and not by the Commission.
7. The Joint Commission should not concern itself with the number of hospital staffs to which a physician may belong.
8. The Joint Commission is not and should not be punitive.
9. The Joint Commission should publicize the method of appeal to hospitals that fail to receive accreditation.

MEDICAL STAFF MEETINGS REQUIRED FOR ACCREDITATION

Choice	Meeting	When Held	Required Attendance *	Purpose and Program	Conditions
1.	Medical Staff	Monthly and not less than 12 meetings in each calender year	75 per cent of active staff	Review and critical evaluation of the clinical work in the hospital; report of committees	Suitable in smaller hospitals
2.	Staff Departments	Monthly or more frequently	75 per cent of active members of department	Review and critical evaluation of work of departments	May be substituted for (1) monthly staff meeting when hospital is well organized and all medical work is covered in departmental meetings and CPC's
	Medical Staff	Quarterly	75 per cent of active staff	Report of medical work for preceding quarter presented by representatives of departments or by executive committee	
3.	Medical Records & Tissue Committees or Audit Committee	Monthly or more frequently	75 per cent of members of committees	Review of all medical work in hospital, as stated in assignment of committee functions	May be substituted for (1) monthly staff or departmental meetings when hospital is well organized and all medical work is covered in committee conferences, and reports presented to staff
	Executive Committee	Monthly	75 per cent of members of committee	Appropriate study and action on reports of medical records and tissue committees or of Audit Committee	
	Medical Staff	Quarterly	75 per cent of active staff	Report of medical work for preceding quarter presented by executive committee to medical staff	

* Members may be excused by the executive committee for exceptional conditions such as sickness, absence from the community or medical emergencies.

10. Reports on surveys should be sent to both administrator and chief of staff of hospital.
11. Surveyors should be directly employed and supervised by the Joint Commission.
12. Surveyors should work with both administrator and staff.
13. New surveyors should receive better indoctrination.
14. Blue Cross and other associations should be requested not to suspend full benefits to non-accredited hospitals until those so requesting have been inspected.
15. The American Medical Association should conduct an educational campaign for doctors relative to the functions and operations of the Joint Commission.
16. The Committee also suggests that the Americal Medical Association and the American Hospital Association encourage educational meetings for hospital boards of trustees and administrators either on state or national levels to acquaint these bodies with the functions of accreditation.
17. This Committee asks to be discharged upon submission of this report to the House of Delegates.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, submitted the following report, which was adopted:

Report of Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals.—Your reference committee received abundant advice regarding the general subject reported by the able Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals, Dr. Wendell C. Stover, Chairman. It reviewed the content of the resolutions introduced at the 1955 Annual and Clinical Meetings, the two reference committees' reports related thereto, the Bylaws of the Commission, and two editions of the Standards for Hospital Accreditation published Dec. 5, 1953, and Jan. 28, 1956. Your committee believes that all of the questions raised in the 1955 resolutions have been answered adequately by this special committee, either directly or by obvious implication. Your reference committee notes with approval that the Speaker wisely selected several distinguished members of the House who had introduced these resolutions to serve on the study committee whose report is now before you.

The special committee outlines its procedures, the history of the Joint Commission and its structure. The current edition of the Standards for Hospital Accreditation is reprinted in the report. This material is informatory and requires no action. The special committee then notes certain key questions, together with some relevant discussion, and concludes with seventeen recommendations.

It was established at the outset of the hearing that the Standards for Hospital Accreditation are not a part of the special committee's report, except those sections quoted in the body of that report. Accordingly, your reference committee recommends that these Standards be included as an appendix in future publications.

Your reference committee has carefully considered all of the key questions considered by the special committee and its seventeen conclusions, both for a two hour period at the hearing and in the preparation of this report with the assistance of legal counsel.

Your reference committee agrees with Question A, that accreditation should be continued.

Your reference committee agrees with B, that the present representation on the Joint Commission is adequate.

In the course of the discussion a statement was submitted by Dr. John S. DeTar to be inserted after the third full paragraph under "C. Activities of the Commission." The special committee agreed that this statement, based on certain of the Standards for Hospital Accreditation would strengthen the report. These standards are II-B-2 and II-D-1. The statement follows:

The Committee recommends that the commissioners to the Joint Commission on Accreditation of Hospitals appointed by the Board of Trustees of the American Medical Association urge that Commission to study:

1. The problems of the exclusion from hospitals and arbitrary limitation of the hospital privileges of the general practitioner; and
2. Methods whereby the following stated principles may be achieved:

The privileges of each member of the medical staff shall be "determined on the basis of *professional qualifications* and demonstrated ability."

Personnel of each service or department shall be qualified by training and demonstrated competence, and shall be granted privileges commensurate with their individual abilities.

Your reference committee agrees with the addition of this statement to the special committee's report.

With this addition, the reference committee agrees with the comments of the Committee in section C.

The Committee makes several important suggestions in "D. Activities of Surveyors." The attention of the House is specifically directed to the method of employment of surveyors recommended, and to the fact that the American Medical Association will retain full responsibility for approval of internships and residency programs.

The reference committee heartily endorses the abolition of compulsory attendance at staff meetings, as recommended in section E.

The reference committee wishes to emphasize the importance of the recommendations in section F that there be medical staff representation on the governing boards of hospitals and that the Joint Commission concern itself with illegal or unethical contracts. These recommendations should lead to better understanding and clarification of the Standards as applied to hospital-physician relationships. Your reference committee believes that the other recommendations are eminently sound.

Your reference committee congratulates the members of the special committee for the painstaking work and great ability indicated by the clear and concise conclusions. It is the reference committee's opinion that further comment by it would be superfluous, for surely the conclusions speak for themselves. Your committee believes that the Committee to Review the Functions of the Joint Commission on Accreditation of Hospitals has performed a very difficult task superbly, that its conclusions are in the public interest, and that their implementation will result in the best possible medical care of the patient. In recommending the approval of the conclusions, your reference committee understands that it is also recommending the discharge of the Committee, and this should be done only with the sincere thanks of the House of Delegates.

Report of Continuing Committee on Medical Practices

Dr. Warde B. Allan, Chairman, presented the following interim report, which was referred to the Reference Committee on Insurance and Medical Service:

The House of Delegates in November, 1955, considered four resolutions: Resolution No. 11 on Creation of a Medical Practices Committee; Resolution No. 12 on Creation of Permanent Committee on Medical Practices; Resolution No. 20 on Report of Board of Trustees on Report of Committee on Medical Practices; and Resolution No. 28 on General Practice. These were introduced by Drs. Lester D. Bibler, Section on General Practice; Wendell C. Stover for the Indiana delegation; John S. DeTar for the Michigan delegation; and Kenneth C. Sawyer of Colorado, respectively. Since all of these resolutions dealt with the same subject, each emphasizing some special phase, the Reference Committee on Insurance and Medical Service submitted a substitute resolution, which was adopted by the House of Delegates. This substitute resolution created a Continuing Committee on Medical Practices consisting of five members of the House appointed by the Speaker, three of whom were to be general practitioners. The Speaker of the House has appointed this Committee, and two meetings have been held to undertake to plan the work of the Committee.

The resolution creating the Committee dealt primarily with general practice and with the relationship of medical and diagnostic services to surgical services, and much of the thought back of these resolutions came from the report of the Committee on Medical Practices presented to the House of Delegates in June, 1955. In view of this, the first task has been to review the report of the Committee on Medical Practices and to ascertain what might be the best approaches to the questions and the problems raised both in that report and in the resolution itself. In carrying out this step it is the intention of this Committee to interview all persons who may have a contribution to make and to seek advice from those who have a special interest in this subject.

As the Committee progresses in its work, reports on its findings and recommendations will be made to the House of Delegates in the same manner as is now followed by other committees and councils of the Association.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, read the following report, which was adopted:

Report of Continuing Committee on Medical Practices.—Your reference committee recommends the acceptance of this progress report for the information of the House.

Special Report of the Judicial Council

Dr. Homer L. Pearson, Chairman, presented the following report, during the reading of which the House of Delegates rose in tribute to Dr. Walter F. Donaldson. The report was referred to the Reference Committee on Amendments to the Constitution and Bylaws.

DR. CUNNIFFE

Since the Boston meeting of the House of Delegates, the members of the Judicial Council have been saddened at the news of the death of Dr. Edward R. Cunniffe, who retired as Chairman of the Council in June, 1954. Dr. Cunniffe was appointed a member of the Council in 1936 and was elected chairman in 1944. During these years he worked diligently and devotedly to fulfill the responsibilities of an office which he believed concerned medicine first and foremost. Convinced of the integrity and high moral character of the physician, he expected the highest regard for and observance of the Principles of Medical Ethics. He refused to recognize or accept efforts to carve exceptions to the Principles, which he conscientiously believed were binding on all who entered the profession of medicine.

He steadfastly maintained his beliefs during troubled times which included the period of recovery after a severe economic depression and the unsettled years of World War II. When the Association gave consideration in 1948 and 1949 to a revision of its Principles of Medical Ethics, Dr. Cunniffe was acknowledged to be the authority on medical ethics. He gladly accepted the obligations of his office and contributed his full share as a member of his profession and of this Association to maintain medicine's high ideals.

DR. DONALDSON

Since our arrival in Chicago, it has been called to our attention that Dr. Donaldson has asked to be allowed to retire from the Judicial Council after this session. The Council has received this news with regret.

Dr. Walter F. Donaldson, known and loved by all of us, has served medicine for many years in many capacities, not the least of which have been as editor of the *Pennsylvania Medical Journal* and as a member of this House of Delegates More important to us, however, has been his service to the American Medical Association, which has been without equal He was appointed to the Judicial Council in 1931 and has served continuously and faithfully in this office for 25 years. His contributions to the Association, both in length of time and in quality, are without precedent. More than an elder statesman, he has become a giant among us in matters pertaining to the Constitution, Bylaws, and Principles of Medical Ethics of the Association. Always informed and attentive, considerate and patient, possessed of mature judgment and wide experience in medical affairs, he became the keystone of the Judicial Council Admittedly, we cannot replace him, but we can emulate the example he leaves us. He has earned his place in the heart of this Association and he deserves a much needed rest.

The Association and the members of the Judicial Council in particular take this opportunity to express their love and respect to a truly great man for a lifetime of service.

PRINCIPLES OF MEDICAL ETHICS

Subsequent to the Boston meeting, the Judicial Council, as directed by the House of Delegates, met jointly with the Council on Constitution and Bylaws to consider a proposed revision of the Principles of Medical Ethics. Later, two members of each Council conferred to give further consideration to this matter. A draft of a proposed revision of the Principles was prepared which was submitted to the Judicial Council for consideration. This draft, a short form of the Principles, was accepted by the Judicial Council as representing an expression of principles which may be utilized by the physician in his sincere endeavor to serve his patient, the profession, and himself in accord with the high ideals of medicine.

From time immemorial, the Judicial Council in its reports to this House of Delegates has stated that the Principles of Medical Ethics are principles. The Council has repeatedly emphasized that they are, as their preamble clearly states, "intended to serve the physician as a guide to ethical conduct as he strives to accomplish his prime purpose of serving the common good and improving the health of mankind."

The Judicial Council would point out that in society, and in our organization as well, some conduct by its very nature is recognized as wrong, as contrary to the conscience of all. Other conduct, however, though not necessarily wrong in itself, may be proscribed to ensure safety, security, or well-being for the whole group. Murder is acknowledged to be wrong in itself. Driving on the left-hand side of the street is not wrong in itself but is contrary to law enacted to ensure safety by uniformity of conduct. Were the law by some wild stretch of the imagination to be amended to legalize murder, our conscience would revolt. Were the law to be changed to alter our pattern and custom of driving, from one side of the road to the other, our conscience would not thereby be affected.

Our Principles of Medical Ethics, if they are to be principles and if they are to be guides, must, in the opinion of the Judicial Council, relate to and concern themselves with fundamentals. They should express universal, permanent truths about which consciences do not disagree. They must be expressed with all the clarity that man can manage. The Principles of Ethics must avoid entering the realm of proscribing or permitting, by specific direction, acts which in themselves are not basically concerned with ethics or which are desirable or undesirable according to the social or economic circumstances of time, place, or custom.

As the Principles depart from fundamental ethical principles and encompass regulations to govern particular conduct, they become a code of laws. When the Principles become particular, it is inevitable that the nature of conduct is evaluated in relation to the Principles. Even today we are approaching that situation, and we hear it said that an act is not unethical because it is not prohibited by the *Principles of Medical Ethics* of the American Medical Association. A statement to that effect is incorrect. Conduct is ethical or unethical according to basic, unchanging principles. The Principles merely enunciate those basic, unchanging principles. The Principles of Medical Ethics, if they are worthy of the name, do not in themselves or of themselves make any act ethical or unethical. They announce a principle from which it may be reasoned that a particular act is ethical or from which a conclusion may be reached to determine the nature of a specific action.

The Judicial Council has maintained that ethical principles are founded in conscience, and the object of ethics is to know the rightness or wrongness of conduct according to conscience and reason. The principles upon which our ethics are based are permanent and universal. They are known, in conscience, to all honorable practitioners of medicine. The interpretation and application of these fundamental truths may vary, but the principles remain constant.

The Judicial Council hopes that the House of Delegates will see fit to adopt a revision of the Principles of Medical Ethics which includes only those fundamental concepts of ethics which guided our forebears and will be acknowledged by our successors; that the House will adopt a revision of the Principles of Medical Ethics which, in format, will be as permanent as the talents of this Association can make it.

The Judicial Council can and does endorse the revised draft of the Principles of Medical Ethics submitted by the Council on Constitution and Bylaws. Furthermore, the Judicial Council recognizes that if this proposal or one similar to it is adopted by the House, certain interpretations concerning its application will be desirable to insure the preservation of our ethical traditions. Should the new version be adopted, the Judicial Council is ready and pledges itself to prepare interpretations and annotations of ethical concepts in keeping with the tenor of our present code.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, submitted the following report, which was adopted:

Report of Judicial Council Relative to Dr. Donaldson and Dr. Cunniffe.—That portion of the report of the Judicial Council which pertains to the retirement of Dr. Walter F. Donaldson was read and was accepted with the same reluctance as expressed by members of the Judicial Council and all members of the House of Delegates.

Your reference committee read with deep sorrow the announcement of the death of Dr. Edward R. Cunniffe, the retired chairman of the Judicial Council, and approved of the tribute rendered to him in the special report of the Judicial Council.

Report of Council on Medical Education and Hospitals

The report of the Council on Medical Education and Hospitals (see THE JOURNAL, May 12, 1956, page 159) was presented by Dr. Victor Johnson, member of the Council, and was referred to the Reference Committee on Medical Education and Hospitals.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, read the following report, which was adopted:

Report of the Council on Medical Education and Hospitals.—Your reference committee has evaluated all of the statements presented at its hearing and has reviewed considerable material previously published relating to the Council's report, namely; the creation of a Cooperating Committee on Graduates of Foreign Medical Schools.

The Proceedings of the House of Delegates for the Annual Meeting in 1954 contains a supplementary report from the Board of Trustees, lettered O, which gives the conclusions of a special committee, chaired by Dr. Thomas P. Murdock, on this subject. Resolutions introduced at the 1954 session bearing on this matter were Nos. 27, 38, and 54, introduced by Drs. English, Foster, and Barker, respectively. A further discussion was presented at the Annual Congress on Medical Education and Licensure in 1955 and again this year. All of this material has been reviewed.

With this background in mind, your committee has studied the Council's present report thoroughly. Its primary objective is "to devise an effective mechanism for measuring educational attainment in the absence of intimate and continuing knowledge of the educational background of foreign-trained physicians." When implemented, this proposal will insure a proper level or standard for medical care everywhere in this country.

The program has been detailed under the general headings of: Basic Requirements; Examination for Factual Knowledge in Medicine; Administrative Planning.

Your committee agrees fully with both the details and the general views so well expressed in this report. Further, it is noted with satisfaction that the Board of Trustees has approved it in principle. The method of financing this program indicates that it may become self-supporting. Whether or not this proves to be true, your committee believes that a reasonable expenditure of the Association's funds is fully justified for this purpose.

This report culminates two and a half years of effort by the Council, indicating again its sincere desire to serve the public interest. It is to be commended for this detailed study and for its objective recommendations.

Your reference committee recommends that the House of Delegates approve in principle the program proposed in the report.

Report of the Council on Medical Service

Dr. Joseph D. McCarthy, Chairman, presented the following report of the Council on Medical Service, which was referred to the Reference Committee on Insurance and Medical Service:

Private Practice By Medical School Faculty Members

The Committee on Medical and Related Facilities, Dr. Willard A. Wright, Chairman, a committee of the Council on Medical Service, has been working during the past year on a study of private practice by medical school faculty members. This has not been an easy task. Difficult situations exist in some areas, bringing about adverse publicity as well as strong partisan reactions.

The Committee has received the finest cooperation from officers of state medical associations, local medical societies, and deans of the medical schools. It has also had assistance from an Advisory Committee, Dr. Henry B. Mulholland, Chairman, composed of representatives from the Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the American Hospital Association.

The report of this Committee, as reviewed and revised by the Council on Medical Service, has been prepared in two sections for the convenience of the delegates. One section is concerned with the study or survey itself and provides a wealth of facts and opinions from medical association and medical society officers and medical school deans on private practice by medical school faculty members. This, the second section, is devoted to the conclusions and recommendations of the Council on Medical Service and its Committee on Medical and Related Facilities.

This is a long and detailed report, built upon a thorough study concerning a controversial subject which it is hoped will be resolved in the near future. In view of this, the Council would like, at this time, to submit the results of the detailed survey and the conclusions and recommendations to the House of Delegates for study during the coming months and for action at the 1956 Interim Session of the House.

This does not preclude discussion of the conclusions and recommendations by a House reference committee at this time. However, should this procedure be decided upon, the Council would respectfully suggest that such procedure be considered only preliminary and for the benefit of the American Medical Association and its component and constituent societies and associations. A time lapse should give all who are concerned with the problem an opportunity for a full review of their own particular situation before final action.

CONCLUSIONS AND RECOMMENDATIONS

In this survey it was found that to a varying degree controversy exists between medical schools and the physicians in private practice, as is alleged in the Culpepper resolution, and that, when the replies of the deans and the officers of the medical associations are considered and compared, there are differences of opinion as to the extent of this disagreement. This main controversy arises out of the question of the medical school or its full-time faculty entering into the private practice of medicine.

Historically, we find ourselves somewhat in the same position that we were in prior to 1913 at which time the concept of a full-time faculty was developed, primarily to improve the quality of medical education, but also to avoid conflicts between the local medical profession and the faculties of medical schools. However, presently the concept of the "absolute" full-time teacher is being modified because of economic and other pressures. As a result there are sharp differences of opinion on the matter of private practice between the local profession and the medical schools. These differences have been brought to the fore because of such factors as the establishment of new medical schools, the extension of medical school curricula from two to four years, and the construction of new medical school hospitals.

It is evident from all facts and data available to the Council that most, if not all, medical schools permit the so-called full-time faculty members to engage in private practice. In various areas, this has been a common procedure for many years, and while differences of opinion between the practicing physicians and the medical schools have arisen, many of these have apparently been mutually resolved.

Compensation of Teachers.—The Council is fully cognizant that many of the methods of compensating teachers of medicine leave much to be desired and some are to be condemned entirely because of the fact that the teachers may be exploited by the institutions they serve. Everything considered, the Council believes that some fundamental principles should be formulated in regard to these problems and accordingly presents the following conclusions and recommendations in the hope that they will assist medical societies and medical schools in developing programs which will be satisfactory to all concerned—the students, the teachers, and the practicing profession—so that in the end the public may receive the best possible medical care.

Definitions.—A great deal of confusion exists in regard to the present terminology used by medical schools to describe the status of their clinical faculty members. It is, therefore, recommended that the Council on Medical Education and Hospitals and the Association of American Medical Colleges adopt the following uniform definitions and that both take it upon themselves to urge all medical schools to adopt these definitions. Such action it is believed will make for better understanding and pave the way for amicable settlement of present conflicts and opinions.

The full-time faculty member is one who devotes all his time to the service of the medical school and receives all his professional compensation from a salary paid by the medical school.

Part-time faculty members receive a salary from the medical school; but they may be divided into two groups: (A) Physicians in the first group have medical school service as a major interest and usually conduct their private practice from facilities of the medical school. (This group includes many physicians called "absolute full-time" and most physicians called "geographical full-time" under present medical school terminology.); (B) Physicians in the second group have private practice as their major interest, utilize medical school facilities for teaching, and conduct their private practice from their own offices elsewhere.

A volunteer faculty member is a member of the faculty who receives no salary for his services to the medical school.

Liaison.—The Council has found that much of the present conflict in opinions has resulted from a failure in liaison between the practicing profession and the medical schools. In most instances of present conflict the profession and the schools worked hand in hand to build a good medical school and erect a teaching hospital. Yet, on completion of such joint endeavors all too frequently the initial spirit of cooperation and working liaison seems to have disappeared. In view of this it is recommended that adequate liaison be developed and maintained between each county medical society and any medical school or schools in its area and between each state medical association and any medical schools in the state. Such liaison should be the primary function of some committee of the state or county medical society, and methods should be developed so as to maintain communication between medical society committees within each state.

Medical society activity alone will not serve to maintain proper liaison. Accordingly, it is also recommended that the Council on Medical Education and Hospitals and the Association of American Medical Colleges urge all medical schools to assist and work with medical societies and associations in developing such liaison and urge them to confer with these committees whenever problems, questions, or policies arise that may concern private practice or in which the medical profession may be of assistance to the schools.

In this study it was evident that a large percentage of the medical school faculties is still in the part-time and volunteer categories. Complaints were made by deans that in some instances these men failed to fulfill their obligations to the school. Medical societies and associations complained that sufficient recognition was not given to these men for their services, mainly in the matter of policy determination. The Council recommends that when appointed, the services of volunteer and part-time men should be properly utilized and recognized by the medical school and these men should serve the school to the best of their ability.

It is further recommended that on request of a medical society or a medical school the American Medical Association's Board of Trustees establish, in cooperation with the Association of American Medical Colleges, a special committee whose function would be to investigate areas where there is friction between the medical school and the profession. Such a committee might (1) assure the continuation of liaison, (2) see to it that all data and facts are made available to all concerned and (3) seek to resolve differences of opinion.

Availability of Patients for Teaching Purposes.—It is evident to the Council that medical service and medical education have become quite complex. Economic factors, such as voluntary health insurance, extension of welfare benefits, increasing costs of hospitalization, etc., have created new facets to the problem of medical education, and especially have lessened the volume of indigent and medically indigent patients. Therefore, the Council recommends that all patients treated in medical school facilities be available for teaching purposes.

*Full-Time Faculty**.—It is evident from the information available to the Council that at the present time, in the opinion of both the medical schools and the medical societies replying to the questionnaire, income from private practice is necessary to attract and keep some portion of the clinical faculty. Our survey indicates that this seems to be more true in the case of private schools than in government schools.

It is the Council's belief that a nucleus of "full-time" clinical faculty members in the medical school is necessary. The Council believes that as a general rule the "full-time" clinical faculty members, as herein defined, should not be permitted private practice but should be paid an adequate salary by the medical school. Exceptions because of legal or local conditions may be necessary. The number and types of such "full-time" faculty members as are deemed necessary rest with each school, but in any event their salaries should be adequate and attractive enough to hold capable teachers.

*Part-Time Faculty**.—Over and beyond this nucleus of "full-time" faculty members every school has a large number of clinical teachers who are and should be classified as "part-time." These are so classified in the revised definitions recommended by the council and include many physicians now classified under medical school terminology as "absolute full-time" and most of those classified as "geographical full-time."

There seems to be no question concerning the privilege of private practice by "part-time" faculty members. There are, however, two basic questions to be kept in mind. The first is: What portion of the physician's time should be spent in teaching and what portion in private practice? The second question is: Where should the physician be permitted his private practice?

In regard to the first question, it is evident that even now all schools make some effort to limit private practice privileges as shown in the report on the survey itself. The extent to which these limitations are successful and to which they are actually providing a dividing line between teaching responsibility and private practice could not be accurately determined. However, the Council believes it is a primary responsibility of the administrators of medical schools to exercise adequate controls over the extent of private practice so as to maintain a proper relationship between teaching responsibilities and private practice.

The second question having to do with the place of practice seems to be the primary object of criticism in a number of areas, particularly in relation to government-supported schools. Here the teaching physician is accused of using tax-supported facilities to assist him in developing an income from private practice. The Council believes that all "part-time" faculty members should have the privilege of private practice. Such a privilege, however, should carry with it certain restrictions similar to those now utilized by most schools. As mentioned before, such restrictions should begin with a limitation as to the "amount of time" the physician may devote to private practice so as not to jeopardize the primary educational function of the medical school or of the individual teacher. The Council believes that charges should be made to the physician for all facilities and personnel involved in his private practice, pro-rated in accord with the use of such facilities in his private practice.

Publicity.—Considerable criticism has come to the attention of the council against local publicity given or sought by medical schools with reference to the work of individual staff members. We recommend that publicity emanating from a medical school should be in good taste and of a type which has the approval of the general medical community of that area.

Culpepper Resolution.—Finally, the Council would like to refer to the resolution introduced into the House of Delegates at the Interim Session in 1954 by Dr. J. P. Culpepper Jr., of Mississippi. The intent of this resolution would seem to be that the principle involved in a state-supported medical school using private practice as a source of funds for the general operation of a school or its hospital is contrary to medical ethics, and is, in effect, the corporate practice of medicine and state socialism. We recommend that it be the policy of the American Medical Association that funds received from the private practice of medicine by salaried members of the clinical faculty of the medical school or hospital should not accrue to the general budget of the institution and that the initial disposition of fees for medical service from paying patients should be under the direct control of the doctor or doctors rendering the service.

It is the firm policy of the American Medical Association, and in this policy the Council heartily concurs that only a licensed doctor of medicine should practice medicine. It is not in the public or professional interest for a third party to derive a profit from payment received for medical services, nor is it in the public or professional interest for a third party to intervene in the physician-patient relationship.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, submitted the following report, and moved its adoption. The motion was duly seconded. After lengthy discussion Dr. R. B. Robins, Arkansas, moved that the matter be re-referred to the reference committee, and the motion was seconded and carried.

Report of Council on Medical Service on Private Practice by Medical School Faculty Members.—Your reference committee sat for long in its hearing upon this report. It is, therefore, cognizant of the many difficulties inherent in the study of the subject and of the apparent impossibility of a happy solution for every portion of it. With certain changes the reference committee recommends the adoption of this report.

The recommended changes are as follows:

(1) Insert a period after the words, "House of Delegates," in the second sentence of the fourth paragraph of the report, and delete the remainder of that sentence.

(2) Delete the whole fifth paragraph of the report.

(3) Insert in the last sentence of the portion of the report under "Conclusions and Recommendations" bearing the sidehead, "Part-Time Faculty," after the phrase, "The Council believes that charges should be made," the words, "where possible under the existing laws of the state."

SUPPLEMENTARY REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, read the following supplementary report and moved its adoption. The motion was seconded, and carried after a substitute motion to postpone consideration of the report of the Council on Medical Service until the Clinical Meeting in November was lost.

Your reference committee, in accordance with the apparent wish of the House of Delegates to separate the question in regard to the report of the Council on Medical Service into a "supplementary report" of the Council and a Report on Private Practice by Medical School Faculty Members, has separated the question.

The "supplementary report" of the Council on Medical Service includes the first five paragraphs of the report presented on Monday, June 11. This portion of the report is now considered entirely alone as "supplementary report" of the Council on Medical Service, which "supplementary report" does pertain to the Council's report produced through the efforts of its Committee on Medical and Related Facilities, Dr. Willard A. Wright, Chairman.

Your reference committee agrees with this "supplementary report" except as it advises a delay, until the 1956 Clinical Meeting, in final action on the Report on Private Practice by Medical School Faculty Members.

Your committee therefore recommends the following changes in this "supplementary report":

---

*See recommended definitions above.

(1) Insert a period after the words, "House of Delegates," in the second sentence of the fourth paragraph of the report, and delete the remainder of that sentence.

(2) Delete the whole fifth paragraph of the report.

With these changes, your reference committee recommends the approval of this "supplementary report."

The Report on Private Practice by Medical School Faculty Members is the section mentioned in the third paragraph of the "supplementary report" as being concerned with the study or survey itself, plus the "Conclusions and Recommendations" in what was originally the report of the Council on Medical Service in our discussion of June 13, 1956.

Your reference committee recommends approval of this report in its entirety, with the single change as recommended previously. That change is as follows: Insert in the last sentence of the portion of the report under "Conclusions and Recommendations" bearing the side-head, "Part-Time Faculty," after the phrase, "The Council believes that charges should be made," the words, "where possible under the existing laws of the state."

The House of Delegates on June 13, 1956, approved an amendment to the report of your reference committee which provided for an addendum to the "Conclusions and Recommendations" in the form of a final paragraph, as follows:

"Nothing in this report is meant to condone the corporate practice of medicine or policies which result in the diversion of physicians' fees to a corporation or government agency."

Your reference committee believes it is the intent of the House that this addendum be included, and so recommends.

Report of Council on Constitution and Bylaws

Dr. Louis A. Buie, Chairman, presented the following report, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws:

INTRODUCTION

This report deals with recommendations of the Council on Constitution and Bylaws and it consists of three parts.

1. SECTION ON PREVENTIVE MEDICINE

A resolution was introduced during the last session of the House of Delegates which read as follows:

> *Resolved*, That the Section on Preventive and Industrial Medicine and Public Health respectfully requests the House of Delegates of the American Medical Association to change the name of the Section on Preventive and Industrial Medicine and Public Health to the Section on Preventive Medicine.

This resolution was referred to the Reference Committee on Sections and Section Work, which recommended approval. The House adopted the recommendation of the reference committee, and requested the Council on Constitution and Bylaws to prepare appropriate alterations in the Bylaws which would implement the change. Therefore, the Council on Constitution and Bylaws recommend that the title, Preventive Medicine, be substituted for that of Preventive and Industrial Medicine and Public Health in Section 1(K) of Chapter VII of the Bylaws.

2. METHOD OF AMENDING PRINCIPLES OF MEDICAL ETHICS

In December of 1955 the Council on Constitution and Bylaws called to the attention of the House of Delegates the fact that neither the Principles of Medical Ethics nor the Constitution and Bylaws provide for amendment of the Principles, and that by custom amendments approved by a majority vote of the House of Delegates have long been recognized as valid. It was the opinion of the Council on Constitution and Bylaws that such changes should be made only after the most careful deliberation, and it therefore suggested that a section be added to the Principles which would provide for amending them. The Reference Committee on Miscellaneous Business recommended that this proposal be tabled for further consideration. The House of Delegates approved this action. The Council on Constitution and Bylaws has complied with the decision of the House of Delegates and now recommends that a provision for amending the Principles be incorporated in the Bylaws as follows:

Designate the present paragraph of Chapter XXI of the Bylaws, which provides for amendment of the Bylaws, as section 1, and add a second paragraph designated as Section 2, to read as follows:

"Section 2.—The Principles of Medical Ethics may be amended by the House of Delegates at any session on the approval of two-thirds of the members of the House of Delegates present and voting, provided that the proposed amendment shall have been introduced at the preceding session."

3. REVISION OF THE PRINCIPLES OF MEDICAL ETHICS

You will recall that in the past several committees have been engaged in revising the Principles of Medical Ethics. Also you are aware that this task was assigned to the Council on Constitution and Bylaws in June, 1952. For various reasons, discussed in former reports, it was not possible to make available to the House of Delegates an exhaustive analysis of the Principles until the December session of 1955. When that report was made, many of the complexities of this undertaking were revealed. For example, when the attempt was made to distinguish etiquette from ethics, it was readily apparent that a substantial portion of the Principles actually deals with matters in which morals, manners, and even economics are intermingled. In addition, some sections which are intended to deal with matters of courtesy might well be construed as involving problems of morality. At all events, it became clear, beyond doubt, that there exists a broad twilight zone in which the concepts of ethics and etiquette are entangled and in which there is much overlapping and consequent confusion.

An interesting point was noted with respect to Section 4 of Chapter VII, which provides a definition of free choice of physician. Once it has been read, the reader might assume that a preceding Principle proscribes activities which limit freedom of choice. Yet there is no such antecedent provision. Although the question of free choice of physician raises many problems that are involved in contract practice, workmen's compensation, prepaid health care, and other fields of insurance, the Principles do nothing more than define the term.

MEETING WITH THE JUDICIAL COUNCIL

The Council on Constitution and Bylaws has sought both counsel and criticism by means of publications in THE JOURNAL of the American Medical Association and by personal interviews and correspondence. Furthermore, in accordance with the request of the House of Delegates, a joint meeting with the Judicial Council was held on March 23, 1956. This meeting was attended by several ex officio members and by representatives of the Law Department. Those who attended this meeting reached the ineluctable conclusion that the present Principles are encumbered by verbosity and qualifying constructions of dubious value which in themselves engender confusion. Hence, it was felt that the Principles should be broad and should provide a framework within which interpretations could be made. They should deal with basic principles that can serve as a ready reference for the busy practitioner.

A subcommittee, consisting of the two chairmen of the respective councils and one other member of each council, was appointed to prepare a condensed version for consideration by both councils prior to the present session of the House of Delegates. During subsequent weeks several conferences were held, and on April 27 the subcommittee presented to the Judicial Council a new version of the Principles. During this meeting, after agreement was reached on some alterations, the members of the Judicial Council approved the proposed revision. Finally, on June 9, it was reviewed and approved by the Council on Constitution and Bylaws.

THE VIRTUES OF BREVITY

Doubtless the brevity of these Principles will attract your attention. If so, it is by design. All of us have become accustomed to a lengthy document. The Principles never have encompassed fewer than 40 sections, and in 1903, when the name was changed from Code of Medical Ethics to Principles of Medical Ethics of the American Medical Association, there were actually 53 sections. At present, the Principles are comprised of 48 sections. In the year 1846 the National Medical Convention, which was the progenitor of the American Medical Association, selected a committee charged with formulating a Code of Ethics. This committee, which submitted its report in 1847, patterned the principles which it proposed after those of Thomas Percival. Percival's principles contained 92 rules for the guidance of physicians, chiefly in their relationship with each other. His concept of ethics, which was published in 1803, can be held accountable for the volume and some of the content of the Principles which have served as our guide for more than a century.

On the other hand, there is nothing new or original about the quality of brevity in the present proposal. As examples, we have the Constitution of the United States, and, even more significant, the Ten Commandments. If further proof were necessary, we need only mention the Oath of Hippocrates, which in some 300 words (331 to be exact) outlines many of the basic principles on which most medical ethical codes have been built during the past 2,200 years. From the standpoint of integrity there has been no improvement over the principles enunciated in this oath, but from the standpoint of practical application, work has never ceased on the problem of adjusting them to the requirements of the contemporary scene.

PRACTICAL ECONOMY OF THE PROPOSED PRINCIPLES

The conclusions which are now offered for your consideration consist of a brief Preamble and 10 sections which succinctly express the fundamental ethical concepts embodied in the present Principles. Every basic principle has been preserved. On the other hand, as much as possible of the prolixity and ambiguity which in the past obstructed ready explanation, practical codification, and particular selection of basic concepts has been eliminated. The members of the Council believe and wish to emphasize that no fundamental ethical concept has been omitted from the Principles which are now presented for your consideration.

It is intended that this condensed version will provide the physician with a permanent yet readily accessible guide to ethical conduct which might be imprinted suitably on appropriate paper and displayed in the office of every member of the American Medical Association.

It will be supplemented by the opinions and interpretations of the Judicial Council, which are based on past decisions and pronouncements, and which are now being published in The Journal of the American Medical Association and are being collected and codified. No code of ethics could abbrogate this paramount function, and men of wisdom would not have it otherwise.

It is important to understand that medical ethics are not distinct or separate from ethics generally, but simply emphasize those general principles which are of particular concern to the medical profession. The ethical physician will observe all ethical principles, because he realizes that they cannot be enforced by penal reprisals but must be binding in conscience.

CONCLUSION

Each delegate has been provided with an annotated copy of the new Principles showing the manner in which they embody the Principles in use at this time. It is recommended that these proposed changes in the Principles be substituted for those submitted in December, 1955, and that they be sent to an appropriate reference committee, where ample opportunity can be provided for discussion of them by members of the American Medical Association. It is suggested that action by the House of Delegates be deferred until the November, 1956, session.

The Council on Constitution and Bylaws wishes to thank the members of the Judicial Council and Mr. C. Joseph Stetler and his associates of the staff of the Law Department for their invaluable assistance.

Principles of Medical Ethics of the American Medical Association

PREAMBLE

These principles are intended to serve physicians, individually or collectively, as a guide to ethical conduct. They are not laws; rather, they are standards by which a physician may determine the propriety of his own conduct. They are intended to aid physicians in their relationships with patients, with colleagues, with members of allied professions, and with the public to maintain under God, as they have through the ages, the highest moral standards.

Section 1. The prime objective of the medical profession is to render service to humanity with full respect for both the dignity of man and the rights of patients. Physicians must merit the confidence of those entrusted to their care, rendering to each a full measure of service and devotion.

Section 2. Physicians should strive to improve medical knowledge and skill, and should make available the benefits of their professional attainments.

Section 3. A physician should not base his practice on an exclusive dogma or a sectarian system, nor should he associate voluntarily with those who indulge in such practices.

Section 4. The medical profession must be safeguarded against members deficient in moral character and professional competence. Physicians should observe all laws, uphold the dignity and honor of the profession and accept its self-imposed disciplines. They should expose, without hesitation, illegal or unethical conduct of fellow members of the profession.

Section 5. Except in emergencies, a physician may choose whom he will serve. Having undertaken the care of a patient, the physician may not neglect him. Unless he has been discharged, he may discontinue his services only after having given adequate notice. He should not solicit patients.

Section 6. A physician should not dispose of his services under terms or conditions which will interfere with or impair the free and complete exercise of his independent medical judgment and skill or cause deterioration of the quality of medical care.

Section 7. In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him to his patient.

Section 8. A physician should seek consultation in doubtful or difficult cases, upon request or when it appears that the quality of medical service may be enhanced thereby.

Section 9. Confidences entrusted to physicians or deficiencies observed in the disposition or character of patients during the course of medical attendance should not be revealed except as required by law or unless it becomes necessary in order to protect the health and welfare of the individual or the community.

Section 10. The responsibilities of the physician extend not only to the individual but also to society and demand his cooperation and participation in activities which have as their objective the improvement of the health and welfare of the individual and the community.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, presented the following report, which was adopted:

Report of Council on Constitution and Bylaws.—Your committee approves and recommends that the title, Preventive Medicine, be substituted for that of Preventive and Industrial Medicine and Public Health, in Section 1 (K) of Chapter VII of the Bylaws.

The second portion of the report of the Council pertains to the method of amending the Principles of Medical Ethics. The Council on Constitution and Bylaws recommends that the present paragraph of Chapter XXI, page 52 of the Bylaws, be designated as Section 1, and that a second paragraph designated as Section 2 be added, to read as follows: "The Principles of Medical Ethics may be amended by the House of Delegates at any session on the approval of two-thirds of the members of the House of Delegates present and voting, provided that the proposed amendment shall have been introduced at the preceding session." Your committee approves of this recommendation.

The third portion of the report refers to the revision of the Principles of Medical Ethics. Your committee approves of the revision of the Principles of Medical Ethics as prepared by the Council on Constitution and Bylaws and endorsed by the Judicial Council. After considerable discussion and the appearance of interested parties, your committee approves of the revision of the Principles of Medical Ethics presented, and although the committee feels that the new version of the Principles is ready for action at this time, it recommends that final action be deferred until the next regular session of the House of Delegates to allow ample opportunity for thorough study on the part of members of the American Medical Association.

(To be continued)

MEDICAL NEWS

CALIFORNIA

Course in Aviation Medicine.—The University of California at Los Angeles School of Medicine and University of California Extension will hold a special course in aviation medicine at the New Religious Conference Building, 900 Hilgard Ave., Los Angeles 24, Oct. 24-26. The staff will include Capt. Oran W. Chenault, M. C., U. S. Navy; Lieut. Col. John P. Stapp, M. C., U. S. Air Force, Holloman Air Force Base, N. Mex.; Capt. Ashton Graybiel, M. C., U. S. Navy, U. S. Naval School of Aviation Medicine, Pensacola, Fla.; Dr. Bruce V. Leamer, assistant professor of surgery, University of California at Los Angeles School of Medicine; and Dr. Aram Glorig, director of research, subcommittee on noise in industry of the committee on conservation of hearing of the American Academy of Ophthalmology and Otolaryngology in Los Angeles. The fee for the three-day sessions of six three-hour courses is $50. Requests for information concerning the course should be addressed to Dr. Thomas H. Steinberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

Personal.—Dr. Edward R. Pinckney has resigned as health officer of Napa County and has accepted a position as Assistant Editor of The Journal of the American Medical Association. For the past two years he has been editor of the *Bulletin of the Napa County Medical Society*. He is being replaced by Dr. Sterling S. Cook, rear admiral, U. S. Navy, retired.

CONNECTICUT

Meeting of Medical Air Reserve.—The 9263rd Air Reserve Squadron, Medical Flight, will sponsor on Oct. 3 a scientific session (registration fee, $5) at Hugo's Restaurant, 715 Summer St., Stamford. Advance registration is desirable. The meeting will be held in conjunction with the semiannual meeting of the Fairfield County Medical Association, which is scheduled to convene the same evening at the Wee Burn Country Club in Darien. The scientific session will open at 9 a. m. with "Medical Management of Mitral Stenosis" by Dr. Frank D. Gray, New Haven. "Surgical Management of Mitral Stenosis" by Dr. J. Maxwell Chamberlain, New York, will precede a symposium by Dr. William H. Resnik of Stamford, Dr. Gray, Dr. Chamberlain, and Dr. Carl A. Jaeger, New Haven. The afternoon program will include "Medical Aspects of Massive Upper Gastrointestinal Bleeding" by Dr. Charles A. Flood, New York, "Surgical Aspects of Massive Upper Gastrointestinal Bleeding" by Dr. Louis M. Rousselot, New York, and a symposium by Dr. Flood, Dr. Rousselot, and Drs. C. Louis Fincke and Clayton B. Weed, Stamford. At the evening meeting of the Fairfield County Medical Association a social hour will precede the dinner, at which Brig. Gen. Harold H. Twitchell, surgeon, Continental Air Command, and director, Medical Reserve Training, will discuss "The Medical Air Reserve."

Course on Endocrinology.—Yale University School of Medicine will offer a postgraduate course for practicing physicians, "Endocrine Disease and Hormone Therapy," on Thursdays (2-5 p. m.), Oct. 11–Dec. 13 (no conference Nov. 22 and Dec. 6) in Farnam Auditorium, Yale–New Haven Medical Center, 789 Howard Ave., New Haven. The course is designed to provide internists and general physicians with a review of the commonly encountered endocrine disorders. No attempt will be made to cover the endocrinology of the gonads. There will be a question-and-answer period after each of the following programs:

Oct. 11, Control of Endocrine Secretion.
Oct. 18, Thyroid Deficiency—Myxedema, Cretinism, and Goiter.
Oct. 25, Hyperthyroidism.
Nov. 1, Adrenal Hyperfunction.
Nov. 8, Adrenal Insufficiency. Use of Adrenal Steroids in Clinical Medicine and Surgery.
Nov. 15, Pituitary Disorders.
Nov. 29, Parathyroid Glands and Disorders of Calcium Metabolism.
Dec. 13, Diabetes Insipidus. Spontaneous Hypoglycemia and Hyperinsulinism.

Dr. Philip K. Bondy, associate professor of medicine, Yale University School of Medicine, is the program director. Admission will be limited to those who have registered in advance. Registration fee and tuition will be $40 for the series of eight conferences. Interns and residents may register without charge. Inquiries should be addressed to the Assistant Dean, Postgraduate Medical Education, Yale University School of Medicine, 333 Cedar St., New Haven 11.

DISTRICT OF COLUMBIA

Award to Doctor Stubbs.—At the 30th annual alumni reunion of the George Washington University Medical Society, Dr. Donald H. Stubbs, assistant clinical professor of anesthesiology, George Washington University School of Medicine, Washington, D. C., was presented with an award of merit in recognition of his scientific and academic achievements and his services to the community. Dr. Stubbs, president of the medical service of the District of Columbia, is head of anesthesia and chairman of the executive and teaching staff of Doctors Hospital.

Miners Appoint Clinical Director.—Dr. Gordon M. Meade, chief of clinical services at the Williamson (W. Va.) Memorial Medical Center, has been appointed clinical director of the Miners Memorial Hospital Association, a chain of 10 hospitals serving beneficiaries of the United Mine Workers Welfare and Retirement Fund. During the last year Dr. Meade has served as clinical consultant with headquarters in Washington, D. C. He will succeed Dr. Aims C. McGuinness, who, after recruitment and organization of the hospital medical staffs, will return to private practice and teaching of pediatrics in Philadelphia. The newly opened hospitals were dedicated June 2 at Beckley, W. Va

GEORGIA

Personal.—Dr. R. Franklin Cary, health officer of the Macon-Bibb County Health Department, retired recently after 15 years of service as health officer. Dr. Cary, who reached the state's compulsory retirement age of 70 some months ago, was scheduled to retire March 1 but was persuaded by unanimous request of the state health department to continue in office until July 1.——Dr. D. S. Reese, Carrollton, a past president of the Carroll County Medical Association, which he served as secretary for more than 25 years, has been given the Founder's Day award of West Georgia College, Carrollton. Dr. Reese, who came to Carrollton in 1911, helped to organize the Carrollton Board of Health and the Carroll County Board of Health, which he served as chairman for many years.——Dr. William Gentry Thurman, a member of the house staff at Columbus City Hospital, was awarded a $1,000 cash prize at the recent meeting of the International Institute of Public Health, Maternal and Child Welfare Division of Canada, which offers a cash prize every 10 years to the Canadian medical student presenting the best scientific paper. During his senior year at the McGill University Faculty of Medicine, Montreal, Canada, Dr. Thurman entered a paper entitled "The Epidemiology of Diseases in Seaports"

ILLINOIS

Personal.—Col. Roland I. Pritikin, M. C., U. S. Army Reserve, Rockford, has returned from a lecture tour of hospitals and medical schools in Asia. Dr. Pritikin was the official delegate of the American Medical Association to the sixth Middle East Medical Assembly at the American University of Beirut, Beirut, Lebanon.——The Institute for Psychoanalysis, 664 N. Michigan Ave., Chicago, has added to its staff Dr. G. H. Pollock, associate professor of psychiatry, University of Illinois College of Medicine, Chicago, and Dr. Jay E. McCormick of Highland Park, who has served on the staff of Presbyterian Hospital of Chicago, as assistant clinical professor of psychiatry at the University of Illinois College of Medicine, and as consultant to the Institute for Juvenile Research.——Dr. Martin A. Seidell, Urbana, has won the 1956 Mississippi Valley Medical Society essay contest with his paper "A Compendium for Fluid and Electrolyte Management with Ordinary and Extraordinary Laboratory Facilities." On presentation of the paper at the annual meeting of the society at the Hotel Morrison, Chicago, Sept. 26-28, Dr. Seidell will receive a gold medal, a certificate, and a cash award.

Chicago

Bevan Lecture.—Dr. Richard B. Cattell of the Lahey Clinic, Boston, will deliver the 28th annual Arthur Dean Bevan Lecture before the Chicago Surgical Society at the Knickerbocker Hotel, 163 E. Walton, Oct. 5, 8 p. m. The subject of his address will be "Surgery of the Pancreas." The profession is invited.

Faculty Promotions.—The Chicago Medical School announces the promotion of Drs. Herman A. Jacobson and Lawrence S. Mann, associates in surgery, to clinical assistant professors of surgery; Dr. Caesar Portes, associate in proctology, to clinical assistant professor of proctology; and Dr. William A. Yacullo, associate in dermatology and syphilology, to clinical assistant professor of dermatology.

NEW JERSEY

Hospital News.—The Atlantic City Hospital will have as visiting chiefs pro tem Dr. Richard H. Lyons, chairman, department of medicine, State University of New York College of Medicine at Syracuse, Oct. 1-5; Dr. John H. Talbott, professor of medicine, University of Buffalo School of Medicine, Oct. 8-12; Dr. John J. Murphy, associate in urologic surgery, University of Pennsylvania School of Medicine, Philadelphia, Oct. 15-19; Dr. Jack D. Myers, chairman, department of medicine, University of Pittsburgh School of Medicine, Oct. 22-26; and Dr. Carroll S. Wright, professor of dermatology and syphilology, Temple University School of Medicine, Philadelphia, Oct. 29-Nov. 2.

NEW YORK

Lecture by Professor Kottmeier.—The Jewish Chronic Disease Hospital (East 49th Street and Rutland Road, Brooklyn) announces an informal talk on "Carcinoma of the Cervix," by Prof. Hans L. Kottmeier, chief of gynecology, Radium hemmet and Royal Caroline Institute, Stockholm, Sweden. Physicians are cordially invited to the meeting Oct. 2, 8:30 p. m. in the auditorium.

Pediatric Study in Mental Health.—Dr. Julius B. Richmond, chairman of pediatrics, State University of New York College of Medicine at Syracuse, has received a grant of $274,050 from the Ford Foundation for a five-year study of the early life relationships between mother and baby, from birth into the preschool years, and the implications of these relationships for development in later life. After his Air Force service in World War II, Dr. Richmond began these studies in Chicago, where he was assistant professor and then professor of pediatrics at the University of Illinois College of Medicine and superintendent of the Institute for Juvenile Research.

OHIO

Dr. Means Retires.—Dr. Russel G. Means, associate professor of otolaryngology at Ohio State University College of Medicine, Columbus, retired in June with the status of associate professor emeritus after 34 years on the faculty. Ill health prompted his resignation. Chairman of alumni activities for many years, Dr. Means is credited with sparking the drive for the present health center, and for this he was awarded the university's distinguished service award. In 1948 he received the College of Medicine Alumni Achievement award.

Course on Practical Physiology for Women.—An eight-week course on practical physiology for women opens for its sixth year this fall in the University of Cincinnati Evening College. Dr. Carroll J. Fairo, clinical instructor in surgery, gynecologic division, will conduct the series, the subject matter of which starts with the moment of conception and includes problems of puberty, menstruation, pregnancy, milk production, menopause, tumors, and malignant conditions. About 300 women have completed the course in previous years.

WASHINGTON

Dr. Churchill to Give Strauss Lecture.—On Oct. 19, Dr. Edward Delos Churchill, John Homans Professor of Surgery at Harvard Medical School, Boston, will give the seventh annual Alfred A. Strauss Lecture sponsored by the department of surgery of the University of Washington School of Medicine, Seattle. He will speak on "The Nature of Wounds and Wound Healing" at 8:15 p. m. in the auditorium of the Health Sciences Building, University of Washington campus. All physicians are welcome to attend the Strauss Lecture.

WISCONSIN

Social Guidance Conference.—The Four County Social Guidance Conference will meet Sept. 30-Oct. 1 at the Monterey Hotel, Janesville, to celebrate the 10th anniversary of the establishment of child guidance centers and mental health centers in Rock, Jefferson, Walworth, and Green counties. A celebration dinner will be held Sunday. Forums scheduled for Monday will bring together authorities in law, education, church and family life, medicine, and government to disseminate new technics and examine the work that has been done. Bruno Bettelheim, Ph.D., of Chicago will direct the forum on youth.

Circuit Teaching Programs.—The council on scientific work of the State Medical Society of Wisconsin, in cooperation with the state board of health, the medical schools of the University of Wisconsin and Marquette University, the Wisconsin Academy of General Practice, the Wisconsin Heart Association, the Wisconsin Anti-Tuberculosis Association, and the Wisconsin division of the American Cancer Society, has scheduled 12 circuit teaching programs. During October these clinics will be held at the Bellin Memorial Hospital, Green Bay, Oct. 9; St. Joseph-Lloyd Hospital, Menominee, Mich., Oct. 10; and St. Mary's Hospital, Wausau, Oct. 11. The faculty will consist of Drs. Gordon V. Marlow, Madison, proctology; Lamont R. Schweiger, Milwaukee, cardiology; Martin H. Seifert, Wilmette, Ill., internal medicine; and an obstetrician (to be selected). The registration fee, which includes a full afternoon and evening of instruction, with dinner, is $6. Physicians are requested to attend both sessions, as the meetings will be correlated, and those who attend both sessions will receive credit for Academy of General Practice membership requirements. Requests for reservations should be sent to the State Medical Society of Wisconsin, P. O. Box 1109, Madison.

GENERAL

Psychosomatic Society Invites Papers.—The American Psychosomatic Society, which will hold its 14th annual meeting at the Chalfonte-Haddon Hall in Atlantic City, N. J., May 4-5, 1957, invites the submission of titles and abstracts of 20-minute papers for consideration for the program. Abstracts, in sextuplicate, should be submitted no later than Dec. 1 to Dr. I. Arthur Mirsky, Chairman, Program Committee, at the society's headquarters, 551 Madison Ave., New York 22.

Meeting of Obstetricians and Gynecologists.—The Central Association of Obstetricians and Gynecologists will hold its 24th annual meeting at the Roosevelt Hotel, New Orleans, Oct. 4-6, under the presidency of Dr. Harold L. Gainey, Kansas City, Mo., who will deliver an address on Friday. The guest speaker, Dr. Clyde L. Randall, Buffalo, will discuss "Out of Sight—Not Out of Mind" at the close of the Thursday morning session. A cocktail hour, 6:30 p. m. Friday, will precede the annual banquet. In all, 15 presentations have been scheduled.

Essay Contest in Urology.—The American Urological Association offers annual awards totaling $1,000 (first prize, $500; second prize, $300; and third prize, $200) for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been graduated not more than 10 years and to hospital interns and residents doing research work in urology. The first-prize essay will appear on the program of the meeting of the American Urological Association at the Hotel William Penn, Pittsburgh, May 6-9, 1957. Essays must be received before Dec. 1 by the executive secretary, Mr. William P. Didusch, 1120 N. Charles St., Baltimore.

Meeting on Prepaid Medical Service Plans.—The 12th annual Western Conference of Prepaid Medical Service Plans will convene at Sun Valley, Idaho, Oct. 10-14. The theme of the conference is "Are We Meeting the Challenge?" The key speakers will include Dr. David B. Allman, Atlantic City, N. J., President-

Elect of the American Medical Association; Dr. Charles A. Terhune, Burley, Idaho, president-elect of the Idaho State Medical Society; Odin W. Anderson, Ph.D., research director of the Health Information Foundation, and Dr. W. Palmer Dearing, deputy surgeon general of the U. S. Department of Health, Education, and Welfare, Washington, D. C. Other speakers from the fields of labor and industry will appear on the program.

Noise Abatement Symposium.—The seventh annual National Noise Abatement Symposium will be presented Oct. 11-12 at the Sherman Hotel, Chicago, under the joint sponsorship of the Armour Research Foundation of Illinois Institute of Technology, Acoustical Society of America, American Society of Safety Engineers, National Noise Abatement Council, American Society of Planning Officials, American Industrial Hygiene Association, and Acoustical Materials Association. The topics for discussion are "Quieting Machinery, the Noise Creator," "Hearing Loss Problems," and "Quieting a Noisy Environment." The registration fee, $15, covers the costs of the technical sessions, both luncheons, and a copy of *Noise Control Magazine* in which all papers presented at this meeting will be published. Address inquiries to: Armour Research Foundation of Illinois Institute of Technology, Attn.: Mr. Guy J. Sanders, 10 W. 35th St., Chicago 16.

Meeting of Medical Illustrators.—The 11th annual meeting of the Association of Medical Illustrators will be held Oct. 1-3 at the Iowa Center for Continuation Study, State University of Iowa, Iowa City, under the presidency of Mr. Leon Schlossberg, Baltimore. The central theme of the meeting will be "The Role of Visual Representation in the Acquisition and Transmission of Information," with special attention to its relationship to other means and uses for communication. Dr. Norman B. Nelson, dean of the State University of Iowa College of Medicine, will deliver an address of welcome at 9 a. m. Monday. "The Objective and Subjective Factors in Visual Perception" will be discussed at 10:45 a. m. by Dr. Herman M. Burian, Iowa City. The annual Max Brodell Memorial Lecture, "Criteria in the Judgment of Art," will be delivered by Mr. Lester D. Longman, head, department of art, at the annual banquet, 7:30 p. m. At 3:15 p. m. Tuesday Arthur H. Bulbulian, D.D.S., Rochester, Minn., will present "Advances in Materials and Methods Used in Preparation of Teaching Models and Facial Prosthesis." The annual exhibition of medical illustrations will be shown in the gallery of the University Fine Arts Building.

Southeastern Allergy Association.—The 11th annual meeting of the Southeastern Allergy Association at the Barringer Hotel, Charlotte, N. C., Oct. 5-6 will have as its theme "Allergy and Its Relationship to Medicine and Surgery." Dr. Ben N. Miller, Columbia, S. C., president, will serve as chairman for the Friday morning session, which will include the following papers:

Allergy and Its Relation to General Medicine, Emma K. B. MacInnis, Columbia, S. C.
Drug Allergy, David R. Thomas, Augusta, Ga.
The Steroids and Their Effect on Various Immunological and Allergic Reactions, Carl E. Arbesman, Buffalo, president, American Academy of Allergy.
Allergist, the Otolaryngologist, and the Patient, Theodore E. Walsh, St. Louis.
The Changing Picture of Allergy, Ethan A. Brown, Boston, president, American College of Allergists.
A New Look at Allergy, Charles P. Wofford, in collaboration with John B. McKinnon and Ben D. Hall, Johnson City, Tenn.

A clinical pathological conference at 2 p. m. will precede a panel on pediatric allergy. The banquet, 7:30 p. m., will follow cocktails (courtesy of G. D. Searle & Co.). The Saturday session will open at 9 a. m. with a panel, "Role of Chronic Lung Disease in Chronic Asthma," and will close with a question-and-answer period. This program has been accepted by the American Academy of General Practice for 10 hours of credit in category 2.

Low-Cost Medical Tours.—In conjunction with its seventh World Congress in London, July 22-26, 1957, the International Society for the Welfare of Cripples is organizing low-cost travel groups that, before and after the congress, will combine sightseeing with a survey of rehabilitation facilities. The group will leave New York by chartered plane for Glasgow, Scotland, July 13 and will go on a motor trip through the English Lake Country, visiting institutions in Glasgow, Edinburgh, and other communities along the way and arriving in London for the precongress social gathering July 21. Participants may choose between two travel groups leaving London after the congress on July 27: (1) to Oslo, Norway; Copenhagen, Denmark; Stockholm, Sweden; Brussels, Belgium; and Paris, France; and (2) to Zurich and Lucerne in Switzerland, then south into Italy to Venice, Ravenna, Florence, Perugia, Assisi, and Rome, and finally to Paris. These postcongress tours converge for a final two-day sojourn in Paris. The 59 members will fly back to New York on Aug. 10. The entire package, which includes a round-trip transatlantic flight and two study tours, is offered at a cost ranging between $908 and $960. Participants must be members of the U. S. Committee for the International Society for the Welfare of Cripples. Details on the tour and the congress may be obtained from the International Society for the Welfare of Cripples, 701 First Ave., New York 17.

Meeting of Rhinologic Society.—The American Rhinologic Society will hold its annual meeting in Chicago, Oct. 9-13, under the presidency of Dr. Ralph H. Riggs, Shreveport, La. A three-day series of surgical demonstrations and seminars will be presented in the Illinois Masonic Hospital from 8 a. m. to 10 p. m. under the direction of Dr. Maurice H. Cottle, professor and chairman of the department of otolaryngology, Chicago Medical School. The annual scientific program, presented in the Palmer House on the closing day, will include a morning symposium on "Expanding Horizons in Rhinology," with the following participants: Drs. Charles Petrillo, Yale University School of Medicine, New Haven, Conn. (anatomy); Newton D. Fischer, University of North Carolina School of Medicine, Chapel Hill (physiology); Harold S. Ulvestad, University of Minnesota Medical School, Minneapolis (surgery); and French K. Hansel, Washington University School of Medicine, St. Louis (allergy). Guest speakers on the afternoon program will be.

Roy R. Grinker, director of the Institute for Psychosomatic and Psychiatric Research, Michael Reese Hospital, Chicago, Psychosomatic Approach to Rhinological Problems.
Conrad L. Pirani, professor of pathology, University of Illinois College of Medicine, Chicago, Connective Tissue in Wound Healing
Hubert R. Catchpole, Ph.D., research associate professor of pathology, University of Illinois College of Medicine, Chicago, Newer Ideas on the Significance of Ground Substance of Connective Tissue.

Dr. Matthew S. Ersner, professor of otolaryngology and rhinology, Temple University School of Medicine, Philadelphia, will be the guest of honor and speaker at a dinner in the evening at which Dr. Riggs will serve as toastmaster. Physicians are welcome to attend the scientific session as guests of members of the society. There is no registration fee. Information may be obtained by writing to Mrs. Mabel Campbell, Corresponding Secretary, 834 Wellington Ave., Chicago 14.

American Dietetic Association.—The 39th annual meeting of the American Dietetic Association will be held in the Milwaukee Auditorium Oct. 9-12. At 3:30 p. m. Tuesday a program on diabetes and today's research will offer the following presentations:

An Approach to the Prediction of Diabetes Mellitus, Stefan S. Fajans, Ann Arbor, Mich.
Working with Children at the Joslin Camps, Alexander Marble, Boston
Treatment with New Oral Sulphonamide Compounds, Henry T. Ricketts, Chicago.

A discussion on nutrition in child health, Wednesday, 9:30 a. m., will include "Metabolism and Growth in Adolescence" by Dr. Joseph A. Johnston, Detroit. Wednesday evening will be devoted to a program at the Hotel Schroeder for discussion of "Nutrition Progresses." The opening paper, "Nutritional Deficiency Diseases Today," will be presented by Dr. William J. Darby, Nashville, Tenn. The following presentations by physicians are scheduled for Thursday:

Dietary Factors in Carcinogenesis, Wilhelm C. Hueper, Bethesda, Md
Medical Aspects of Aging, Frederick C. Swartz, Lansing, Mich
Proper Use of Modified Diets, Arnold L. Wagner, Evanston, Ill.
Low-Fat Diets in Cardiac Diseases, Peter T. Kuo, Philadelphia.
Dietary Constituents and Atherosclerosis, Theodore B. Van Itallie, Boston
Research Experience as a Part of Graduate Education, Charles F. Code, Rochester, Minn.
Nutrition in Liver Disease, Gordon M. Mindrum, Cincinnati.

At 9:45 a. m. Friday a session on "Today's Modified Diets" will include the following presentations:

Understanding and Support of the Patient, C. Knight Aldrich, Chicago
Rationale of the Bland Diet, Seymour J. Gray, Boston.
Chronic Sodium Chloride Toxicity and the Protective Effects of Potassium Chloride, George R. Heneely, Nashville, Tenn.

During the concluding session Friday afternoon, Dr. Charles F. Wilkinson, New York, will discuss "Obesity and Heart Disease," and Dr. Robert E. Olson, Pittsburgh, will have as his subject "Obesity Among Middle-Aged Men and Women."

Cancer Cytology Congress.—The International Cancer Cytology Congress will convene at the Drake Hotel, Chicago, Oct. 8-12 under the sponsorship of the American Society of Clinical Pathologists, College of American Pathologists, Inter-Society Cytology Council, and the International Union Against Cancer. The opening panel discussion on Hospital-Physician Relationships, Monday, 9:05 a. m., will be followed by an address by Dr. William A. D. Anderson, Miami, Fla., president of the College of American Pathologists. Other panel discussions will include:

Validity of Uterine Exfoliative Cytology, Cyrus C. Erickson, Memphis, Tenn., moderator.
Man-Power and Woman-Power, Recruitment and Training, Arthur T. Hertig, Boston, moderator.
Cancer Cytology Diagnostic Centers vs. Cancer Cytology Diagnosis at the Local Level, Joseph A. Cunningham, Birmingham, Ala., moderator.
Aspiration Biopsy, John T. Godwin, Atlanta, Ga., moderator.
Problems in Confirming Cellular Evidence of Cancer, Clyde L. Randall, Buffalo, moderator.
Prognosis in Cancer of the Uterine Cervix as Determined by Histologic and Cytologic Methods, John B. Graham, Boston, moderator.

Thursday morning will be devoted to papers on advances in cytology and Thursday afternoon to a symposium, "Carcinoma in Situ of the Uterine Cervix," moderated by Dr. Arthur T. Hertig, Boston. An all-day tumor seminar on breast lesions, to be presented Friday by the American Society of Clinical Pathologists, will be conducted by Dr. Lauren V. Ackerman, St. Louis. Saturday and Sunday will be devoted to workshops and refresher courses. The joint banquet, Tuesday, 7 p. m., will be preceded by a reception. A roundtable luncheon is scheduled for Wednesday, 12:15 p. m., and fellowship hours for 6 p. m. on Monday and Wednesday, preceding the annual meetings respectively of the College of American Pathologists and the Inter-Society Cytology Council. The American Society of Clinical Pathologists will hold its annual meeting Thursday, 8 p. m.

Meeting on Surgery of Trauma.—The American Association for the Surgery of Trauma will hold its 16th annual session Oct. 4-6 at The Biltmore, Santa Barbara, Calif., under the presidency of Dr. Warren H. Cole, Chicago. The presidential address Friday will be preceded by a symposium entitled "Trauma Incident to High-Speed and High-Altitude Flying," which will be moderated by Major Gen. Dan C. Ogle, M. C., U. S. Air Force. Other participants from the U. S. Air Force Medical Corps will include Lieut. Col. John P. Stapp, Holloman Air Force Base, N. Mex.; Lieut. Col. Andres I. Karstens, Randolph Air Force Base, Texas; Col. Robert B. Lewis, New York; Capt. Clyde H. Kratochvil, Randolph Air Force Base, Texas; Capt. Robert T. P. deTreville, Wright-Patterson Air Force Base, Ohio; Col. Harry G. Moseley, San Bernardino, Calif.; and Col. Arthur M. Henderson, Medical Service Corps, retired, Santa Monica, Calif. The program of 37 papers includes 38 invited participants. A cocktail hour at 7 p. m. Friday will precede the banquet (black tie preferred), at which Lieutenant Colonel Stapp will present "Crash Protection in Automobiles." Ladies and guests are invited to the annual dinner.

FOREIGN

Symposium on Allergic Diseases.—A symposium on allergic diseases will be held at l'Hôpital Broussais, 96, rue Didot, Paris XIV^{e}, France, Oct. 15-25. The cost of the course is 5,000 francs (about $14.50) for the lectures and 10,000 francs for both lecture course and practical demonstrations. Applications should be sent, and checks made out, to the Clinique Médicale Propédeutique de l'Hôpital Broussais. The number of enrollments is limited. The 37 presentations will include 16 by Prof. Pasteur Vallery-Radot and 9 by Dr. B. N. Halpern, both of Paris.

Meeting on Hydatid Disease.—The International Association of Hydatidology held its sixth congress at Athens, Greece, Sept. 14–18, under the sponsorship of King Paul I, with the cooperation and subsidy of the Greek government and UNESCO. Reports were made on "Occupational Hydatidosis," "The Rupture of Hydatic Cysts of the Liver in the Bile Ducts," "The Rupture of Hydatic Cysts of the Liver, Lung, and Bronchi, Present State of Surgical Treatment," and "Hydatidosis from the Socioeconomic Point of View."

CORRECTION

Report on Medical Education.—The totals in table 26 in the 56th Annual Report on Medical Education in the United States and Canada, in The Journal, Aug. 25, page 1661, should read "Total Applications." While the figures in columns 2, 3, and 4 represent the number of applicants for each school, the totals of the columns can represent only the total number of applications. Thus, while the total applications for 1955-1956 increased 14% over the preceding year, the total number of applicants increased only 3%.

EXAMINATIONS AND LICENSURE

American Board of Anesthesiology: *Part I.* Various locations, July 19. Final date for filing application is Jan. 19. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

American Board of Dermatology: *Oral.* St. Louis, Oct. 12-15. Final date for filing applications was April 1. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32.

American Board of Internal Medicine: *Written.* Oct. 15, 1956. Final date for filing application was May 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.
Subspecialties. Cardiovascular Disease. Chicago, Nov. 30. Final date for filing application was June 1. *Gastroenterology.* Philadelphia, April 5-6. Final date for filing application is March 1.

American Board of Neurological Surgery: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

American Board of Obstetrics and Gynecology: *Part I.* Various cities of the United States, Canada, and military centers outside the Continental United States, Feb. 1. Candidates must submit case reports to the office of the Secretary within thirty days of being notified of their eligibility to Part I. *Part II.* Chicago, May 16-25. Request for reexamination in Part II must be received prior to Feb. 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

American Board of Ophthalmology: *Oral.* St. Louis, Oct. 20-24. *Written.* Jan. 21. Final date for filing application was July 1. *Oral.* New York, May 23-27; Chicago, Oct. 7-11. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

American Board of Orthopaedic Surgery: *Oral. Part II.* Chicago, January 1957. Final date for filing application was Aug. 15. Sec., Dr. Sam W. Banks, 116 South Michigan Ave., Chicago 3.

American Board of Otolaryngology: *Written and Oral.* Chicago, Oct. 8-11. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pathology: *Written for Pathological Anatomy and Clinical Pathology,* Oct. 4-6. Final date for filing application was Sept. 1. Sec., Dr. Edward B. Smith, 1040-1232 W. Michigan St., Indianapolis 7.

American Board of Pediatrics: *Oral. Part II.* New York City, Oct. 12-14, and San Francisco, Dec. 7-9. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation: *Parts I and II.* New York City, June 8-9. Final date for filing application is March 1. Sec., Dr. Earl C. Elkins, 200 First St., S.W., Rochester, Minn.

American Board of Plastic Surgery: Miami, Oct. 17-19. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine: *Oral and Written. Public Health.* Philadelphia, Nov. 8-10. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore, Md.

American Board of Psychiatry and Neurology: *Oral.* New York, Dec. 10-11 and New Orleans, Mar. 18-19. Final date for filing application is Sept. 10. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Radiology: Los Angeles, Sept. 30-Oct. 4. Final date for filing application was June 1. Tampa, April 1-6. Final date for filing application is Jan. 1. Washington, Sept. 23-28. Final date for filing application was June 1. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

American Board of Surgery: *Part I.* Various centers throughout the United States and in certain military centers abroad, Oct. 31. *Part II.* Rochester, Minnesota, Oct. 15-16; New Haven, Nov. 19-20; Kansas City, Kan., Dec. 10-11; Los Angeles, Jan. 14-15; San Francisco, Jan. 17-18; Houston, Feb. 18-19; Nashville, Mar. 11-12; Boston, April 8-9, and New York, June 10-11.

American Board of Urology: February 1957. Sec., Dr. William Niles Wishard, 1711 N. Capital Ave., Indianapolis 7.

Board of Thoracic Surgery: *Written.* Various centers throughout the country, February 1957, and the closing date for registration is Dec. 1, 1956. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

GOVERNMENT SERVICES

NAVY

Naval Summer Training for Medical Students.—One hundred eighty-two ensigns (medical) are participating in summer cruises at 16 naval teaching hospitals and nine naval medical research activities. These trainees are students in medical schools during the regular school term and during the summer months are participating in the 60-day clinical clerkship and research clerkship training that is a part of the Navy's ensign (medical) program. In addition to receiving the full pay and allowances of their rank, these officers receive excellent on-the-job training commensurate with their professional attainments while serving at either a naval hospital or naval medical research activity. These programs begin July 1 of each year and end June 30 of the subsequent year.

Exhibit at Air Show.—Representing the Bureau of Medicine and Surgery, Commander Carl E. Wilbur, M. C., presented an exhibit at the National Air Show in Oklahoma City, Sept. 1-3, 1956. This presentation featured the latest developments in Navy aviation, clothing, and personnel equipment. The following items were displayed: static vibrating and pulsating back and seat pads, mine safety flight helmet, antiexposure suits, oxygen breathing equipment, and summer-winter flight suits and two-piece suits. The Air Crew Equipment Laboratory, U. S. Naval Air Material Center, Philadelphia, loaned material for the exhibit. Chief Parachute Rigger William H. Hanggeli, from the Material Center, assisted in assembling and monitoring the exhibit.

Fourth Naval District Symposium.—The seventh Annual Military Medico-Dental Symposium under the auspices of the Commandant, Fourth Naval District, will be held at the U. S. Naval Hospital, Philadelphia, Oct. 22-27, 1956. The theme of the symposium is "The Medical Aspects of Hemispherical Defense," and the program has been planned to provide reserve and regular medical department officers with information regarding current concepts in varied fields of endeavor in the medical and dental services of the armed forces.

PUBLIC HEALTH SERVICE

The New Health Research Facilities Act.—The President has signed the Health Research Facilities Act of 1956, which authorizes the appropriation of funds to assist in financing the construction of facilities for research in the sciences related to health, which the act defines as including medicine, osteopathy, dentistry, and public health and fundamental and applied sciences when related thereto. The assistance is to be in the form of grants-in-aid to public and nonprofit institutions on a basis of not more than 50% for the federal share. Items not creditable for matching purposes include (1) costs for the acquisition of land or off-side improvements and (2) obligations made prior to the award of the research facilities grant concerned. Congress has now appropriated 30 million dollars to the Public Health Service, Department of Health, Education, and Welfare, for this program.

The funds are to be used to provide additional research facilities through the construction and/or equipping of new buildings or the expansion, remodeling, alteration, and/or equipping of existing buildings. The new law provides for the appointment of a national advisory council on health research facilities, which is expected to meet in the near future to establish policies and approve regulations for the administration of the new program. The surgeon general is not permitted to award a research facilities grant-in-aid that has not previously been approved by the council. Additional information will be supplied on request to the Division of Research Grants, National Institutes of Health, Public Health Service, Bethesda 14, Md.

Summer Students.—Seventy-seven medical and dental students from 23 approved four-year professional schools are spending the summer months at hospitals, research laboratories, and other facilities of the U. S. Public Health Service participating in an annual summer student training program. Assignments under this program are open each year to students who complete either their second or third year of professional education on or before July 1 and who are interested in becoming reserve officers in the service's commissioned corps.

Students who are selected for employment are offered commissions as reserve officers in grades equivalent to those held by officers in the armed services. They are then placed on active duty for a period not to exceed 120 days. Opportunities for either internship or active duty on completion of intern training are made available to qualified students.

The service said the purpose of the summer employment program is (1) to stimulate the interest of promising students in careers in the Public Health Service; (2) to enable students to further their professional knowledge while being gainfully employed; (3) to give students an opportunity to increase their understanding of and interest in the functions of government and independent public health agencies; and (4) to provide the service with competent help during the summer months.

New Water Pollution Act.—Preliminary information on the operation of the new Federal Water Pollution Act has been released by Surgeon General Leroy E. Burney. Among other things, the new law authorizes federal grants to municipalities to assist in the construction of sewage treatment works as a pollution control and water conservation measure. The act also authorizes a five-year program of grants to states and to interstate water pollution control agencies to assist in developing their own pollution control operations. A revised federal enforcement procedure for control of interstate pollution and greater federal support of water pollution research are among other important provisions of the act.

Secretary Marion B. Folsom of the Department of Health, Education, and Welfare has written the governors of all states and territories calling attention to the seriousness of the water pollution problem and requesting their active cooperation in carrying out the cooperative state-federal provisions of the new legislation during the current fiscal year.

Reserve Officers Appointed.—The U. S. Public Health Service announced on Aug. 26 the appointment of 98 physicians, nurses, sanitary engineers, and pharmacists to the inactive reserve component of its commissioned officer corps. These officers are among the specialists to be appointed under the service's program to organize and train health and medical personnel throughout the United States and its territories for emergency duty in times of national crisis. These officers will serve in the capacities for which their professional training and experience have fitted them. They will be called out principally to reinforce the staffs of official state and local health agencies and to augment the Public Health Service operating staff.

Training in Neurological Diseases.—The National Institute of Neurological Diseases and Blindness announces that funds are being made available to medical schools to strengthen clinical programs in advanced training in the neurological diseases The purpose is to stimulate the interest of young physicians and scientists in careers as teachers and investigators. Training grants also are available to basic science departments to expand postdoctoral training programs in the neurological sciences. Information, together with application forms, may be obtained from the Chief, Extramural Programs, National Institute of Neurological Diseases and Blindness, National Institutes of Health, Bethesda 14, Md.

Dr. Bauer Appointed Deputy Chief.—Dr. Theodore J. Bauer, for the past three years chief of the Communicable Disease Center in Atlanta, Ga., has been named deputy chief of the Bureau of State Services, replacing Dr. Leroy E. Burney, who was recently appointed surgeon general. Dr. Bauer was venereal disease control officer for the Chicago Board of Health from 1942 to 1945 and chief of the venereal disease division of the Public Health Service in Washington from 1948 to 1953.

DEATHS

Bryant, William Sohier, New York City; born in Boston May 15, 1861; Harvard Medical School, Boston, 1888; secretary, Section on Laryngology and Otology from 1905 to 1908, when he became Chairman, serving until 1909, and in 1912 member of the House of Delegates of the American Medical Association, of which he was an associate member; member of the American Laryngological, Rhinological and Otological Society, Boylston Medical Society, Boston Medical Library Association, Association of Military Surgeons of the United States, and the American Otological Society; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; veteran of the Spanish-American War; during World War I was with the British forces as contract surgeon in charge of the Royal Victoria Hospital, London, England, and otolaryngologist for the British Red Cross Hospital at Netley, England; later served also with the French forces, and finally with the American Red Cross Military Hospital in Paris, France, and with the American Red Cross in Italy; retired as a colonel in the Officers Reserve Corps; began practice in Boston, where he was aural surgeon at the Boston Dispensary, assistant in anatomy and otology at Harvard Medical School, and senior assistant surgeon at the Massachusetts Eye and Ear Infirmary; formerly on the faculty of Columbia University College of Physicians and Surgeons, Cornell University Medical College, and the New York University Post-Graduate Medical School and Hospital; served on the staffs of the New York Eye and Ear Infirmary, the Presbyterian Hospital, and the Manhattan State Hospital; held the French Legion of Honor, Order of the Crown of Italy, and Grand Cross of the Order of St. John the Baptist; awarded the Grand Cross Order of St. John of Jerusalem; belonged to many American patriotic groups, including the Society of Mayflower descendants and the Sons of the Revolution; author of many articles pertaining to his field; died in the Mount Auburn Hospital, Cambridge, Mass., June 26, aged 95, of injuries received in an automobile accident.

Austrian, Charles Robert ⊕ Baltimore; born in Baltimore May 28, 1885; Johns Hopkins University School of Medicine, Baltimore, 1909; since 1950 associate professor emeritus of medicine at his alma mater, where he was assistant instructor and associate in medicine from 1910 to 1923, when he became associate professor of medicine; past-president of the Johns Hopkins Medical Society, Baltimore City Medical Society, and the Medical and Chirurgical Faculty of Maryland, of which he was formerly councilor; member of the Association of American Physicians, American Society for Clinical Investigation, American Trudeau Society, American Clinical and Climatological Association, Southern Medical Association, and the American Association of Pathologists and Bacteriologists; specialist certified by the American Board of Internal Medicine; medical advisor to the state director of the Selective Service System and during World War II served on the Civilian Mobilization Committee; physician-in-chief at the Sinai Hospital from 1921 to 1944 and since 1947 chief medical consultant; member of the staff of the Union Memorial Hospital and the Hospital for Women; since 1915 visiting physician at the Johns Hopkins Hospital, where he was formerly chairman of the medical advisory board; at one time a member of the state board of welfare; past-president and member of the board of trustees of the Park School; in 1935 was presented with the gold medal of the Phi Lambda Kappa medical fraternity, the medal awarded annually to the "Jewish physician considered as having contributed most to medical science in the preceding year"; served as a member of the board of trustees, Peabody Conservatory of Music and the Baltimore Symphony Orchestra; on the editorial board, *Bulletin of Johns Hopkins Hospital;* died July 13, aged 71, of coronary thrombosis.

Loeb, Virgil ⊕ St. Louis; born in Columbia, Mo., Feb. 28, 1883; St. Louis University School of Medicine, 1906; also a dentist; professor emeritus of pathology at Washington University School of Medicine, where he was lecturer on stomatology; professor of oral surgery at St. Louis University from 1907 to 1919; professor of stomatology at the Washington University Dental School from 1921 to 1934; fellow of the International College of Dentists, American Academy of Periodontology, and the American Association for the Advancement of Science; chairman, Section on Stomatology of the American Medical Association, 1912-1913; past-president of the St. Louis Dental Society and the Missouri Dental Association; member of the American Public Health Association, American Society for Dentistry for Children, Federation Dentaire Internationale, Phi Beta Pi, Delta Sigma Delta, Omicron Kappa Upsilon, and Pi Gamma Mu; during World War I was a major in the Medical Corps of the U. S. Army and a consultant in facial surgery at Mesves Hospital Center in France; member of the staffs of the Evangelical Deaconess, St. Louis Maternity, St. Louis Children's, and Jewish hospitals; died June 26, aged 73.

Medlar, Edgar Matthias, Tupper Lake, N. Y.; born in Ohiowa, Neb., March 9, 1887; Harvard Medical School, Boston, 1913; specialist certified by the American Board of Pathology; member of the American Trudeau Society, American Association of Pathologists and Bacteriologists, and the American Society for Experimental Pathology; associate professor of pathology at Columbia University College of Physicians and Surgeons in New York City; formerly associate professor of pathology at the University of Wisconsin Medical School in Madison; veteran of World War I; in 1954 received the Trudeau medal, the annual award of the National Tuberculosis Association, for his contributions in tuberculosis research; for 25 years connected with the Metropolitan Life Insurance Company as director of the Hegeman Memorial Research Laboratory at Mount McGregor Sanatorium in Mount McGregor, N. Y.; served as principal pathologist for the New York State Tuberculosis Service at Hermann M. Biggs Memorial Hospital in Ithaca; pathologist at the Veterans Administration Hospital in Sunmount, where he died June 30, aged 69, of coronary thrombosis.

Blumenthal, Robert Warren ⊕ Milwaukee; born in Columbus, Aug. 28, 1881; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; specialist certified by the American Board of Internal Medicine; formerly on the faculty of the Marquette University School of Medicine; past-president of the Medical Society of Milwaukee County and the Milwaukee Academy of Medicine; at one time councilor of the 12th District of the State Medical Society of Wisconsin; fellow of the American College of Physicians; veteran of World War I; prior to his retirement served on the staffs of St. Luke's, Evangelical Deaconess, and Milwaukee County hospitals; for many years editor of the *Milwaukee Medical Times;* died July 1, aged 74, of heart disease and diabetes mellitus.

Mallon, Francis Edward ⊕ Brooklyn, N. Y.; born in Brooklyn June 18, 1895; Long Island College Hospital, Brooklyn, 1919; clinical associate professor of ophthalmology at his alma mater, now known as the State University of New York College of Medicine; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past-president of the Brooklyn Ophthalmological Society; active in the founding of the Catholic Physicians Guild of Brooklyn; surgeon on the staff of the Brooklyn Eye and Ear Hospital; consulting ophthalmologist at St. Mary's Hospital; died in Avon, N. J., June 24, aged 61.

Brooks, Clark David ⊕ Detroit; born in Southfield, Mich., Aug 10, 1878; Detroit College of Medicine, 1905; served on the faculty of his alma mater, now known as Wayne University College of Medicine; fellow of the International College of Surgeons and the American College of Surgeons; specialist certified by the American Board of Surgery; formerly member of the city board of education; veteran of World War I; on the staffs of the City of Detroit Receiving Hospital, Woman's Hospital, Harper Hospital, and the Highland Park (Mich.) General Hospital; died May 28, aged 77, of coronary thrombosis.

⊕ Indicates Member of the American Medical Association.

Laws, James Warren ⊕ El Paso, Texas; Memphis (Tenn.) Hospital Medical College, 1898; member of the American College of Chest Physicians and the American Trudeau Society; fellow of the American College of Physicians; past-president of the El Paso County Medical Society; employed by the City-County Health Department as director of El Paso tuberculosis control and in charge of the tuberculosis department of the City-County Hospital, now El Paso General Hospital, from 1938 to 1951; at one time medical director of the Hendricks-Laws Sanatorium; died June 15, aged 82, of heart disease.

Ambrose, Charles Seward, Visalia, Calif.; St. Louis College of Physicians and Surgeons, 1904; served as health officer of Tulare County; died June 25, aged 78.

Atwood, Charles Herbert, Grants Pass, Ore.; Hahnemann Medical College of the Pacific, San Francisco, 1902; died June 2, aged 75.

Austin, De Witt Ray ⊕ Charlotte, N. C.; Jefferson Medical College of Philadelphia, 1917; died July 2, aged 64, of ventricular fibrillation and hypertension.

Bredehoft, Julius Curt ⊕ Boerne, Texas; Medico-Chirurgical College of Kansas City, Mo., 1900; died May 14, aged 79, of carcinoma of the right lung.

Carpenter, Claire Harold ⊕ Detroit; the Hahnemann Medical College and Hospital, Chicago, 1918; for many years associate director of the Grace Hospital, Northwestern Branch, where he died June 27, aged 63, of coronary disease.

Casto, Charles Clayton ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1921; on the staffs of the Huron Road and St. Luke's hospitals; died July 1, aged 68, of congestive heart disease.

Chimene, Eugene Opet, Forest Hills, N. Y.; Rush Medical College, Chicago, 1919; member of the Medical Society of the State of New York; died June 26, aged 60, of coronary arteriosclerosis.

Crawford, James Davidson ⊕ New Castle, Pa.; Harvard Medical School, Boston, 1924; veteran of World War I; a director of the First Federal Savings and Loan Association; trustee of the Westminster College in New Wilmington; founding fellow of the American College of Obstetrics and Gynecology; died July 18, aged 57.

Gellenbeck, Albert Henry, Cincinnati; University of Cincinnati College of Medicine, 1933; member of the Ohio State Medical Association; on the staff of the Good Samaritan Hospital, where he died June 13, aged 58, of heart disease.

Howley, Ambrose N., Norfolk, Neb.; Lincoln (Neb.) Medical College of Cotner University, 1907; served on the faculty of his alma mater; died June 4, aged 72, of cancer.

Johnston, Kenneth Lawrence ⊕ Oskaloosa, Iowa; University of Illinois College of Medicine, Chicago, 1914; fellow of the American College of Surgeons; formerly vice-president of the Iowa State Medical Society; on the staff of the Mahaska County Hospital, where he died June 9, aged 65, of cerebral metastasis from carcinoma of the bladder.

Jordan, Ralph Ensign ⊕ Emporia, Kan.; University of Kansas School of Medicine, Kansas City, 1940; member of the American Academy of General Practice; veteran of World War II; on the staffs of St. Mary's Hospital and the Newman Memorial County Hospital, where he died July 10, aged 39, of bulbar poliomyelitis.

King, Charles Royal ⊕ Toledo, Ohio; Toledo Medical College, 1907; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; veteran of World War I; for many years member of the board of directors of the University of Toledo; at various times on the staffs of the St. Luke's and Riverside hospitals, and St. Vincent's Hospital, where he died June 22, aged 70.

King, Edgar Addison ⊕ Minneapolis; Chicago Homeopathic Medical College, 1887; Rush Medical College, Chicago, 1895; veteran of World War I; affiliated with the health department of the city of Minneapolis; on the staffs of St. Mary's and Northwestern hospitals; died in Eitel Hospital June 1, aged 91, of cerebral thrombosis.

Kinsella, Michael Allen, New Britain, Conn.; Tufts College Medical School, Boston, 1912; fellow of the American College of Surgeons; served on the staffs of the Bradley Memorial Hospital in Southington and the New Britain General Hospital, where he died June 28, aged 72.

Komaroff, Hyman M. ⊕ Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1916; on the staff of the Crown Heights Hospital; died May 31, aged 67, of coronary disease.

Kurtz, Clarence Suplee, Malvern, Pa.; Bellevue Hospital Medical College, New York City, 1890; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; veteran of World War I; member of the staff of the County Branch of Rush Hospital for Consumption and Allied Diseases; formerly a member of the Malvern Library and the Malvern Fire Company; died May 15, aged 89.

Lacey, R. C., Centerville, Texas; Missouri Medical College, St. Louis, 1890; died in Crockett June 7, aged 88, of myocardial infarction.

Lamb, Jay Hugh, St. Louis; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1914; died in the Lutheran Hospital July 5, aged 67, of chronic myocarditis and chronic hypertrophic arthritis.

Leenhouts, Abraham ⊕ Holland, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; veteran of World War I; for many years member of the board of education; served as campus physician at Hope College; honorary member of the staff of the Holland City Hospital, where he died July 3, aged 89, of cancer of the stomach and liver.

Leinwand, Irving ⊕ New York City; Rush Medical College, Chicago, 1937; interned at the Sydenham Hospital; veteran of World War II; served on the staffs of Bellevue and St. Clare's hospitals; on the staff at the University Hospital, where he died July 13, aged 45.

Lemay, Alfred Mederic, Brockton, Mass.; Tufts College Medical School, Boston, 1913; member of the Massachusetts Medical Society; school physician; died June 3, aged 68, of pulmonary embolism.

Leone, Vincent David, Eggertsville, N. Y.; University of Buffalo School of Medicine, 1925; an associate member of the American Medical Association; fellow of the American College of Surgeons; past-president of the Niagara County Medical Society and the Tuberculosis Association of Niagara County; veteran of World War II; on the staff of the Niagara Falls (N. Y.) Memorial Hospital; died in the Veterans Administration Hospital, Buffalo, July 6, aged 55, of pneumonia and paralysis agitans.

Light, Arthur John ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1908; on the staff of the Deaconess Hospital, where he died June 12, aged 71, of cerebral hemorrhage and Parkinson's disease.

Livermore, Ira Warner, Gowanda, N. Y.; University of Buffalo School of Medicine, 1899; an associate member of the American Medical Association; for many years school physician; during World War I served as a major first with the Army Medical Corps in the United States and later with the Royal Medical Corps in England; honorary member, medical staff at the Tri-County Memorial Hospital, where he died June 27, aged 84, of arteriosclerosis and uremia.

Lufburrow, Charles Bromwell, Plainfield, N. J.; Baltimore Medical College, 1897; served as city physician and president of the board of health; an associate member of the American Medical Association; first emeritus consultant surgeon, formerly chief surgeon and president of the medical board at the Muhlenberg Hospital, where he died June 27, aged 83, of mediastinal tumor.

McCord, Malcolm Christian ⊕ Denver; University of Michigan Medical School, Ann Arbor, 1945; instructor in medicine, University of Colorado School of Medicine; specialist certified by the American Board of Internal Medicine; certified by the National Board of Medical Examiners; captain, Army of the United States, from 1946 to 1948; served on the staffs of the Colorado General and Denver General hospitals; died May 27, aged 35.

FOREIGN LETTERS

BRAZIL

Dementia Paralytica Juvenilis.—Dr. Waldemar Cardoso, of the Juquery Psychiatric Hospital, São Paulo, reported to the Associacão Paulista de Medicina on a series of 45 patients with dementia paralytica, whose age on admission varied between 7 and 26 years. The diagnostic criteria used were (1) syphilis in one of the parents; (2) syphilis in the patient; (3) early onset of the disease; (4) absence of history of sexual contact; (5) physical stigmas of congenital syphilis; and (6) serologic findings of neurosyphilis. Most patients did not fulfill all six criteria, but the presence of the third, sixth, and at least one other was required. The speaker concluded that the ratio between male and female patients was about 7:10. The age at the onset was most frequently between 11 and 20 years (range 5 to 23 in this series). Maternal syphilis was proved in 28 patients. Nonsyphilitic neuropsychopathies were present in members of the immediate family of 28 patients, with alcoholism predominating. Physical and mental anomalies of development were noted in the case history of 32. The onset may be insidious (in patients previously showing mental deficiency) or acute (in those who were mentally normal). Neurological accidents consequent to other early manifestations of neurosyphilis were present in 16 patients, with convulsions and paralyses predominant. The most frequent physical stigmas of congenital syphilis were dental malformations and anomalies of skeletal development. The neurological examination revealed alterations of the patellar and achillean reflexes in 40 patients, other frequent neurological findings being dysarthria, tremor, and disturbed equilibration. Argyll-Robertson's sign was present in 37. The most frequent clinical form was simple dementia. The incidence of taboparesis in dementia paralytica juvenilis is lower than in the adult form. Half of the patients obtained good results with malariotherapy followed by specific chemotherapy, but from the qualitative standpoint the results were inferior to those observed in the adult form, with only three patients showing complete remission. The therapeutic results were more favorable in direct ratio to the normality of mental development up to the onset of the disease, to the lateness of the onset, and to the promptness of beginning treatment.

Percutaneous Splenoportography and Splenomanometry.—Dr. Ary L. de Almeida and co-workers in *Revista do Hospital das clinicas* (11:135, 1956) reported that they performed 147 splenoportographies on 112 patients, with only one fatal hemorrhage. This occurred in a patient who had a malignant reticuloendotheliosis. Material was obtained from normal spleens and from those of patients with various types of splenomegaly, several types of hepatic cirrhosis, extrahepatic portal obstruction, and portocaval shunt. The authors concluded that percutaneous splenoportography permits a good evaluation of circulatory conditions in portal territory, disclosing the different changes produced by hepatic and prehepatic conditions and furnishing information that may lead to adequate therapy. Percutaneous intrahepatic manometry was performed on 97 persons, some normal and some with various types of splenomegaly, congestive heart failure, several types of cirrhosis, extrahepatic portal obstruction, and portocaval shunt. Comparing data obtained before, during, and after the opening of the abdomen, the authors found that the pressure falls during anesthesia and with the opening of the abdominal wall. When measured with the abdominal wall open, intrasplenic and portal pressures were found to be identical. On this basis the authors judge transcutaneous splenomanometry a good method for the evaluation of portal pressure.

Complications in Operations on the Thyroid.—Drs. Josias de Andrade Sobrinho and E. Salvador Sapia reported in *Revista paulista de medicina* (48:425, 1956) a study on complications after 143 operations on the thyroid. They recognized two groups of complications. The first group, depending on hyperthyroidism and to a certain extent poor preoperative care, included mainly the postoperative thyrotoxic crises and, in lesser degree, operative hemorrhages. The second group, depending on difficulties or technical faults, included lesions of the laryngeal nerves, postoperative hemorrhages, and hypoparathyroidism.

INDIA

Impulse Generation in the Atrioventricular Node.—Das and Arora (*Indian J. M. Sc.* 10:255, 1956) gave epinephrine, levarterenol, acetylcholine, and atropine to 35 dogs. The actions of the autonomic agents on the impulse generation in sinoauricular and atrioventricular nodes were similar qualitatively but different quantitatively. Following atropinization, the heart rate increased by 21.6% in sinoauricular rhythm and 5.5% in atrioventricular rhythm, showing low vagal tone in the atrioventricular node. The atrioventricular node showed more response to acetylcholine and less to cardioaccelerators than did the sinoauricular node. Cardioaccelerators and sometimes atropine changed atrioventricular rhythm with simultaneous atrial and ventricular activation to atrioventricular rhythm with preceding atrial activation. The actual mechanism could not be conclusively demonstrated.

Chloramphenicol, Bone Marrow, and Typhoid.—M. J. Shah and co-workers (*Journal of the Association of Physicians of India*, vol. 4, April, 1956) reported a series of 24 patients with blood cultures positive for typhoid and/or a positive Widal test. Blood cell counts and bone marrow studies were made on the day of admission. The patients were then given chloramphenicol. An average of 15 gm. of the drug was given in 10 or 11 days. During this period, peripheral blood cell counts were made every fourth day and bone marrow studies were repeated on the last day of the drug therapy. In eight patients there was bone marrow depression before the start of the treatment, probably due to typhoid toxemia, the total leukocyte count being below 25,000 per cubic millimeter; however, the differential count was within normal limits. In all these patients there was marked improvement in the total blood cell count at the end of treatment. In three the bone marrow was initially normal but showed a depression after treatment with chloramphenicol; two showed a megaloblastic reaction in a second marrow study, while in three others the marrow was not affected quantitatively but there was selective depression of either the erythroid or myeloid series or both. Nine patients showed no change, quantitative or qualitative. In the second, third, and fourth groups the drug seems to have been responsible for the bone marrow depression. In five of these patients, the peripheral blood findings remained unaltered while two showed a megaloblastic reaction. Since bone marrow shows evidence of early hypoplasia in the absence of peripheral blood changes, a routine study of the bone marrow would seem to help in early detection of patients whose hemopoietic system may show hypersensitivity to chloramphenicol.

Home for Blind.—The first industrial home for blind adults will be opened soon in Bombay. In the first year, 50 inmates will be admitted. Facilities for training in weaving, cane-work, basketry, brush-making, music, and braille will be provided. Preference will be given to the blind from the rural areas, and they will be given intensive training in agriculture, poultry raising, and allied occupations. There are 70 institutions for the blind in India, of which over 60 are limited to the blind under the age of 18 and none provide agricultural training. Facilities for training the adult blind are grossly inadequate, but the necessity for such training is now recognized.

Plasma Cell Mastitis.—G. V. Talwalkar reported 12 cases of plasma cell mastitis in a series of 2,061 breast specimens examined (*Indian J. M. Sc.* 10:375, 1956). In 8 of the 12 cases, frozen sections were made at the time of operation. All but one of the 12 patients had borne children. In all cases the presence of a mass in the breast brought the patient to the hospital. Only three complained of pain. There was a white discharge from the nipple in one of these. The nipple was retracted in three. The mass was fixed to the skin in three, and one had the so-called pigskin appearance. The lump was present usually behind and around the areola. It was firm or hard, with well-defined margins. Axillary lymph nodes were palpable in six patients. Two of the 12 patients were thought to have plasma cell mastitis on the basis of signs and symptoms of acute inflammation, 5 were thought to have carcinoma clinically; 2 had a diagnosis of chronic mastitis; one was thought to have an acute abscess; and in one patient the diagnosis lay between carcinoma, tuberculous mastitis, and fibroadenoma. In two of the eight cases in which frozen sections were made, a diagnosis of plasma cell mastitis was suggested; one was found to be chronic mastitis, in three only a chronic inflammatory process could be seen; in one an erroneous diagnosis of carcinoma was made; and diagnosis was deferred in the remaining case. The cut surface in six specimens showed scattered white areas suggestive of chronic mastitis; four showed small soft necrotic yellow-brown areas; and the remaining two showed an abscess cavity filled with thick yellow purulent material. Microscopically all showed a predominance of plasma cells. Besides these, large macrophages were also conspicuous. Lymphocytes, neutrophils, and sometimes eosinophils were seen. The epithelial cells of the duct were regular in shape and size. Occasionally plasma cells of varying sizes with hyperchromic nuclei and binucleate forms were encountered. In eight patients, local excision of the mass was performed, and in the remaining four a mastectomy was performed. Local recurrence occurred in only one of these patients. Malignant changes are rarely associated with this condition, but local recurrence of the inflammatory process is not uncommon.

Piperazine for Threadworms.—C. J. Modi and co-workers gave a syrup containing 100 mg. of piperazine hexahydrate per cubic centimeter to a series of 24 patients with threadworm infestation (*Indian J. M. Sc.* 10:278, 1956). Piperazine is believed to act by inducing a state of narcosis in the worms. Twenty-two of the patients were given 50 mg. of the drug per kilogram of body weight, the drug being administered twice a day in equal doses on an empty stomach, with administration continued for seven days. This was followed by a rest period of one week, after which the treatment was repeated for another seven days. Fifteen patients took this full course of treatment. Of these, 11 were cured, 3 achieved only symptomatic relief, and one was not improved. Seven patients took an inadequate amount of the drug. Two patients were given 75 mg. per kilogram of body weight per day for 10 and 14 days respectively. The first of these showed ova in the stools 21 days after the end of treatment and the second was ova-free when seen 40 days after termination of the treatment. The general pattern of response was much the same in most of the patients. Worms appeared in great numbers in the stools on the second and third day of treatment, and by the end of the fourth day most of the patients were symptom-free. For a complete eradication of infestation, treatment for a period of less than 14 days is generally not effective. Even with the full course of treatment, piperazine therapy is effective in only about 73% of the patients.

ITALY

Abortion Due to Psychic Trauma.—The frequency of abortion due to psychic trauma is less than is generally believed. The pathogenesis and the typical clinical manifestation are still not clearly defined. In order to throw more light on these two points, Professor Meloni reported on two cases in *Rivista di ostetricia e ginecologia* (no. 1, 1956). One might think that violent emotions would cause an abrupt neurovegatative response that at first is mainly adrenergic, with contraction of the cervical muscles and ischemia of the uterus followed by a cholinergic response, with dilatation of the cervix and congestion due to stases at the level of the uterodecidual region. The two cases observed by the author demonstrated the importance of such complementary causal factors as hyperthyroidism and neurovegative lesions.

Meeting of Neurologists.—The Italian Neurological Society held its 12th annual meeting in Padua in April. Professor Berlucchi of Padua said that most encephalitides are caused by filtrable viruses. The most important of these are rabies, lethargic encephalitis, Japanese encephalitis, Australian encephalitis, and Russian spring-summer encephalitis. The diagnosis in each case is made by serologic tests. Leptospira, Treponema pallidum, and some Plasmodium organisms may cause encephalitis, but molds seldom do.

Professor Pinelli of Pavia said that electroencephalographic examination reveals characteristic alterations when acute encephalitis is present. The typical finding in these cases is a slow and diffuse disorder in the rhythm. This must be evaluated in the light of all other clinical data. In the subacute and progressive encephalitis of Van Bogaert, groups of slow waves of great amplitude that repeat themselves at regular intervals of six to nine seconds appear. Professor Cazzullo of Milan said that the demyelinizing encephalomyelitides could be classified as postexanthematous, parainfective, postvaccinal, cryptogenic disseminated, hemorrhagic, and sclerosal. Antibiotics and corticotropin can be used in their treatment.

Professors Gozzano and Vizioli of Bologna said that epileptic attacks may be precipitated by retention of water, alkalosis, anoxemia, hypoglycemia, and certain afferent stimuli. The neuronal discharge that manifests itself as epileptic crisis is caused by a transitory but marked disturbance of the cellular metabolism that becomes increasingly rapid. This causes imbalances in the distribution of the extracellular and intracellular electrolytes, especially potassium. The speakers concluded that, for the Jacksonian form, which is the most typical example of epilepsy with a circumscribed focus, the propagation of the discharge comes about either as a synaptic transmission from one point of the cortex to another or by contiguity, i. e., through the intercortical connections, but when the epileptic crisis is general, the cortico-cortical transmission is no longer sufficient to explain the suddenness and simultaneousness of participation of the whole brain in the crisis. Some other mechanism must intervene. This suggests that in the brain there is a structure with diffused projection that is connected with all the cerebral motor centers. This could be the reticular formation of the thalamus and of the encephalic trunk. The role of the rhinencephalic formations in the mechanism of epileptic crisis is unknown. Professors Rigotti and Schergna of Padua reported a series of 1,195 patients who were treated by different methods. In general, grand mal epilepsy responded best to treatment. In the period 1940 to 1949 the speakers relied on bromides, barbital, and diphenylhydantoin sodium; from 1950 to 1953 they used trimethadione, methylphenylethylhydantoin, and phenacemide as well; and in 1954 and 1955 primidone, methylphenylsuccinamide, and acetazolamide were also used. The newer drugs were used when the older drugs failed to help the patient. In the first period good results were obtained in 76.1% of the patients, in the second in 81%, and in the third in 82.7%. So many toxic side-actions were associated with the new drugs that chief reliance must still be placed on phenobarbital and diphenylhydantoin.

PERU

New Public Health Building.—On July 20, the new home of the Department of Industrial Hygiene, Ministry of Public Health, was opened. The equipment was provided by the Inter-American Cooperative Service of Public Health. One of the chief problems in industrial health is the prevention of pneumonoconiosis in coal miners and the enactment of adequate social laws to compensate those who contract it. On July 21, the Social Assistance Center was inaugurated, and two days later the new 1,000-bed hospital for the Army, which is one of the largest of Peru, was opened. On July 24, the Great Hospital for the Employee, a 17-story structure under the jurisdiction of the Agency of Social Insurance for the Employee, was opened. Among the special features of this 900-bed hospital are a special chamber to handle radioactive isotopes and a landing field for helicopters on the roof. Two other hospitals are being built, both at Arequipa: one with a capacity of 400 beds for tuberculous patients and the other for the Agency of Social Insurance of the Employee for Southern Peru, with a capacity of 250 beds.

SWEDEN

Treatment of Psychoses.—About 85% of the inmates of state-owned insane asylums have a record of more than one year spent in such an asylum. The value of a more dynamic program of treatment for these patients is being recognized. At the St. Lars mental hospital in Lund, an experiment was started in November, 1955, with a view to giving the patients congenial employment. In *Nordisk medicin* (vol. 55, June 7, 1956) an account of this experiment is given by Dr. Gerdt Wretmark. Occupational therapy was limited to a section of this hospital housing 32 women, mostly schizophrenic, whose ages ranged from 34 to 81 years. The atmosphere of this section at the beginning of the experiment was characterized by passivity on the part of the patients and a sense of frustration on the part of the staff. The nurses and patients were grouped in working teams, each with its special duties and functions. Groups of patients were put to work for about three hours a day on some industrial occupation for which payment was made. The gymnastic exercises became so popular that all but two of the patients were induced to take part in them. The spirit of comradeship was enhanced when the physicians discarded their white suits and joined in the teamwork. The changeover from a static to a more dynamic rhythm made the nurses feel more tired but also happier than they had been before. Though many unfavorable circumstances hampered this group psychotherapy, the improvement in the general atmosphere was encouraging for both staff and patients. To achieve the best results it will be necessary to increase the asylum staffs and to encourage study visits to the most progressive asylums in the country.

Unsuitable Patients in Hospital Beds.—A recent study showed that general hospitals in Sweden housed many patients with chronic diseases not requiring the skilled and costly treatment indicated for acute cases. In order to determine whether, on the other hand, nursing homes for domiciliary care house some patients in need of active treatment, Berg and Tillman, as reported in *Svenska läkartidningen* for June 1, examined the 294 inmates of seven such homes and found that 177 were really in need of institutional treatment and that 65 could be treated just as well at home. Thirty-six patients had psychiatric conditions and should not have been in homes for patients with chronic physical ailments. There were also 16 patients with acute conditions who needed hospital care. The 177 patients found to be suitable for care in nursing homes included 55 suffering from cerebral hemorrhages. Malignant tumor was next in the order of frequency with 29, and chronic articular rheumatism was third with 24. The authors conclude that care of the aged and of the chronically ill has hitherto been too passive and that a more active policy is needed.

Jaundice from Chlorpromazine.—With the growing popularity of chlorpromazine in psychiatry, its ability to provoke jaundice has attracted so much attention that the Swedish Ministry of Health has instituted a statistical study of the problem in the state mental hospitals. This study yielded a frequency rate of 0.57%. At the St. Lars mental hospital in Lund, 357 patients were given chlorpromazine between March, 1954, and May, 1955. Of these, the 10 in whom jaundice developed ran a remarkably uniform course lasting a week or two and showing no sign of permanent damage to the liver. Commenting on these cases in *Svenska läkartidningen* for June 15, Dr. Ekdahl and co-workers stated that chlorpromazine has become almost indispensable in psychiatry; but, as the indications for it are well defined, the risk of jaundice should deter physicians from giving this drug experimentally for a variety of vague and ill-defined nervous ailments.

UNITED KINGDOM

Hypercalcemia in Infants.—The British Pediatric Association has issued the report of a subcommittee set up to consider the intake of vitamin D in infants in relation to the possibility of hypercalcemia. In 1943, the British Pediatric Association recommended a daily intake of 700 I. U. of vitamin D for infants and young children. When this recommendation was made, the fortification of infant foods with calciferol had not become standard practice. The committee wrote to 196 consultant pediatricians who between them had seen 204 patients with hypercalcemia between 1953 and 1955. The incidence was greatest in infants between 4 and 8 months of age. No case was observed in an entirely breast-fed infant. There is a fall in the califerol content of fortified infant foods and milk after issue, and in 1953 the Ministry of Food recommended the addition of 500 I. U. of vitamin D as caliciferol per ounce to allow for a maximum deterioration of 44%, thus giving a minimum of 280 I. U. per ounce. If the fortified milk is bought soon after manufacture, it may contain over 500 I. U. of vitamin D. Cereals are also fortified by manufacturers, some with 1,500 I. U. of vitamin D per ounce. If in addition to these an infant is given a teaspoonful of fortified cod liver oil under the welfare food service, it may be receiving another 700 to 800 I. U. It is thus possible for an infant receiving 1.5 pints of reconstituted dried milk, 1 ounce of fortified cereal, and a teaspoonful of fortified cod liver oil to have a daily intake of about 4,000 I. U., which is excessive.

In view of the possibility of such large intakes of vitamin D, the committee suggests that steps be taken to prevent overfortification of foods with the vitamin. It recommends (1) omitting calciferol from dried milks or limiting it to a range of figures and (2) omitting cod liver oil supplements in the case of infants fed on fortified milk. Caliciferol could also be omitted from cereals used for infants. The best solution would probably be not to fortify foods with calciferol at all but to give every infant cod liver oil of known potency.

Medical Research Council.—The annual report of the Medical Research Council (Cmd. 9787, London, Her Majesty's Stationery Office, 1956) describes the research efforts of the council up to the end of 1955. In that period over $5,500,000 was spent on research covering the whole range of medicine and allied sciences. The importance of genetics in medicine is receiving increased recognition. About 20 different natural erythrocyte antigens are known, inheritable in different combinations. Recognition of these is of growing importance in avoiding transfusion reactions and neonatal death and in settling medicolegal questions. Work is being extended concerning the blood groups in various diseases, e. g., in peptic ulcer and cancer of the stomach, in which there is a preponderance of patients with blood groups 0 and A respectively. Blood group antigens can be extracted from the gastric mucosa. Hematological and genetic research has also included the study of the sickle-cell trait, which makes the erythrocytes more liable to hemolysis but affords some protection against malaria. The examination of urine and blood by paper chromatography has advanced the study of the so-called inborn errors of metabolism such as cystinuria and phenylketonuria. Inability to metabolize phenylalanine in the diet may be the cause of mental deficiency in some children, and attempts are being made to rear infants with phenylketonuria on phenylalanine-poor diets in the hope of avoiding this mental defect. If the experiment is successful it would suggest that the results of inborn errors of metabolism can be avoided by suitable diets.

A rich harvest is being reaped in the field of cellular pathology by the introduction of new techniques such as electron, ultraviolet, and interference microscopy. The knowledge is being applied to the study of the pathology of cancer and the collagen diseases. Recent work has shown that collagen fibers are formed mostly outside the connective tissue cells in the intracellular spaces. The role of desoxyribonucleic acid in cellular pathology is being studied. When a bacteriophage attacks bacteria, the later elaborate more phage protein, and, similarly, when a virus attacks a living cell, the nucleus of the latter forms more virus protein, which is taken up by the virus particles. Radioactive isotope tracer studies have been made in research on antibodies, immunity mechanisms, and allergy. By these means it has been shown that antibodies are formed in the spleen and lymph nodes, mainly by plasma cells. When antigen and antibody react in vivo, serotonin is liberated from the blood platelets. This substance may be associated with anaphylactic reactions. Industrial psychologists state that repetitive work shows no decline in performance with fatigue, provided the worker can control the rate of work; that slight and repeated changes in working conditions give a better output than uniform so-called optimum conditions; and that it is more tiring to watch than to do a task, provided that doing it is within the capacity of the individual.

Vitamins in Embryonic Development.—Woollam and Millen (*British Medical Journal*, vol. 1, June 2, 1956) state that the modern view of the vitamins is that they are complex chemical substances, essential to life by virtue of their role in the biochemical processes of the cell. Vitamins have to be obtained from the diet because of the inability of the body to synthesize them. The increased demand by the pregnant woman for vitamins reflects the need of the embryo to build up a store of these substances, and experiments with animals indicate that if the minimum requirement is not met the embryo will either die or be born congenitally deformed. What validity such experiments have for conditions in human beings is as yet not known. It must be noted, however, that if human conditions do correspond to those in the animal the administration of vitamins during pregnancy is of little avail to the embryo. Minor degrees of experimental vitamin deficiencies produce malformations during the early months of pregnancy, at a time when even the existence of pregnancy may not be evident to the woman. In obstetric practice vitamins are commonly prescribed in the middle and late months of pregnancy. The results of the experiments with animals described above suggest that the only way in which the nutrition of the embryo can be safeguarded is by attention being directed toward the diet of women throughout their lives, and especially of girls in the later stages of adolescence. Only by reorienting our attitude in this way can we ensure that the members of the next generation will develop in bodies that provide an adequate supply of essential foodstuffs from the beginning of pregnancy.

Health Visitors Needed.—An increase of 3,500 health visitors (not visiting nurses) to a total of 11,500 is recommended (An Inquiry into Health Visiting, London, Her Majesty's Stationery Office). Health visiting emerged at the beginning of the century as specialized health education directed to mothers and children in their homes. Voluntary in origin, it is now almost exclusively a public service. The health visitor could increasingly become a family visitor, working under the professional guidance of the family physician. Her functions should primarily be health education and social advice. Diaries kept by selected visitors stressed such social problems as marital disputes, debt, and drunkenness. At present, working relationships between physicians and health visitors are thoroughly established in only a few areas. Some physicians rarely hear of the visitors except when they give conflicting advice. Because the family physician is now much more concerned with the preventive and social aspects of illness, the health visitor is admirably placed to help him. She could play an important role in mental health and care of the tuberculous. There should be experiments in shortening training. Pay and conditions should be improved.

Official Discourtesy.—Members on both sides of the House of Commons have complained about the treatment of the public by hospital authorities. Mr. Crossman (Soc.) said that Parliament had allowed the real responsibility for public relations to pass to the bureaucracy. Mr. Benn (Soc.) said that the treatment of outpatients was appalling. They must wait in a filthy room for two, three, or four hours because everybody is told to come at the same time. Mr. Maccoll (Soc.) described how he went recently to a London hospital for a simple x-ray examination. He believes that the public hangman would have been more courteous toward one of his clients than was the young lady who was operating the x-ray machine.

Dentists Form Strike Headquarters.—The 11,000 dentists in the National Health Service are setting up a body that could, if dissatisfaction over pay became acute, organize a mass withdrawal from the service. Notice that a claim for more pay is to be submitted has been given to Mr. Turton, Minister of Health, by the British Dental Association. The dentists want a rise to offset the fall in the value of money since 1950. Hospital and health center dental officers will be included in the claim. Because the association itself is precluded from organizing among its members any sort of restrictive practice, a new body, the British Dental Guild, is to be established. It will be independent of the association, whose activities it will supplement. The association will continue to frame policy. The guild will be an organization that can engage in vigorous propaganda and act on a prepared plan when the need arises. The guild and its machinery for withdrawing from the service or limiting the professional contribution of dentists would be used only as a last resort. Leaders of the profession hope that such steps will never be necessary.

Cambridge Honors Dr. Bronk.—On June 7, Cambridge conferred an honorary degree of doctor of science on Dr. D. W. Bronk, president of the American Academy of Sciences, president of the Rockefeller Foundation, and chairman of the U. S. National Research Council. In 1928-1929 he was a research fellow in medicine at Cambridge and London, and he was elected a foreign member of the Royal Society in 1948.

Getting Married.—A booklet entitled "Getting Married," which covers every angle from romance to recipes but gives "no guaranteed recipe for married happiness," has appeared with the blessing of the British Medical Association. Published in connection with *Family Doctor*, the monthly B.M.A. journal, the booklet, priced at 15 cents, is the first B.M.A.-backed attempt to present a popular guide for engaged couples. The editor, who is also editor of *Family Doctor*, said: "There is a real demand for such a book. We get scores of letters asking advice on various problems of marriage. Some are from people in their twenties who do not even know the facts of life." Articles by experts deal frankly with the sexual and psychological sides of marriage, the chances of children, matters of heredity, and even the role of the mother-in-law. The contributors include general practitioners, psychiatrists, and lay experts. The booklet discusses the material as well as the emotional side. There are beauty hints for the bride and illustrations of honeymoon spots side-by-side with psychological advice on honeymoon problems. Other articles give practical hints on such subjects as purchasing a home, legal problems, and recipes.

Parthenogenesis.—A controversy over alleged parthenogenesis is raging in the British press. A series of 19 claimants to virgin birth were interrogated, examined, and made the subject of searching tests, and, of these, one claimant appeared to show such complete identity of make-up with her daughter that there is no evidence of the involvement of a third party. These people have been the subject of a symposium (*Lancet*, vol. 1, June 30, 1956). Dr. Balfour-Lynn says that, while rigorous proof in such a case is impossible, all the evidence obtained from serologic and special tests is consistent with what would be expected in a case of parthenogenesis. He sought such identity in the blood group and subgroups, skin grafting, taste perception at a precise dilution value, and certain salivary secretions. In three of these tests complete identity was established between mother and daughter, but in skin grafting there was no success. One of the foremost authorities on genetics seized on this point as vitiating the claim, and added that one can never prove parthenogenesis by such tests and in this instance one cannot even say that a probability of of parthenogenesis in a human being has been established. Mr. Kenneth Walker made the point that blood group, taste perception, and salivary secretion are often very similar between mother and daughter even though a father exists. The *Lancet* concluded that, if a case of parthenogenesis in a human could be proved, it could not be more frequent than the birth of sextuplets, or about once in 6.5 billion births, or in the United Kingdom once in 8,000 years.

Tomomania.—Seven major abdominal operations were carried out on a 21-year-old man, although there was nothing wrong with him. He simulated the complaints, fooled the London Hospital for a while, and eventually went to the Middlesex Hospital. The patient had been placed under supervision for stealing furniture and used hospitalization as a means of asylum. He repeatedly broke parole and was returned to prison for six months.

CORRESPONDENCE

DRUG EVALUATION AND BASIC RESEARCH UNITS IN STATE HOSPITALS

To the Editor:—The number of new drugs being introduced for the treatment of the mentally ill, the lack of a standardized system of reporting treatment results, and the conflicting reports as to the effectiveness and indications for the various preparations require that a state establish its own continuing drug evaluation program. In order that such a system of evaluation may function efficiently, personnel must be trained to evaluate behavioral change, this evaluation should be based on direct observation that may be communicated, patients must be categorized to allow for the comparison of comparable groups, and a pattern of procedure must be established to avoid delay in implementing the testing of new products. In addition to the immediate need for the determination of the effectiveness of a recommended therapy, a basic research program must be encouraged by providing specialized personnel and the necessary laboratory facilities for the psychiatrist and those in other disciplines interested in doing research.

A manufacturer may supply a hospital with a drug to investigate, and, although members of the staff may be interested in doing the evaluation, unless those interested are relieved of some service responsibility and are given secretarial help in obtaining patients' records and permission from the relatives, the product may gather dust or be tried on too few patients to allow of a significant determination. The physician responsible for establishing the usefulness of a medicament needs a sizable group of patients on whom the preparation may be tested. He should also have statistical help available to validate his results as well as assistance in preparing the manuscript. If a preparation is used on a few patients without the benefit of a control group, follow-up studies, or placebo, any change occurring during the trial period may be attributed to the drug without consideration of the factors of increased attention and interest or of spontaneous remission. If the preparation is found to be lacking in therapeutic effectiveness, the project may be dropped without the staffs in other hospitals throughout the state being informed, and consequently they must repeat the trial to gain the same information.

The large number of patients for whom a psychiatrist in a state hospital is often responsible makes it unrealistic to expect him to record frequent detailed observations on the charts of a sizable number of patients receiving a new preparation. Consequently, this responsibility may then be shifted to the nursing staff; if there is an inadequate number of nurses, the determination of a treatment's effectiveness may be left to the judgment of the ward personnel. The valid evaluation of a treatment requires frequent observations and interviews with the patients, using some standardized method of collecting and recording information before, during, and after the trial. It is of particular importance that the history and pretreatment behavior be considered; this requires a time-consuming amount of clerical work. The laboratory facilities of a state hospital and the available laboratory personnel may be hard pressed to do repeatedly blood studies and liver function and kidney function tests that may be necessary for the determination of the toxicity of a newly introduced medicament. These factors make it difficult for a psychiatrist in a state hospital to carry on clinical research while responsible for a full service load. Frequently, the facilities for doing basic research and treatment evaluation are located in medical centers, while the vast majority of patients needing treatment are housed in geographically isolated institutions where neither the personnel nor the equipment is available for doing the work.

In an effort to solve some of these problems and to expedite the clinical evaluation of new drugs for the mentally ill, particularly the tranquilizers, research units have been established in state hospitals in Nebraska. These units consist of a psychiatric nurse, a technician, and a secretary; a project is planned, the methodology is determined, and the personnel of these units act to aid the physician in charge of the project to carry it to completion. Initially, the secretary groups the patients by age, sex, diagnosis, and time in the hospital. Permission is then sought from the relative or guardian for a clinical trial with medicaments or procedures that are under investigation but not yet approved. Once all the patients in a hospital are categorized and permission is obtained from agreeable relatives, a source of clinical material becomes available and a procedure or medicament may be tested on comparable groups of patients immediately. This prevents a prolonged delay in making a new medicament available for the treatment of patients with chronic conditions and, at the same time, avoids the administration to large numbers of patients of an ineffective and frequently costly medicament about which there may be conflicting reports.

In addition to the units in the state hospital, basic research is encouraged by providing biochemists, a statistician, technical personnel, and laboratory equipment. The Nebraska Psychiatric Institute, located on the medical school campus, acts as a "central supply" for these specialized research personnel and for expensive laboratory equipment, which is issued to a particular hospital as the need arises, and when such equipment is no longer in use it is returned to this central area. This system of supply avoids duplication of expensive laboratory equipment and allows for a fuller use of technical personnel. A state research director coordinates the program to prevent duplication and delay by making regular visits to the participating hospitals and maintaining contact with their staffs.

Jackson A. Smith, M.D.
Marilyn Weber, R.N.
Cecil L. Wittson, M.D.
University of Nebraska
College of Medicine
Omaha 5.

PALATINE PETECHIAE

To the Editor:—Whenever a helpful physical sign, laboratory test, or a specific therapy is uncovered, it obviously should be reported carefully, critically, and objectively, even if only a small series. I do not wish to start a correspondence argument over a seemingly minor issue, but the phenomenon of palatine petechiae described in The Journal (161:592 [June 16] 1956), in "Palatine Petechiae, an Early Sign in Infectious Mononucleosis," by Capt. C. B. Shiver and associates, has been so helpful to many of us over the past few years that I believe an attempt should be made to give some credit to observations distinctly antedating those of the authors in 1955. Since no challenge to their claim of a first report of this sign in the literature has yet appeared in your correspondence section, I feel obliged to point out that palatine petechiae had been adequately described and photographed in the literature as early as 1953 by Dr. Charles E. Bender of Seattle. In an article in the *Northwest Medical Journal* (52:922, 1953) entitled "The Treatment of Infectious Mononucleosis with Corticotropin," this sign of palatine petechiae was mentioned by Bender and Houghton in case history no. 5 but was not belabored in the text of the article. In the *Journal-Lancet* (74:7, 1954), there is an excellent article, "The Value of Certain Signs in Presumptive Diagnosis of Infectious Mononucleosis," by Bender, with complete descriptions and a photograph of this valuable clinical sign. When I was associated with Bender in 1952, he pointed out many examples of this helpful sign from among his personal experiences with more than 700 cases of laboratory-proved infectious mononucleosis.

There are also other helpful signs in the pharynx suggestive of infectious mononucleosis, such as the glossy edema of the uvula described by Ravenna in 1948 and the frequent pure white pasty tonsillar exudate (when tonsils are present) mentioned by Rammelkamp in 1950, and these may be existent with the sign of palatine petechiae but not necessarily so. I realize that perhaps the European literature, with its former emphasis on physical signs, may well contain even prior references to this sign and do not suggest that Bender's name be assigned to this helpful sign—palatine petechiae in infectious mononucleosis.

Willard Nicholl, M.D.
Western Montana Clinic
Owen and West Broadway
Missoula, Mont.

of work; that slight and repeated changes in working conditions give a better output than uniform so-called optimum conditions; and that it is more tiring to watch than to do a task, provided that doing it is within the capacity of the individual.

Vitamins in Embryonic Development.—Woollam and Millen (*British Medical Journal*, vol. 1, June 2, 1956) state that the modern view of the vitamins is that they are complex chemical substances, essential to life by virtue of their role in the biochemical processes of the cell. Vitamins have to be obtained from the diet because of the inability of the body to synthesize them. The increased demand by the pregnant woman for vitamins reflects the need of the embryo to build up a store of these substances, and experiments with animals indicate that if the minimum requirement is not met the embryo will either die or be born congenitally deformed. What validity such experiments have for conditions in human beings is as yet not known. It must be noted, however, that if human conditions do correspond to those in the animal the administration of vitamins during pregnancy is of little avail to the embryo. Minor degrees of experimental vitamin deficiencies produce malformations during the early months of pregnancy, at a time when even the existence of pregnancy may not be evident to the woman. In obstetric practice vitamins are commonly prescribed in the middle and late months of pregnancy. The results of the experiments with animals described above suggest that the only way in which the nutrition of the embryo can be safeguarded is by attention being directed toward the diet of women throughout their lives, and especially of girls in the later stages of adolescence. Only by reorienting our attitude in this way can we ensure that the members of the next generation will develop in bodies that provide an adequate supply of essential foodstuffs from the beginning of pregnancy.

Health Visitors Needed.—An increase of 3,500 health visitors (not visiting nurses) to a total of 11,500 is recommended (An Inquiry into Health Visiting, London, Her Majesty's Stationery Office). Health visiting emerged at the beginning of the century as specialized health education directed to mothers and children in their homes. Voluntary in origin, it is now almost exclusively a public service. The health visitor could increasingly become a family visitor, working under the professional guidance of the family physician. Her functions should primarily be health education and social advice. Diaries kept by selected visitors stressed such social problems as marital disputes, debt, and drunkenness. At present, working relationships between physicians and health visitors are thoroughly established in only a few areas. Some physicians rarely hear of the visitors except when they give conflicting advice. Because the family physician is now much more concerned with the preventive and social aspects of illness, the health visitor is admirably placed to help him. She could play an important role in mental health and care of the tuberculous. There should be experiments in shortening training. Pay and conditions should be improved.

Official Discourtesy.—Members on both sides of the House of Commons have complained about the treatment of the public by hospital authorities. Mr. Crossman (Soc.) said that Parliament had allowed the real responsibility for public relations to pass to the bureaucracy. Mr. Benn (Soc.) said that the treatment of outpatients was appalling. They must wait in a filthy room for two, three, or four hours because everybody is told to come at the same time. Mr. Maccoll (Soc.) described how he went recently to a London hospital for a simple x-ray examination. He believes that the public hangman would have been more courteous toward one of his clients than was the young lady who was operating the x-ray machine.

Dentists Form Strike Headquarters.—The 11,000 dentists in the National Health Service are setting up a body that could, if dissatisfaction over pay became acute, organize a mass withdrawal from the service. Notice that a claim for more pay is to be submitted has been given to Mr. Turton, Minister of Health, by the British Dental Association. The dentists want a rise to offset the fall in the value of money since 1950. Hospital and health center dental officers will be included in the claim. Because the association itself is precluded from organizing among its members any sort of restrictive practice, a new body, the British Dental Guild, is to be established. It will be independent of the association, whose activities it will supplement. The association will continue to frame policy. The guild will be an organization that can engage in vigorous propaganda and act on a prepared plan when the need arises. The guild and its machinery for withdrawing from the service or limiting the professional contribution of dentists would be used only as a last resort. Leaders of the profession hope that such steps will never be necessary.

Cambridge Honors Dr. Bronk.—On June 7, Cambridge conferred an honorary degree of doctor of science on Dr. D. W. Bronk, president of the American Academy of Sciences, president of the Rockefeller Foundation, and chairman of the U. S. National Research Council. In 1928-1929 he was a research fellow in medicine at Cambridge and London, and he was elected a foreign member of the Royal Society in 1948.

Getting Married.—A booklet entitled "Getting Married," which covers every angle from romance to recipes but gives "no guaranteed recipe for married happiness," has appeared with the blessing of the British Medical Association. Published in connection with *Family Doctor,* the monthly B.M.A. journal, the booklet, priced at 15 cents, is the first B.M.A.-backed attempt to present a popular guide for engaged couples. The editor, who is also editor of *Family Doctor,* said: "There is a real demand for such a book. We get scores of letters asking advice on various problems of marriage. Some are from people in their twenties who do not even know the facts of life." Articles by experts deal frankly with the sexual and psychological sides of marriage, the chances of children, matters of heredity, and even the role of the mother-in-law. The contributors include general practitioners, psychiatrists, and lay experts. The booklet discusses the material as well as the emotional side. There are beauty hints for the bride and illustrations of honeymoon spots side-by-side with psychological advice on honeymoon problems. Other articles give practical hints on such subjects as purchasing a home, legal problems, and recipes

Parthenogenesis.—A controversy over alleged parthenogenesis is raging in the British press. A series of 19 claimants to virgin birth were interrogated, examined, and made the subject of searching tests, and, of these, one claimant appeared to show such complete identity of make-up with her daughter that there is no evidence of the involvement of a third party. These people have been the subject of a symposium (*Lancet*, vol. 1, June 30, 1956). Dr. Balfour-Lynn says that, while rigorous proof in such a case is impossible, all the evidence obtained from serologic and special tests is consistent with what would be expected in a case of parthenogenesis. He sought such identity in the blood group and subgroups, skin grafting, taste perception at a precise dilution value, and certain salivary secretions. In three of these tests complete identity was established between mother and daughter, but in skin grafting there was no success. One of the foremost authorities on genetics seized on this point as vitiating the claim, and added that one can never prove parthenogenesis by such tests and in this instance one cannot even say that a probability of parthenogenesis in a human being has been established. Mr Kenneth Walker made the point that blood group, taste perception, and salivary secretion are often very similar between mother and daughter even though a father exists. The *Lancet* concluded that, if a case of parthenogenesis in a human could be proved, it could not be more frequent than the birth of sextuplets, or about once in 6.5 billion births, or in the United Kingdom once in 8,000 years.

Tomomania.—Seven major abdominal operations were carried out on a 21-year-old man, although there was nothing wrong with him. He simulated the complaints, fooled the London Hospital for a while, and eventually went to the Middlesex Hospital. The patient had been placed under supervision for stealing furniture and used hospitalization as a means of asylum. He repeatedly broke parole and was returned to prison for six months.

edge only of those subjects which the theory of healing advocated and put in operation by each school requires. Were it otherwise, the legislature would be greatly hampered in the exercise of its power to protect the general health and the public from imposition and fraud.

Since the legislature, said the court, is not called upon to recognize every school of medicine and to deal with it as such, the defendants could not complain, on the ground of being unjustly discriminated against, that the legislature had not deemed it proper to recognize their school of medicine and make special provision for those desiring to practice that system by prescribing a course of study in accord with the theories which it holds for restoring health. The Maryland legislature, concluded the court, had the right to provide special regulations for these groups and to refuse to provide similar special regulations for naturopaths, who undertake to treat any and all diseases in a wide variety of fashions.

The plaintiffs finally contended that the Maryland act, as interpreted by the Maryland court, violated the antitrust laws in that it granted the exclusive privilege of practicing medicine and surgery to persons licensed by the state board of medical examiners, and thus established medicine as the preferred state system of healing, and curbed the progress of the art of maintaining health in the fields not specially regulated by the statute. The complete answer to this contention, said the court, is that the antitrust laws deal with individual activity and not with state activity, whereas all of the matters charged in the complaint as violative of the antitrust laws are regulations prescribed by the Maryland legislature. The court therefore found that the complaint did not state a cause of action and the case was dismissed. *Hitchcock, et al. v. Collenberg, et al., 140 F. Supp. 894. (Md. 1956).*

Charitable Hospitals: Immunity Limited to Injuries to Beneficiary of Charity.—This was an action for damages against a charitable hospital for injuries sustained in an elevator accident by a member of the surgical staff. The jury found that the plaintiff was not a beneficiary of the charity and returned a verdict in his favor of $50,000. From this verdict, and from the denial of a motion to set aside the verdict as excessive, the hospital appealed to the Supreme Court of New Jersey.

The plaintiff is a surgeon on the hospital's staff. His connection with the hospital dates from his graduation from medical school in 1928. He served at the hospital progressively as an intern, resident surgeon, assistant attendant in surgery, and since 1936 as attending surgeon and head of a surgery division. His surgical services to ward patients throughout these many years have been given without fee. But the plaintiff's free medical services to indigent hospital patients are not the only services he has rendered the hospital in furtherance of its mission to care for, nurture, and maintain the sick, infirm, aged and indigent. Also advantageous to the furtherance of that end have been his services in various administrative capacities. He has been president of the medical staff, a medical advisory board member, from time to time chairman of various staff committees, and a co-director of the hospital's cancer service.

The defendant hospital concedes all this but argues that the plaintiff is, in law, a beneficiary of its charity because the proofs show that before the mishap his annual income from his surgical practice resulted in major part from fees received by him for surgical operations performed in the operating rooms of the hospital, the facilities of which were made available without cost to him (the fact is, however, that, while the plaintiff paid nothing for his use of the facilities, his patients paid certain fees to the hospital) and because the proofs show also that the distinction acquired by plaintiff as a surgeon is to be attributed primarily to the experience he gained and the researches he has been able to carry on because the hospital's facilities were available to him without charge.

The evidence showed, said the Supreme Court, that the plaintiff is the originator of a widely publicized and well-regarded surgical technique used in surgical operations to relieve high blood pressure. Many persons with high blood pressure have since retained the plaintiff's services for the performance of the operation by this technique, although he has continuously practiced general surgery and has always performed many other types of operations. The plaintiff admitted during his cross examination that the work necessary to perfect his special technique and to develop his papers on the subject was done almost exclusively in the hospital's operating rooms with the use of the hospital's facilities.

The plaintiff was en route to the operating room to perform an operation for high blood pressure when he suffered an accident in the hospital elevator. His injuries were primarily to his left hand. He suffered a comminuted fracture of the left radius and a tearing of the ligaments of his left wrist with a consequent deformity and stiffness of the wrist, leaving him with a limited function thereof, both in rotation and in bending. There was also a partial atrophy of the thumb muscles. These injuries, permanent in nature, have left him with a weakened grip and loss of power in his left hand and also have impaired the delicacy of finger touch that he had before the accident. The reduced sensitivity in his left hand has also impaired his ability to employ the special technique developed by him to relieve high blood pressure.

Doubtless, said the Supreme Court, the plaintiff did realize substantial advantage from his association with the hospital, but, equally, it cannot be questioned that the hospital's mission was substantially furthered by his membership on its staff, through the free surgical services rendered by him to ward patients, through his administrative services in the various capacities mentioned, and in the dollar amounts received by the hospital from his private patients. Fairly viewed, the court continued, these proofs do not justify the classification of the plaintiff as a beneficiary of the hospital's charity. Such test as our decisions supply for differentiating a beneficiary from a stranger, the court pointed out, leans heavily upon whether the suitor is one of the "direct recipients of the charity's beneficence, an acceptor of its benefactions," whose mishap occurs in the course of "some of the continuous ministrations to the direct beneficiaries of its charitable contributions." In its emphasis upon whether the injured party is one whose connection with the charity is predominantly that of one who shares the benefits of the charity's mission, the test clearly excludes the plaintiff, whose connection with the defendant hospital is not primarily as a recipient of the benefits of the hospital's mission, but rather that of a person who importantly contributes to the furtherance of that mission. If, without access to the hospital's facilities, the plaintiff could not have attained the distinction he enjoys in his profession nor have been able to earn his livelihood in his surgical specialty, yet without his staff membership neither could the hospital have provided his free surgical services to its ward patients over the years nor have had his other services in furtherance of the advancement of its mission.

Accordingly, the Supreme Court held that the evidence supported the jury's verdict that the plaintiff surgeon was not a beneficiary of the defendant hospital and that the hospital was, therefore, not immune from liability for damages to him caused by the negligence of hospital employees. It also held that the verdict was not excessive. Judgment for the plaintiff surgeon was therefore affirmed. *Lindroth v. Christ Hospital, 123 A(2d) 10 (N. J., 1956).*

Nerve Gas Poisoning.—The manifestations and treatment of poisoning due to nerve gas are very similar to those of other organic phosphate anticholinesterase compounds, including the insecticides parathion, tetraethyl pyrophosphate, and hexaethyl tetraphosphate. The manifestations are entirely attributable to inhibition of cholinesterase enzymes in the tissues, resulting in the accumulation of acetylcholine. Ocular and respiratory effects may follow purely local exposure. Systemic absorbtion results in accentuation of the respiratory effects, in other muscarine-like symptoms, and in nicotine-like and central neural manifestations. Measures for prevention of poisoning include prompt masking and removal of liquid contamination from skin and clothing. Treatment consists of the administration of large doses of atropine, artificial respiration and oxygen when needed, and alleviation of airway obstruction.—David Grob, M.D., Manifestations and Treatment of Nerve Gas Poisoning in Man, *United States Armed Forces Medical Journal*, June, 1956.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Pernicious Anemia Due to Dietary Deficiency of Vitamin B_{12}. M. Pollycove, L. Apt and M. J. Colbert. New England J. Med. 255:164-169 (July 26) 1956 [Boston].

A case of pernicious anemia in a 60-year-old man who had refused to ingest any food of animal origin for more than eight years is described. The anemia was caused by the dietary lack of vitamin B_{12}. This is the first time that such a cause has been established. The diagnosis was based on observation of the characteristic morphological changes of the blood and bone marrow, a serum vitamin B_{12} level of 70 micromicrograms per milliliter, which is in the range observed in patients with pernicious anemia, and a characteristic hematological response to vitamin B_{12} therapy. A pronounced drop in the serum iron level occurred after vitamin B_{12} therapy until an abnormally low level was reached at a time when the red blood cell count rose to its maximum. After stabilization of erythropoiesis, the serum iron level was restored to normal in the course of the next two months. These changes were related to variations in the rate at which iron was utilized by the bone marrow for erythropoiesis.

Vitamin B_{12} absorption, as determined by fecal elimination and urinary excretion of cobalt-60-labeled vitamin B_{12} and hepatic deposition of cobalt-60, was shown to be normal. In addition, the potency of the intrinsic factor of the patient's gastric juice was found to be normal as determined by its capacity to produce normal absorption of vitamin B_{12} in a patient with pernicious anemia in remission when it was injected simultaneously with radioactive vitamin B_{12}. The exceptional conditions that must be satisfied simultaneously for the development of pernicious anemia caused solely by dietary deficiency of vitamin B_{12} are exclusion from the diet of all meat, fish, fowl, dairy products, and unrefined grain with its products; these drastic dietary deficiencies must exist without simultaneously evoking other severe nutritional deficiencies or starvation; they must continue for at least two years; and the patients who become symptomatic by satisfying these three conditions must not receive ameliorative "shotgun" therapy before hospitalization. All four requirements were fulfilled by the patient reported on. The difficulty of simultaneously fulfilling them offers a plausible explanation of the rarity of this mode of causation. The chief significance of this case lies in its further substantiation of Castle's hypothesis by demonstrating that an extremely prolonged complete dietary deficiency of vitamin B_{12} can result in the development of severe pernicious anemia.

Plasma Pepsinogen in Peptic-Ulcer Disease and Other Gastric Disorders: A Clinical and Laboratory Evaluation. C. S. Hoar Jr. and J. R. Browning. New England J. Med 255:153-158 (July 26) 1956 [Boston].

Plasma pepsinogen is a precursor of pepsin, which is excreted in the urine and determined there as uropepsin. The simple method of Mirsky and co-workers for measuring the level of pepsinogen in the plasma in tyrosine units was tested by the authors. Results showed that the laboratory determination of plasma pepsinogen is a reliable test and apparently more satisfactory than that for urinary uropepsin. The plasma pepsinogen level remains quite constant after meals and throughout the day. Plasma pepsinogen levels were determined in 74 patients with radiologically demonstrated duodenal ulcer, in 47 patients who had had a radical subtotal gastrectomy for duodenal ulcer, in 15 patients with benign gastric ulcer, in 5 patients with histologically confirmed carcinoma of the stomach, in 33 patients with pernicious anemia, and in a control group of 89 persons who were asymptomatic or in whom gastrointestinal roentgenologic examination did not show any evidence of peptic-ulcer disease. Plasma pepsinogen levels in patients with peptic-ulcer disease were significantly higher than the normal value, and levels after subtotal gastrectomy were significantly lower than the normal. However, there was overlapping in all these groups. The mean value of the pepsinogen levels in the patients with cancer of the stomach was significantly lower than that of the control patients and of those with gastric ulcers. The pepsinogen values were universally low in patients with pernicious anemia. A low plasma pepsinogen level in the face of gastric ulceration is a strong indication of cancer. The values in patients with pernicious anemia will overlap those in patients with carcinoma of the stomach, which will always have to be considered in the differential diagnosis. Satisfactory vagotomy was followed by a drop in plasma pepsinogen level. Therapeutic doses of corticotropin (ACTH), cortisone, and compound F did not affect the plasma pepsinogen level in man.

Experimental ulcer preparations in dogs did not elevate the plasma pepsinogen level. Thoracic vagotomy in dogs significantly lowered the pepsinogen level. Vagal stimulation by insulin hypoglycemia or direct electric impulse did not cause a rise in the plasma pepsinogen level in dogs. Intravenous stimulation with corticotropin caused a significant elevation in plasma pepsinogen in gastric venous blood when compared with peripheral blood in dogs.

Idiopathic Benign Hyperglobulinemic Purpura. G. E. Seiden and H. A. Wurzel. New England J. Med. 255:170-172 (July 26) 1956 [Boston].

The occurrence of hyperglobulinemic purpura, a syndrome consisting of benign recurrent nonthrombocytopenic purpura, high erythrocyte sedimentation rate, and unexplained increase in serum gamma globulin level, is reported for the second time in a patient in the United States. A 29-year-old woman had recurrent purpura confined largely to the lower extremities, associated with an erythrocyte sedimentation rate of from 45 to 49 mm. per hour and a gamma globulin level of from 2.73 to 3.21 gm. per 100 cc. of serum, but no other demonstrable evidence of systemic disease. Muscle biopsy showed nonspecific perivasculitis. The patient continued to enjoy good health for five years despite the purpura. The vascular changes may represent a hyperergic response, of which the disturbed gamma globulin may be an other manifestation. Twelve similar cases were collected from the European literature.

Two More Families with Cardiomegaly. M. Campbell and M. Turner-Warwick. Brit. Heart J. 18:393-402 (July) 1956 [London, England].

Two more families with cardiomegaly unassociated with any other familial disease are reported. The first family included a mother and her son, both with large hearts and bundle-branch block, who died at the early age of 29 and 23 years, respectively, one year and three years, respectively, after the onset of symptoms. In the second family, three members in three generations had large hearts and a slow heart rate. A young man and

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1947 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

maternal grandmother had a heart block and his mother had sinus bradycardia and bundle-branch block. The duration of symptoms in the grandmother was not known; in the mother they were manifested when she was 28 and still persisted 38 years later, but the son died suddenly at the age of 36 years, within five months of his first Stokes-Adams attack. The cases of the son and the mother in the second family show the extreme variability of survival times, but early and sudden death is more usual. Several other members of both families died at an early age or had a history of heart disease. Macroscopic and microscopic findings at autopsy in the two male patients are described. None of the accepted causes of cardiac enlargement was present. A diffuse degenerative process affecting the entire thickness of the myocardium appeared to be the fundamental lesion: the muscle fibers were hypertrophied, but the most striking feature was the vacuolation of muscle fibers and of the conducting system. Though familial cardiomegaly is generally unnoticed till early adult life, it seems more likely that there is a genetic cause; the evidence is scanty but suggestive of its inheritance as a dominant Mendelian character.

Psychiatric Manifestations of Cancer of the Pancreas. W. Karliner. New York J. Med. 56:2251-2252 (July 15) 1956 [New York].

Karliner presents the histories of three male patients, ranging in age from 55 to 64 years, who were referred for neuropsychiatric examination because of anxiety and depression, insomnia, anorexia, loss of weight, and abdominal pain radiating to the back. All three were found to have cancer of the pancreas. The author states that Savage and Noble reported four patients in whom cancer of the pancreas simulated psychogenic illness. The same authors reviewed 27 cases of verified carcinoma of the pancreas in which depression dominated the clinical picture. The physical findings in patients with cancer of the pancreas are negative or very inconclusive, except during the terminal stage of the disease. This makes diagnosis difficult during the early stages. Therefore the appearance of nervous or emotional symptoms associated with gastrointestinal pain that radiates to the back, without evidence of organic disease, should suggest the possibility of pancreatic disease. The cause of the neuropsychiatric manifestations of pancreatic cancer is unknown. The anxiety and depression presented by these patients is out of all proportion to the meager physical findings. Furthermore, the mental symptoms antedate the gastrointestinal complaints. Although there is no proof of a relationship between the mental symptoms and cancer of the pancreas, such a relationship may be more than coincidental.

Diabetes Insipidus and Pituitary Insufficiency. J. Warter, J. Schwartz and A. Aschmann. Presse méd. 64:1157-1158 (June 23) 1956 (In French) [Paris, France].

In 1954, West and co-workers reported results of hypophysectomy in 18 cases of cancer. In the nine cases in which diabetes insipidus had developed, it was revealed on postmortem examination that the hypophysectomy had not been total. Conversely, in the five cases where no polyuria was manifested, the removal of the hypophysis had been complete. Diabetes insipidus developed only in those cases in which the anterior pituitary had not been entirely removed. The authors observed the simultaneous presence of diabetes insipidus and a severe anterior pituitary insufficiency in a patient who had sustained a fracture of the base of the cranium in an automobile accident. After the accident polyuria of from 6 to 8 liters per day occurred. Evidence of diabetes insipidus was shown by Carter and Robins' test, as well as by Cates and Garrod's test, and the pituitary insufficiency was demonstrated as follows: fixation of radioactive iodine was not above 10.2% and the level of urinary 17-ketosteroids was 3.52 mg. Thyreostimuline and ACTH corrected these disturbances but did not increase the polyuria. Although diabetes insipidus never appears when the anterior lobe of the hypophysis has been entirely removed, it may develop when there is a minimal functioning of the anterior lobe of the hypophysis. When this threshold functioning is assured, diabetes insipidus immediately becomes completely evident clinically.

The Failure of Monosodium Glutamate in the Treatment of Hepatic Coma. I. R. Schwartz, E. Lehman, J. Hammond and others. Gastroenterology 30:869-881 (June) 1956 [Baltimore].

There have been contradictory reports about the value of the intravenous administration of monosodium glutamate in patients with cirrhosis of the liver and episodes of hepatic coma. Since January, 1954, Schwartz and associates have added the daily intravenous infusion of 20 gm. of monosodium glutamate to the usual regimen in the management of hepatic coma. The daily administration was continued until the patients either recovered or died. Although 22 patients were treated with monosodium glutamate, the diagnosis had been verified by either biopsy or autopsy in only 19. Thirteen of these 19 patients were in deep coma when treatment with monosodium glutamate was started, while in six patients treatment was initiated during impending coma. No appreciable effect on the state of coma or progressively fatal course could be observed in 17 of the 19 patients. A temporary recovery occurred in the first patient and an apparently complete recovery occurred in the second patient, but 18 of the 19 patients died. The recovery in one patient may have been the result of vigorous treatment of electrolyte disturbances rather than the concomitant use of monosodium glutamate. No apparent alteration in the progression into deep coma was noted in the six patients in whom the monosodium glutamate was given early. The authors reviewed recent investigations into the role of ammonia in hepatic coma. They conclude that evidence to date does not warrant implication of any single agent as a causative factor in hepatic coma.

Evaluation of a Four-Day ACTH Test in the Differential Diagnosis of Jaundice. T. C. Chalmers, R. J. Gill, T. P. Jernigan and others. Gastroenterology 30:894-899 (June) 1956 [Baltimore].

There have been several reports on the effectiveness of corticotropin (ACTH) and cortisone in lowering the serum bilirubin level of patients with jaundice due to intrahepatic disease. This effect has been suggested as a test for the differentiation of various types of jaundice. The authors describe a controlled study of the clinical value of this test in 41 patients. There were 18 patients with acute infectious hepatitis, 3 with chronic, and 2 with cholangiolitic hepatitis; there were 8 with cirrhosis, and 10 with extrahepatic obstructive jaundice. After a control period of three or four days the patients were given 40 units of ACTH gel every 12 hours for four days. This was followed by a post-treatment control period lasting three or four days. The interpretation of the test was based solely on the response of the total serum bilirubin to the administration of the ACTH. Blood specimens were collected daily while the patients were fasting. No specific patterns of response were observed, and the previously described usefulness of the test could not be confirmed.

SURGERY

Arterial Necrosis Following Resection of Coarctation of the Aorta. W. R. Benson and W. C. Sealy. Lab. Invest. 5:359-376 (July-Aug.) 1956 [Philadelphia].

The authors describe clinical and pathological studies on two patients in whom arterial necrosis developed after resection of a coarctation of the aorta. The first patient was a 22-year-old man. Two weeks before death the area of coarctation was resected. The procedure required eight hours, during which the patient's condition remained good. The coarctation was 1.5 cm. below the aortic arch and produced almost complete obstruction. The collateral arteries were greatly enlarged. On the ninth postoperative day (four days before death), the abdomen was distended. He vomited, producing a cupful of bloody material. Exploratory laparotomy revealed infarction of most of the small intestine and the proximal portion of the colon. During the final stages of removal of the intestine, cardiac arrest occurred. Despite cardiac massage, defibrillation, and intracardiac administration of epinephrine, the heart did not resume its beating. Autopsy revealed double coarctation of the aorta; a bicuspid aortic valve; left ventricular dilatation and hypertrophy; hypoplasia of the major branches of the aorta below the coarctation; necrosis of the media of the arteries and arterioles of the intercostal spaces, of the abdominal viscera, and of the muscles of the anterior abdominal wall; infarctions of the intestines, adrenals, liver, and kidneys; hemorrhages in the stomach, pancreas, and kidney pelves, congestion of the liver with necrosis of the paracentral cells; pulmonary atelectasis; and diffuse fine myocardial fibrosis.

The second patient, a 4-year-old boy, was subjected to resection of the area of coarctation and ligation of the patent ductus arteriosus. Collateral circulation was extensive, and many vessels were the size of those commonly seen in adults with aortic coarctation. The coarctation was just below the aortic arch and the point of entrance of the patent ductus. It formed a complete obstruction. An end-to-end anastomosis was performed. The period of anesthesia was five hours. On the third and fourth postoperative days, the patient complained of vague abdominal pain. On the 16th postoperative day, abdominal pain was more severe and localized in the right lower quadrant. An exploratory laparotomy was performed, and 24 in. of gangrenous terminal ileum was removed. The pain was relieved after the operation. Two months later the boy seemed well. Examination of the surgical specimen revealed that the intestinal segment was irregularly ulcerated throughout most of its 70 cm. These ulcerations sometimes extended into the muscularis. The intestinal arteries and arterioles were essentially similar to those in the first patient. The areas of necrosis were principally in the media and progressed from an alteration of staining qualities of cells to intensely staining fibrinoid degeneration. Necroses in the larger vessels were characterized by an acellular hyaline change in which the muscle cells and nuclei failed to stain. Little or no inflammatory reaction accompanied these changes. The smaller arteries had an intense fibrinoid necrosis, predominantly of the media but frequently involving the entire arterial wall. The lesions are believed to be primarily the result of changes in the circulatory dynamics after operation. Three cases reported previously are similar in many respects to the two described here. The authors conclude that, although this complication is infrequent, its presence should be suspected whenever acute abdominal symptoms develop after aortal resection.

Structural Alterations in Human Aortic Homografts One to Two and One-Half Years After Transplantation. O. Creech Jr., M. E. DeBakey, D. A. Cooley and B. Halpert. Surg. Gynec. & Obst. 103:147-154 (Aug.) 1956 [Chicago].

The four patients whose histories are presented survived 14, 24, 28, and 30 months respectively after aortic aneurysms had been excised and replaced by refrigerated homografts. Gross and microscopic studies on these implanted aortic homografts confirmed observations previously made on human aortic homografts. Such a homograft becomes functionally and structurally adapted to its new environment and retains much of its structural pattern while it is being reinforced by the fibrous connective tissue of the host. Alterations observed in the grafts 14, 24, and 28 months old were not present in the graft 30 months after transplantation. The difference was apparently due to the fact that the younger grafts were long, while the oldest was short and did not include the bifurcation. The ultimate fate of aortic homografts is as yet not known. In the meantime, this procedure is an effective means of treating a variety of lesions of the aorta, and on the basis of experience to date the aortic homograft can be utilized with confidence.

Acute Pseudomembranous Enterocolitis in the Postoperative Patient. R. E. Weismann and E. B. Twitchell. Ann. Surg 144: 32-38 (July) 1956 [Philadelphia].

The pathological characteristics of pseudomembranous enterocolitis consist of inflammatory changes in the gastrointestinal tract, most commonly in the large and small intestine but occasionally in the stomach, with the formation of a pseudomembrane on the mucosal surface. The initial changes are vascular engorgement in the mucosa and submucosa, progressing to edema and perivascular hemorrhages. Either mild or acute cases may complicate any postoperative convalescence. It has been observed more commonly after major surgical procedures on the gastrointestinal tract. In the authors' patients the onset was with fever, chills, choleriform diarrhea, abdominal distention, and vomiting In several of the severe cases clinical dehydration was seen before any other indication of change appeared; the mouth would be dry and the face drawn in spite of adequate fluid intake and renal output.

In earlier literature this disease is described as running a fulminating and usually a fatal course. Some authors have identified it with the Staphylococcus aureus (Micrococcus pyogenes) It should be stated that the staphylococcic enteritis of food poisoning or other source is a distinctly separate morphological entity Pseudomembranous enterocolitis can no longer be regarded as rare. It carries a mortality that can be reduced by prompt clinical therapy. The predominant organism found in five antemortem stool specimens was Staph. aureus, resistant to penicillin, streptomycin, aureomycin, and terramycin, but sensitive to chloramphenicol and in two instances to erythromycin. The disappearance of the erythromycin-sensitive Staph. aureus from the stool after erythromycin treatment has been reported to coincide with clinical improvement. Corticotropin (ACTH) and cortisone have been said to be beneficial. Both mild and severe forms of pseudomembranous enterocolitis appeared in the authors' cases and was fatal in 73% of the severe cases. The fulminating circulatory collapse in the severe form demands immediate diagnosis and aggressive supportive therapy if a fatal outcome is to be avoided In the milder form of the disease the onset is often subtle and the diagnosis must be made on the basis of signs of toxicity and disturbed gastrointestinal function. Specific therapy will usually prevent a serious outcome in mild forms.

Vacuolated Cells in the Sputum Simulating Adenocarcinoma Cells. F. R. Philps. Brit. J. Cancer 10:24-25 (March) 1956 [London, England].

Fragments of tissue containing vacuolated cells are frequently seen in carcinoma, and, though the cells composing the clump usually show other characteristics of malignancy, there are occasions when clumps of vacuolated cells of relatively normal appearance are exfoliated into the sputum from carcinomas Until 1954 the author had never seen such vacuolated cells except in patients with carcinoma, but during the past year he found them in two patients without evidence of malignancy. One of these patients had had asthma as long as he could remember and recently had felt pain in the right side of the chest Specimens of sputum were examined and one was found to contain a clump of vacuolated cells. This was thought to be due to carcinoma. Bronchoscopy revealed no abnormality, but the radiological evidence suggested a peripheral carcinoma in the right lung and thoracotomy was performed. The lung was indurated and a biopsy was taken. Microscopic examination of the biopsy specimen revealed no evidence of malignancy, however, many of the cells comprising the bronchiolar lining showed vacuolation, and it is assumed that the fragment in the sputum originated from this tissue.

Appraisal of Adenomatous Polyps of the Colon, Their Histopathology and Surgical Management. H. E. Bacon and A. R. Peale. Ann. Surg. 144:9-18 (July) 1956 [Philadelphia].

Adenomatous polyps or polypoid adenomas are tumors notorious for their unequivocally premalignant character. The study deals with those that are located between the cecum and the rectosigmoid junction. They are variable in size and may be solitary or multiple. According to Laurens and to MacElwa they may be grouped as follows: (1) benign adenoma, which a uniform proliferation of glands regular in size and shape; (2) adenoma with atypism or polyps with certain localized alterations in cellular characteristics that have not yet reached the stage where they may be called frankly malignant; (3) adenoma malignum or adenocarcinoma in situ, a type of lesion with accepted cytological features of malignant neoplasia, better described as adenoma with adenocarcinomatous change, the adenocarcinomatous change being in situ; and (4) adenocarcinoma with definite invasion of the muscularia mucosa. Diagnosis and surgical treatment are effective when the lesion is discovered and eradicated before invasive malignancy has occurred. In 202 patients the tumor was demonstrated radiologically or sigmoidoscopically, or by coloscopy after one or more bowel incisions had been made. Multiplicity of polyps was noted in 33% of the patients. In 200 cases the adenomatous polyp was removed by a transcolonic approach. A solitary adenomatous polyp of the colon with a substantial stalk is treated by colotomy or polypectomy; an adenomatous polyp with a long thin stalk showing atypical changes or carcinoma in situ is also treated by colotomy or polypectomy; an adenomatous polyp that is sessile is removed by segmental resection; a mammillation or minute adenoma, or both, is destroyed by fulguration through the endoscope. The mortality associated with resection was four times as great as that with polypectomy in this series; polypectomy, then, when used according to clinical judgment and the pathological observations, has a definite place in the treatment of lesions that may well be regarded as premalignant tumors.

The Treatment of Selected Cases of Multiple Polyps, Familial Polyposis, and Diverticular Disease of the Colon by Subtotal Colectomy and Ileoproctostomy. I. Teicher and J. I. Abrahams. Surg. Gynec. & Obst. 103:136-146 (Aug.) 1956 [Chicago].

The authors describe observations on five patients with multiple polyps of the colon, two with familial polyposis, and one with diverticulosis of the colon and massive hemorrhage. All eight patients were treated by subtotal colectomy and ileoproctostomy, which usually results in the preservation of a normal state of nutrition and little or no abnormality in the intestinal function. The authors feel that this should encourage a wider utilization of the operation in the treatment of a variety of benign and malignant lesions of the colon. Subtotal colectomy and ileoproctostomy is the most effective treatment of multiple polyps of the colon, because this procedure removes not only the polyps that have been detected but also hidden polyps. If carcinoma is found in any of the polyps in the resected specimen, the patient is already protected by an adequately radical resection of the colon. Selected patients with familial polyposis of the colon may be managed by subtotal colectomy and ileoproctostomy, but in approximately 5% of these patients cancer will develop in the retained rectal segment. This risk is the price that must be paid for retaining normal intestinal function in preference to an ileostomy. The two patients with familial polyposis presented here both refused ileostomy in favor of ileoproctostomy, because the latter procedure afforded them essentially normal intestinal function. Both are intelligent and realize the necessity of continued follow-up examinations at intervals of three months. They understand the danger of the malignant degeneration of a polyp in the rectal pouch. Some complications of diverticular disease of the colon can be most adequately treated by subtotal colectomy and ileoproctostomy. The operation removes all areas of disease and has no crippling effect on the gastrointestinal function.

Thrombocytopenia and Hemorrhage in Hemolytic Blood Transfusion Reactions. P. W. Pifer, M. A. Block and C. P. Hodgkinson. Surg. Gynec. & Obst. 103:129-135 (Aug.) 1956 [Chicago].

If a hemolytic blood transfusion reaction occurs at the time a patient is undergoing surgery, bleeding from the wound and from all cut surfaces is almost uncontrollable. The authors studied some of the coagulation factors during experimentally produced hemolytic blood transfusion reactions. They produced hemolysis by the intravenous injection of fresh rabbit blood into dogs. They found that the intravenous administration of heterologous blood results in an abnormal bleeding tendency similar to that observed in hemolytic blood transfusion reactions in man. A critical precipitous fall of blood platelets was associated with the hemolytic transfusion reaction. The plasma fibrinogen also decreased slightly. The bleeding time was usually prolonged, and frequently the coagulation time was also prolonged. The prothrombin time remained normal throughout all experiments. Blood hemoglobin usually fell after the infusion of heterologous blood. These changes were generally observable for several hours, but normal values had usually returned 24 hours after the infusion of heterologous blood.

In an effort to neutralize the effect of any heparin-like substance that might have produced the bleeding tendency, 100 mg. of protamine sulfate was given intravenously to some of the dogs that had received heterologous blood, but this did not significantly change the abnormalities that resulted from the administration of the heterologous blood. The depression in the blood platelets appeared to be of major importance in the etiology of the bleeding tendency observed in the experiments. Whether platelet depression is the primary reason for the bleeding tendency associated with incompatible blood transfusions in man is unknown. It appears that fibrin and platelet emboli or thrombi form in the blood vessels throughout the body as a nonspecific reaction in a number of conditions in which foreign proteins are present in the blood stream. This condition then results in thrombocytopenia and hypofibrinogenemia and a bleeding tendency. Either thrombocytopenia or hypofibrinogenemia may predominate in varying situations.

Sweat Gland Carcinoma. G. B. Elliott and D. W. Ramsay. Ann. Surg. 144:99-106 (July) 1956 [Philadelphia].

Sweat gland carcinomas are tumors of the sweat glands or sweat gland adenomas and fall into two well-defined groups, almost equal in size. In one group a quiescent nodule in the dermis draws attention to itself by aggressive growth and fixation to the overlying skin, which becomes purplish-red in color; metastasis takes place into regional nodes. The second group is characterized by a progressive intractable weeping eczema of the skin. Histologically the two groups show many characteristics in common. The majority of the carcinomas in the first group arise in the axillas or the anogenital skin, though some have occurred in the scalp, in Moll's gland of the eyelid, and in the upper milk line, including the areola, of the breast. In many cases the skin blemish is known to be preceded by a painless movable discrete dermal nodule, quiescent for many years. A surgically treated case of axillary gland carcinoma of apocrine type with node metastases is reported in a 64-year-old man. In many cases malignancy is believed to have supervened on a preexisting papillary syringocystadenoma. Allen has pointed out that well-differentiated epitheliomas and even melanocarcinomas have been erroneously identified as apocrine sweat gland carcinomas.

The second group of sweat gland carcinomas are instances of extramammary Paget's disease. They are characterized by large ovoid cells with clear cytoplasm scattered through otherwise normal skin, and they secrete a watery ooze. The clinical and pathological characteristics of the main variants of sweat gland carcinomas seem to have a close relationship to the behavior of mammary carcinoma.

NEUROLOGY & PSYCHIATRY

Neurologic Manifestations of Tumors of the Glomus Jugulare: Chemodectoma, Nonchromaffin Paraganglioma or Carotid-Body-like Tumor. R. G. Siekert. A. M. A. Arch. Neurol. & Psychiat. 76:1-13 (July) 1956 [Chicago].

The tissue comprising the glomus jugulare lies in the adventitia of the dome of the jugular bulb as well as within the temporal bone. Because of its position, tumors arising in the glomus jugulare may produce neurological symptoms and signs. The author discusses the neurological manifestations observed in 33 patients in whom the diagnosis of tumor of the glomus jugulare was made microscopically, either at biopsy of a polyp or mass in the ear or from tissue removed at mastoidectomy or some other operative procedure in the region. Tumors of the carotid body were not included in the study. The site of origin of glomus tumors was assumed to be any one (or several) of the glomic formations comprising the glomus jugulare complex. The tumor presented in several ways: as a polyp easily visible in the external auditory canal, reddish or bluish-red, often pulsating; as a polypoid growth behind the eardrum or reddening and obscuring the landmarks of the drum; or as a red, friable mass with the appearance of granulation tissue in the external canal. In four patients a tumor was seen within the cavity left after radical mastoidectomy. Growths of this type bleed easily, and occasionally, when they are removed by simple polypectomy, brisk hemorrhage may occur.

Twenty-two of the 33 patients were women. The ages of the patients at the time the diagnosis was made ranged from 33 to 71 years. The ages when symptoms began ranged from 2 to 65 years; however, only one patient began having symptoms before 20 years of age, and this one had an extraordinarily long history, of 42 years, of chronic purulent aural discharge. The duration of symptoms before the diagnosis was established averaged seven years. Involvement of the acoustic nerve was observed in 27 of the 33 patients. In 14 of the patients other cranial nerves in addition to the eighth cranial nerve were involved. The neurological symptoms included deafness, tinnitus, vertigo, hoarseness, dysphagia, facial weakness, diplopia, and pain in the ear, head, or face. Involvement of the cranial nerves, from the 3rd through the 12th, except for the 4th, were observed, and bruit, ataxia, nystagmus, Horner's syndrome, and exophthalmos were present.

Pathogenesis of Experimental Poliomyelitis: I. The Virus Content of the Cerebrospinal Fluid. G. Kersting, H. Lennartz and H. Pette. Deutsche Ztschr. Nervenh. 175:72-86 (No. 1) 1956 (In German) [Berlin, Germany].

Opinions are still divided as to whether the virus of poliomyelitis spreads by way of the bloodstream or along the nerves. The authors report studies on 18 African monkeys, 6 of which were given intraneural injections of a suspension of the Brunhilde strain of the poliomyelitis virus, 6 others were given intramuscular injections of the same suspension, and the 6 remaining animals were given 5 ml. of a concentrated suspension in 100 cc. of banana pulp by mouth. This oral administration of the virus never resulted in the development of poliomyelitis, nor was it possible to detect the virus in either the blood or the cerebrospinal fluid. This seems to prove that these African monkeys are not susceptible to the oral administration of poliomyelitis virus. Three monkeys were given the injection into the sciatic and three into the ulnar nerve. The injection into the sciatic nerve was followed by symptoms of typical paralytic poliomyelitis after an incubation period of from 5 to 10 days, and the disease caused death after an illness of two or three days. Viremia was present approximately four days before the appearance of the neurological symptoms. By the time the paralytic symptoms appeared the virus had usually disappeared from the blood stream, but it was found in the cerebrospinal fluid two days after the onset of the viremia and it was generally still present there at the onset of the paralysis. The three animals receiving the virus by injection into the ulnar nerve also showed typical poliomyelitis symptoms. Viremia was always present from five to two days before the appearance of the clinical symptoms, but in these animals the virus was never found in the cerebrospinal fluid.

The intramuscular inoculation of the virus was given to three monkeys in the left upper arm and to the other three in the right thigh. Poliomyelitic paralysis developed in two of the animals receiving the inoculation into the arm. Viremia was observed in these two animals as well as in the third, which did not develop symptoms. In the animals that showed paralytic symptoms, the virus was also found in the cerebrospinal fluid at the time of onset of the paralytic symptoms. Only one of the three monkeys in which the virus was injected into the thigh showed symptoms of poliomyelitis, and in this animal virus was found in the blood as well as in the cerebrospinal fluid. In the two animals who remained healthy, poliomyelitis virus was found in neither the blood nor the cerebrospinal fluid. None of the observations described suggest that the virus of poliomyelitis travels along the nerves. The fact that no involvement of the central nervous system occurred without a previous viremia, the chronologic relationship between the appearance of the virus in the blood and in the cerebrospinal fluid, and the onset of paralysis indicate that the virus reaches the central nervous system by way of the blood stream. The authors believe that the relatively constant time difference between the appearance of the virus in the cerebrospinal fluid and the onset of paralytic symptoms does not indicate that the central nervous tissues are infected by way of the cerebrospinal fluid. On the contrary, they think that the cerebrospinal fluid and the tissues of the brain and the spinal medulla receive the virus simultaneously through the bloodstream. The span of time during which there are no symptoms seems to be necessary for the development of the disease process to the point at which the first signs of paralysis indicate that the damage to the motor nerve cells has reached a certain quantitative level.

THERAPEUTICS

Radioactive Iodine in Treatment of Hyperthyroidism: Preliminary Report on Results. L. Fierro del Rio and L. Cancino Serna. Rev. invest. clin. 8:21-36 (Jan.-March) 1956 (In Spanish) [Mexico, D. F., Mexico].

Thirty-eight patients with hyperthyroidism were observed There were 30 women and 8 men, between the ages of 12 and 68 years. Thirty-four patients had a diffuse toxic goiter and four had a toxic thyroid adenoma. The treatment consisted of oral administration of radioactive iodine (I^{131}). The drug was given in a dose of 1 mc. per gram of weight of thyroid tissue, as calculated by palpation of the thyroid gland. Dosage for patients with diffuse toxic goiter who received a single dose varied betwee 2.5 and 13.2 mc.; those receiving two doses had a total amoun of from 6.9 to 12.2 mg.; and two who received three doses had total amount of 14.1 and 17.5 mc. respectively. The single dos for patients with toxic thyroid adenoma was 8, 10, 13.6 and 15 mc. respectively. Thirty-five patients were followed up for tw and a half years. All patients were cured. One patient with tox thyroid adenoma and cardiac complications of rheumatic feve recovered from both conditions. Later she developed hypothyroidism that is controlled by daily small doses of desiccated thyroid (16 mg.). Administration of I^{131} is the treatment of choice in diffuse toxic goiter and in toxic thyroid adenoma The only contraindications are pregnancy and lactation. Hypothyroidism may occur. It is either transient or controllable by administration of daily small doses of desiccated thyroid. The treatment is economical and well tolerated. It does not cause complications Great improvement appears within two weeks after the treatment and complete cure in four months. However, it does not correct exophthalmos.

Clinical Investigations with the New Sedative, (Nonbarbiturate) Doriden. W. Niessen. München. med. Wchnschr. 98:844-845 (June 15) 1956 (In German) [Munich, Germany].

The new sleep-inducing drug, Glutethimide (Doriden), is alpha-ethyl-alpha-phenyl-glutarimide; it is not a barbiturate The author studied its efficacy on 194 patients, after 122 others had been eliminated from the trial by a double placebo test because of excessive suggestibility. Preliminary placebo tests are of great importance in evaluating sleep-inducing drugs, as psychological factors and suggestibility play an important part in many patients who take hypnotics. The author regards as normal a type of sleep in which fairly rapid going to sleep is followed by three or four hours of deep, sound sleep and this by a further three or four hours of less profound sleep that merges gradually into the waking state. One hundred fourteen of the 194 patients attained normal sleep after taking an adequate dose of Glutethimide varying individually from 1 to 2 tablets. Those who did not respond to 2 tablets also usually failed to respond to 3 tablets. The author concludes that Glutethimide safely counteracts moderate and severe insomnia. It can be used over long periods without the danger of side-effects or other sequels, the drug does not influence the blood pressure, the blood picture, or the function of the liver.

Tetracycline with Special Regard to Possibility of Development of Staphylococcus Enteritis. K. R. Eriksen, E. H. Thaysen and F. Raaschou. Ugesk. læger 118:543-547 (May 24) 1956 (In Danish) [Copenhagen, Denmark].

In connection with cases reported in the literature and two of the authors' cases, attention is called to the fact that administration of tetracycline, as of chlortetracycline (Aureomycin) and oxytetracycline (Terramycin), involves the risk of the development of staphylococcous enteritis. Staphylococcous enteritis ocurs so seldom and so capriciously that it is not possible to determine from the clinical material whether the frequency of the complication is the same after administration of the three antibiotics. McCorry and Weaver conclude that, while the incidence of diarrhea is the same after use of all three antibiotics, nausea manifests itself less often after use of tetracycline, which agrees with the general conception that the diarrhea depends on changes in the intestinal flora, while the cause of the nausea lies in the chemical structure of the substances. Tetracycline will perhaps prove more advantageous than Aureomycin and Terramycin with regard to the complication of nausea; as for the intestinal complications, including the risk of staphylococcous enteritis, the three tetracyclines will probably prove to be equally responsible.

Treatment of Typhoid with Isoniazid. G. Conese and L. Colonna. Policlinico (sez. med.) 63:137-148 (June) 1956 (In Italian) [Rome, Italy].

The authors studied the effect of isoniazid on 41 patients with typhoid. Twenty-three patients were treated only with isoniazid. Two hundred milligrams was the maximal dose per day; it was given in divided doses of 50 mg. Treatment was continued for a few days after disappearance of the fever. Eighteen patients were treated with 200 mg. per day of isoniazid and 1.5 gm. per day of chloramphenicol. Most of the patients were young. Clinical results were very satisfactory. Splenomegaly and hepatomegaly were the last symptoms to disappear. Recurrence of the fever was noticed in only one patient. The limited number of cases does not permit the authors to formulate a hypothesis on the mechanism of action of the drug. The effect of isoniazid depends on the stage of the disease; poor results are obtained in the acute stage. Isoniazid was chosen on account of its effect on the diencephalon-pituitary system. The synergistic action of chloramphenicol failed in only one patient.

Bacteroides in Intra-Abdominal Sepsis: Their Sensitivity to Antibiotics. W. A. Gillespie and J. Buy. Lancet 1:1039-1041 (June 30) 1956 [London, England].

Peritonitis is usually caused by organisms from the intestine. Escherichia coli and other members of the coliform group and aerobic streptococci are usually incriminated. Anaerobic streptococci and clostridia are sometimes mentioned, but the anaerobic nonsporing bacilli of the Bacteroides group are usually ignored. The authors made studies on the bacteriology of intra-abdominal sepsis to find out how often Bacteroides were present as compared with other organisms and to determine the sensitivity of Bacteroides to antibiotics and sulfonamide. They regarded all gram-negative anaerobic nonsporing bacilli as Bacteroides, although this definition covers a heterogeneous group of organisms. Most of the organisms were isolated from the pus of suppurative lesions in the abdomen. There were 34 specimens from either localized or generalized peritonitis caused by appendicitis, 18 specimens from peritonitis of other causes, and 46 swabs from discharging wounds of the abdominal wall. In addition, 13 acutely inflamed appendixes were obtained from the operating theater as soon as possible after operation.

The organisms most commonly identified in the 111 specimens examined were Bacteroides in 67 specimens, coliform organisms in 66, anaerobic streptococci in 43, and aerobic streptococci in 40. The cultures of exudates on the surfaces of inflamed appendixes yielded relatively more anaerobic streptococci and Bacteroides than did the cultures of peritoneal pus. This difference probably reflects the greater care with which cultures from the appendixes were studied. The cultures were nearly always mixed, but in many specimens Bacteroides were the predominating organisms and often they were numerous. Most of the Bacteroides strains were resistant to penicillin, streptomycin, bactitracin, neomycin, and polymyxin B. All were sensitive to the tetracyclines and to chloramphenicol. Most were sensitive to sulfonamide and moderately or fully sensitive to erythromycin. The authors feel that it would be wrong to dogmatize about the antibiotic treatment of a condition whose bacterial causation is as complex and variable as peritonitis. Penicilin and streptomycin are often given simultaneously to control infection by gram-positive organisms and by coliform bacilli. The sensitivity tests showed the tetracyclines to be highly active against Bacteroides; they are also active against most coliform bacilli, streptococci, and clostridia. The tetracyclines are therefore probably superior to penicillin and streptomycin, which are unlikely to influence abdominal infections in which Bacteroides are the main agents. Those who prefer to use penicillin and streptomycin in peritonitis should be prepared to substitute a tetracycline if these drugs prove ineffective.

The Effect of Beta Sitosterol on the Serum Lipids of Young Men with Arteriosclerotic Heart Disease. J. W. Farquhar, R. E. Smith and M. E. Dempsey. Circulation 14:77-82 (July) 1956 [New York].

Previous studies in human beings on unrestricted diets indicated that the plant sterols (beta or gamma sitosterol) reduce the serum cholesterol level. This report is concerned with observations on 15 young men, ranging in age from 26 to 45, who had had myocardial infarction. Serial serum lipid determinations were made during a three-phase study: (1) a premedication period of 6 to 12 weeks, (2) a period of sitosterol administration of 12 to 24 weeks, and (3) a period of placebo administration of 10 to 16 weeks. Cholesterol intake was from 200 to 300 mg. per day in the nine patients on fat-restricted diets and 900 to 1,000 mg. per day in the six patients on diets "normal" in fat content. Three equal portions of β-sitosterol were given orally immediately before meals in total amounts of 12 to 18 gm. per day. For comparative base-line studies, serum lipid determinations were made on 15 apparently normal men matched with the patients as regards age. It was found that the patients had significantly increased cholesterol, beta lipoprotein lipid, and total lipid levels. The administration of β-sitosterol resulted in highly significant reductions in serum cholesterol and β-lipoprotein lipid levels, with a lesser reduction in total lipid and a slight rise in α-lipoprotein lipid. The apparent lack of deleterious effects, coupled with the observed changes, suggests the potential benefits of sitosterol administration. Its role as a therapeutic agent in clinical medicine has not yet been established.

Researches on a New Hypoglycemic Substance, the N-1-Sulfanilyl-N-2-n-Butylcarboamide: Part I. S. Garattini and L. Tessari. Clin. terap. 10:418-422 (April) 1956 (In Italian) [Rome, Italy].

N-1-sulfanilyl-N-2-n-butylcarboamide is a bacteriostatic substance with a hypoglycemic effect in the normal animal and in animals with diabetes. The effect is proportional to the quantity of substance received by the animal. The authors report on the distribution of the drug in the organism and the sensitivity to insulin in rats treated for a long time with the drug. Distribution of the drug in the organism is compared with the distribution of a regular sulfamide. Albino rats averaging 150 gm. in weight were given quantities of the drug equal to -00 mg. per kilogram of sulfamide and 315 mg. per kilogram of N-1-sulfanilyl-N-2-n-butylcarboamide. The drug was absorbed readily; the elimination was slower than the elimination of simple sulfamides. The drug had no particular tropic effect on the pancreas. It had poor penetrability for the nervous tissue.

Sensitivity to insulin was studied in rats treated for nine consecutive days with 750 mg. per kilogram of the new sulfamide by gastric test. Twenty-four hours after the last dose of the drug and after 20 hours of fasting, the rats were injected with insulin. Rats treated with the drug were more sensitive to the effect of insulin than control rats. This effect was not due to a combined effect of the insulin and the new sulfamide. The new sulfamide causes a 35% fall in glycemia and increases the effect of the hepatic glycogen. Glucose given to rats that had received the new sulfamide and insulin had no effect.

« Washington News »

Latin American Malaria Control Programs • •
Chamber of Commerce Survey on Health Benefits • •
$2,000,000 Granted for Rehabilitation Financing • •
Food Irradiation Reactor for Food Preservation • •
Statute of International Atomic Energy Agency • •

CONTROL OF MALARIA

The United States is planning to contribute an extra $1,500,000 to the Pan American Sanitary Bureau to help in next year's malaria control programs in various Latin American countries. This is in addition to the U. S. regular contribution to the agency, which this year is $1,386,000. The latter figure represents two-thirds of the agency's total budget of $2,200,000 for 1956. The special contribution was announced by Dr. Henry van Zile Hyde, U. S. representative to the directing council of the policy-making Pan American Sanitary Organization. Dr. Hyde also is chief of the division of international health in the Public Health Service. The delegates at this meeting approved a $2,400,000 budget for the bureau's operations in 1957. In submitting his request for funds for next year, Dr. Fred L. Soper, director of the bureau, stressed the need to concentrate on eradication programs against malaria, smallpox, yaws, and the Aedes aegypti mosquito, which is the urban vector of yellow fever.

The bureau's 1957 program includes some 126 health projects, in which the agency collaborates with health administrators of member governments. It also plans to set aside $155,480 for fellowship training for public health administrators. This program is designed to help national health administrations strengthen their own services so that they will gradually require less international assistance. In addition to the projected $2,400,000, an estimated $1,402,970 allocation has been made by the World Health Organization and another 1 million dollars from the United Nations technical assistance funds.

HEALTH INSURANCE BENEFITS

A U. S. Chamber of Commerce survey of 1,000 business firms shows that health insurance and other fringe benefit costs averaged $819 per employee in 1955, an increase of $99 since 1953. Fringe benefits were listed as payments by employers for pensions, vacations, social security, and insurance, including health insurance. Benefit payments varied widely among the reporting companies, ranging from less than 5% to over 50% of payroll. The $819 average was broken down as follows: $254 for programs of pensions and insurance, $254 for vacations and holidays, $145 for legally required programs such as old age and survivors insurance and unemployment and workmen's compensation, $89 for rest periods, and $77 for miscellaneous.

Dr. Emerson P. Schmidt, director of the chamber's economic research department, noted that weekly wages and hourly rate are no longer accurate measure of either worker income or the labor costs of doing business. "During recent years, pensions, social security and a host of other benefits have substantially increased both the well-being of employees and the cost of going business," the Chamber report says. "Vacations, holidays, rest periods and other payments for time not worked have given workers increased compensation for each hour actually on the job. They have at the same time increased the employer's cost for each hour of productive labor."

REHABILITATION FINANCING

During the fiscal year ending last June 30, the federal government made more than 2 million dollars available to schools and individuals to train professional workers to help restore handicapped persons to useful employment. Of the total, a little more than a million dollars went for 154 teaching grants, the remainder into traineeships to more than 2,000 students. Educational institutions in 31 states shared in the teaching grants, which are designed to help pay the cost of establishing or expanding training courses in professional rehabilitation fields. Grants were made in such fields as medicine, rehabilitation counseling, social work, nursing, occupational therapy, physical therapy, and work with the blind. Of the $1,729,942 in grants for basic professional training, $667,866 went for rehabilitation counseling, $387,262 for medical training; and $674,814 for such courses as nursing, physical therapy, occupational therapy, and social work.

FOOD PRESERVATION

Eleven companies have offered to participate in the design, development, and construction of a food irradiation reactor for use in the food preservation program of the Army Quartermaster Corps, a project in which hospitals also are interested. The Atomic Energy Commission says the site for the new Army Ionizing Radiation Center will be selected soon by the Army, on the basis of recommendations of a joint Department of Defense—AEC committee.

The reactor will provide an intense source of gamma radiation for use in food irradiation and preservation and in experiments with other materials. It will be water-moderated and will be fueled with solid fuel elements. For several years Army and AEC researchers have been experimenting with the preservation of certain types of food through irradiation, a process that it is hoped will replace canning and freezing in the preservation of some foods.

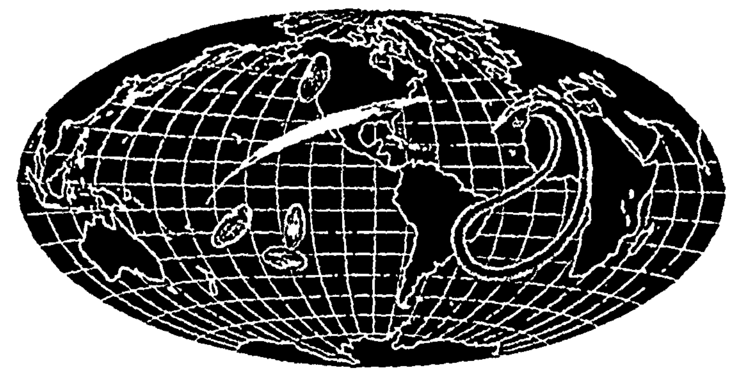
ATOMIC ENERGY RESEARCH

International cooperation for development of peaceful uses of atomic energy should, in the opinion of chairman Lewis L. Strauss of the U. S. Atomic Energy Commission, "increase man's knowledge of his own body and that of the plants and animals that nourish

(Continued on page 16)

From the Washington Office of the American Medical Association.

'ANTEPAR'®*



for "This Wormy World"

PINWORMS

ROUNDWORMS

*SYRUP OF 'ANTEPAR' Citrate brand Piperazine Citrate

Bottles of 4 fluid ounces, 1 pint and 1 gallon.

*TABLETS OF 'ANTEPAR' Citrate brand Piperazine Citrate

250 mg. or 500 mg., Scored

Bottles of 100.

Pads of directions sheets for patients available on request.

BURROUGHS WELLCOME & CO. (U. S. A.) INC.
Tuckahoe, New York

Washington News—Continued

him, and of the pests which threaten him, to the end that the art of healing will advance and new ways be found to increase the food supply of the world." Admiral Strauss added that one effect of the adoption of the statute should be "prolonging man's span of useful life." The AEC head made his remarks in an address to the international conference on the Statute of the International Atomic Energy Agency. He said the statute, banding together the nations of the world for peaceful atomic energy research, also should: (1) accelerate the application of the peaceful uses of atomic energy everywhere, and at the same time "divert important amounts of fissionable material from atomic bomb arsenals." (2) stimulate the discovery of new fundamental data "on which all progress depends," and (3) encourage young and imaginative minds in many countries to seek careers in the new disciplines of nuclear science and engineering "to the end that they may improve the economy and health of their homelands."

The conference, held at United Nations in New York, was described as the largest gathering of nations to be held since the end of World War II. It was an outgrowth of President Eisenhower's proposal to United Nations for a worldwide organization for development of peaceful uses for atomic energy.

RESEARCH FUNDS

U. S. Atomic Energy Commission announces award of 48 research contracts in the life sciences, including 18 in medicine for which more than $350,000 was distributed. All contracts are for one year. Of the awards in medicine, 13 are for continuation of projects, and 5 for new projects. Largest of the new contracts in medicine is for $14,595 to New York University-Bellevue Medical Center for a study of tissue reactions to interpulmonary radiation. The second largest is to the Yale University School of Medicine ($12,900) for an investigation of rapid freezing of bone marrow and spleen and their radioprotective value. Other schools receiving new AEC grants are the University of Minnesota ($8,700), Research Foundation of the State University of New York ($7,553), and University of Michigan ($8,846).

Largest renewal grant was $75,853, to Harvard University for a continuation of studies on various uses for radioisotopes. Second largest was $50,000. to Parke, Davis and Company to continue a study of animals exposed to total body irradiation with gamma rays. Other renewal grants went to the following institutions: Columbia ($18,000), Georgetown ($1,600), George Washington ($13,455), Harvard (two additional grants of $11,463 and $24,379), Iowa State ($10,800), Massachusetts Eye and Ear Infirmary ($12,839), Massachusetts Memorial Hospitals ($30,000), Montefiore Hospital ($25,000), and New York University-Bellevue (two grants of $28,898 and $11,800).

INDIAN HEALTH

The Advisory Committee on Indian Health, meeting in late September in Washington, reviewed a comprehensive survey that had been made of Indian health problems. Some time in October the advisory committee will transmit results of the survey to co gressional committees, which earlier in the year requested that it be made. The nine-man committee includes four physicians from various public health fields, and five leaders in other professions. Three of the latter are themselves Indians.

The committee was organized to assist the U. S. Public Health Service in its efforts to improve and expand the medical care and health services for some 350,000 Indians, Aleuts, and Eskimos.

PERSONNEL

Lieut. Col. William H. Crosby, chief of the department of hematology, Walter Reed Army Institute of Research, has been decorated with the Cuban National Order or Merit. Colonel Crosby is the second American Medical Corps officer to be made a member of this national order. . . . Bernard M. Anderman has been appointed chief of audiology and speech correction in the Veterans Administration department of medicine and surgery at Washington, D. C. He succeeds Dr. Kenneth O. Johnson, who left the VA to become director of the San Francisco Hearing and Speech Center. Dr. Anderman, formerly chief audiologist of the VA regional office in New York City, will devote much of his time to the current VA program for the reassessment of hearing impairment. . . . Dr. William L. Benedict, executive secretary-treasurer of the American Academy of Ophthalmology and Otolaryngology, has been named a member of the Public Health Service National Advisory Council on Neurological Diseases and Blindness. . . . Paul M. Hawkins of Washington, D. C., has been appointed counsel on the staff of the Health Insurance Association of America. . . . George D. Frye is the new chief of occupational therapy in the physical medicine and rehabilitation service of the department of medicine and surgery at the VA Central Office in Washington, D. C. He was formerly chief of occupational therapy at the VA hospital in Knoxville, Iowa.

MISCELLANY

Armed Forces and civilian urologists met at Walter Reed Army Medical Center, Washington, D. C., for the fourth annual James C. Kimbrough Urological Seminar. Col. James C. Kimbrough, in whose honor the seminar was named was chief of the urology service at Walter Reed from 1946 until his retirement in 1953. He died last August. . . . The Veterans Administration announces that more than 95% of the 572,800 compensation and pension claims of veterans that have undergone a review were accurate and required no adjustment. This review, covering World War II or peacetime veterans under 55 years of age receiving compensation for service-connected disabilities, was started in 1954 and will be completed in three to four years. . . . The National Science Foundation estimates that in 1954 the federal government was aiding more than one out of every five graduate students and one out of every six undergraduates in all fields of science. This and other information is in a foundation study, Federal Support for Science Students in Higher Education. . . . The first organizational meeting of the Defense Science Advisory Council was held in late September at the Pentagon. Invited to the first meeting, which was devoted to planning future activities, were 18 leading scientists and engineers representing various technical fields and organizations.

Results With

'ANTEPAR'®*

against **PINWORMS**

In clinical trials, over 80% of cases have been cleared of the infection by one course of treatment with 'Antepar.'

Bumbalo, T. S., Gustina, F. J.,
and Oleksiak, R. E.:
J. Pediat. 44:386, 1954.

White, R. H. R., and
Standen, O. D.:
Brit. M. J. 2:755, 1953.

against **ROUNDWORMS**

"Ninety per cent of the children passed all of their ascarides . . ."

Brown, H. W.:
J. Pediat. 45:419, 1954.

***SYRUP OF 'ANTEPAR'** Citrate brand Piperazine Citrate

Bottles of 4 fluid ounces, 1 pint and 1 gallon.

***TABLETS OF 'ANTEPAR'** Citrate brand Piperazine Citrate

250 mg. or 500 mg., Scored

Bottles of 100.

Pads of directions sheets for patients available on request.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, New York

Upjohn
KALAMAZOO

Indicated
in most conditions
in which oral cortisone
or hydrocortisone is effective
Available in 1 mg. and 2.5 mg.
tablets in bottles of 100, and in 5 mg.
tablets in bottles of 30, 100, and 500
Usual dosage is ½ to 1 tablet three or four
times daily

Delta-Cortef*

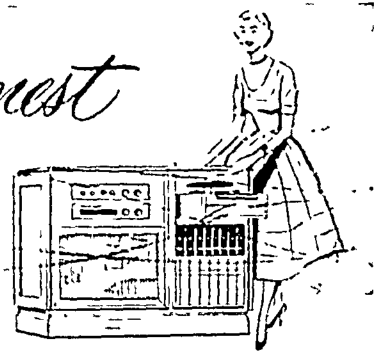
Less sodium retention, less potassium depletion

*Trademark for the Upjohn brand of prednisolone (delta-l-hydrocortisone)

"BUILD-IT-YOURSELF" AND ENJOY

high fidelity at its finest

IN KIT FORM



Heathkits

Anyone can build high quality Heathkits from the complete instructions supplied. Experience the thrill of "building it yourself," and then sit back and enjoy virtually distortionless musical reproduction in your living room. Heathkits provide symphony-hall tone quality for the really critical listener, and are the finest electronic kits available at any price.

❶ Heathkit High Fidelity FM TUNER KIT . . .

A high-gain, stable FM tuner incorporating its own power supply. Matches the WA-P2 preamplifier in appearance. New-design circuit features latest miniature tube types.

MODEL FM 3
(with cabinet)
Shpg Wt 7 Lbs
$24.50

❷ Heathkit 25 WATT HIGH FIDELITY AMPLIFIER KIT . . .

Williamson-type amplifier kit features special Peerless output transformer and KT-66 tubes. Incorporates the very latest design features for exceptional performance.

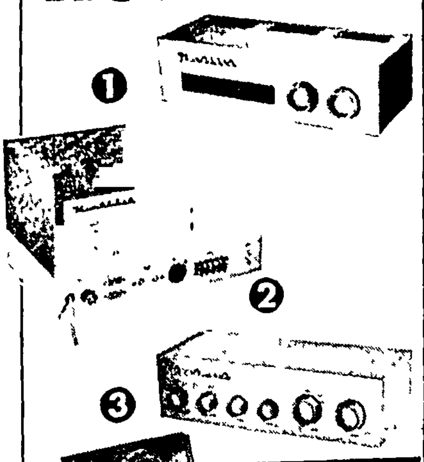
W-5M Main Amplifier with power supply
Shpg. Wt. 31 lbs., Express only . $59.75

W-5 consists of W-5M kit above and WA-P2 kit listed below. Shpg. Wt. 38 lbs., Express only . . . $79.50

❸ Heathkit High Fidelity PREAMPLIFIER KIT

Designed for remote control, compensation and preamplification with Heathkit Williamson Type Amplifiers. Meets most rigorous hi fi specifications. Beautiful satin-gold finish.

MODEL WA-P2
Shpg Wt 7 Lbs
$19.75

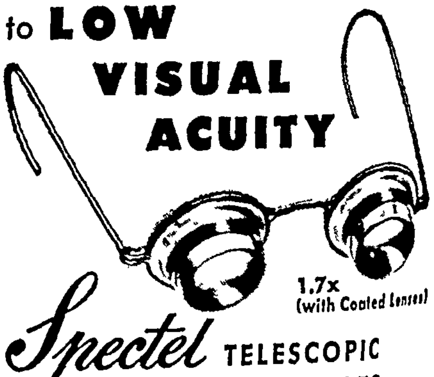


Free CATALOG
Describes more than 65 top-quality electronic kits. Write for your free copy today!

HEATH COMPANY
A Subsidiary of Daystrom, Inc.
BENTON HARBOR 19, MICHIGAN

---

an answer to **LOW VISUAL ACUITY**



Spectel TELESCOPIC SPECTACLES

Experience has shown that Spectel Telescopic Spectacles effect substantial improvement in many cases of low visual acuity. Available in two powers, Spectels provide retinal image magnification of 1.7 and 2.2 diameters.

Prescribing Spectel Telescopic Spectacles is primarily an extension of regular refracting routine. Trial sets are simple to use and moderate in price.

Full details in Bulletin 302 available from your supplier or direct from us.

KOLLMORGEN *Optical* **CORPORATION**
NORTHAMPTON, MASSACHUSETTS
Distributed in Canada by Imperial Optical Company

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 6 CHICAGO, ILLINOIS OCTOBER 6, 1956

Copyright, 1956, by American Medical Association

ALLERGY—AS IT IS AND AS IT MIGHT BE

Samuel M. Feinberg, M.D.
and
Alan R. Feinberg, M.D., Chicago

• *The diagnosis and treatment of allergies have been greatly facilitated by the discoveries of the past 50 years, but much of the available knowledge of the subject is not being applied. The greatest obstacle to such application is the inadequate background of allergy imparted to the students as part of their general training in medical schools; in addition there is a shortage of fully trained specialists. The effective use of diagnostic tests, of preventive measures, of specific treatment, and of such nonspecific treatments as the sympathomimetic and antihistaminic drugs depends on further progress in education and research.*

Seventeen million people in this country have allergies. This is an estimate of the number of people in the United States who suffer from one or more manifestations such as hay fever, asthma, perennial rhinitis, eczema, contact dermatitis, urticaria, allergic headache, serious drug reactions, and other allergic conditions. Many of these allergies are serious and occasion considerable economic loss and sometimes permanent disability. For example, the pulmonary cripple from asthma is many times more common than the poliomyelitis cripple. In addition, the role of allergy in infectious diseases makes it apparent that everyone may have a personal interest in this field. It is our purpose here to examine what we know about allergy, what we are doing about it, and what we might do to improve the lot of these sufferers.

Even before von Pirquet coined the term "allergie" 50 years ago, the nature of hypersensitiveness was not altogether unknown. The relationship of pollen had been definitely established about 35 years before that; specific causes of asthma had been recognized; the hereditary nature of asthma, hay fever, and related disorders had been established; and the principles of anaphylaxis were being laid down. In the 50 years since von Pirquet's historic pronouncement, allergy has become increasingly known to the profession and public and much has been learned about it. It may be added that, in spite of the fact that the early pioneering work had been of European origin—such as the discovery of pollen as the cause of hay fever by Charles Harrison Blackley of Manchester, England; the concept of allergy by Clemens von Pirquet of Vienna; the principle of specific desensitization by John Freeman of London; and the presence of an allergic antibody by Prausnitz and Küstner of Vienna —the subsequent clinical and experimental development of the field of allergy has been mainly an American accomplishment. In its scientific activity, clinical application, and general interest and information, the United States leads the world in this field.

Much is known about basic mechanisms in allergy. Many phases of the nature of antigens and antibodies are understood, and many others are under study. We are learning more and more about the chemical and immunologic characteristics of the reaginic or sensitizing antibody and the blocking or protective antibody, particularly with newer modifications of electrophoretic and other physical techniques. The role of histamine released by the antigen-antibody reaction is quite well known. Increasing knowledge is being accumulated on the allergic mechanism in the production of hemolytic anemias, other blood disturbances, and autoantigen-antibody processes. In the study of infections and collagen diseases the role of allergy has found increasing interest.

Recognition of specific causes of allergic diseases is on the increase. In the majority of cases of seasonal allergy we can determine a specific cause. First pollen was recognized as a common cause, while 20 or more years ago molds began to be accepted as an important group of allergic causes. Now insect dust is being considered as a possible important additional category of specific etiology. The role of dandruffs of animals in the causation of nonseasonal respiratory allergy is well known. House dust as a common cause of nasal and bronchial allergy is an accepted fact, even though

---

From the Allergy Clinic and Allergy Research Laboratory, Department of Medicine, Northwestern University Medical School.
Read in the Session on Allergy before the Section on Miscellaneous Topics at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956.

we do not yet understand the origin of the antigen in it. Thus we can attribute specific allergic causes to about 60% of the cases of chronic asthma and perennial rhinitis. We appreciate also the role of specific foods as causes of allergic manifestations such as eczema, urticaria, headache, and respiratory syndromes. A host of substances causing contact dermatoses has been uncovered both in industry and in the home. The importance of allergy to drugs is being increasingly appreciated, and studies are going on to determine their mechanism. The possibility of bacteria and viruses acting as allergens is receiving increasing attention.

Diagnosis in allergy has as its objective the recognition of the syndrome as allergic, the recognition of complications, the uncovering of unrelated disease, and the establishment of a specific cause for the allergy. It is quite obvious that such a survey depends on a consideration and understanding of procedures in medical appraisal as well as a use of specialized immunologic principles and techniques. Skin tests are important, but their proper use and interpretation and the consideration of the patient as a whole are even more important. At any rate, good practice in this field can result in correct diagnoses and appraisal in a large percentage of respiratory cases and in a lesser number of other types of allergy. Incomplete or misguided ideas about the role of skin tests can increase the misdiagnoses to a considerable extent.

Specific treatment in allergy has made considerable progress in the last several decades. We know how to eliminate allergic causes in foods and inhalants. We have found nonallergenic substitutes for allergenic cosmetics, pillows, mattresses, and drugs. We have learned how to minimize exposure to air-borne allerens by plastic casings, filters, and precipitators. We ave surveyed various parts of the country for their ollen and mold content and know where certain patients may obtain relief and others not. Desensitization to inhalant allergens has become a procedure increasingly accepted and has resulted in relief to ndreds of thousands of sufferers.

Nonspecific treatment has made progress also. To the sympathomimetic drugs have been added the antihistamines. These have constituted an important addition to our therapeutic armamentarium. It took several years for the general profession and public to realize that the antihistamines are not a panacea for allergy. The adrenocorticosteroids and corticotropin (ACTH) gave us additional weapons in the fight against severe allergic diseases. The tranquilizing drugs also promise to be of some help.

Inadequate Application of Progress in Knowledge of Allergy

In spite of these advances in our knowledge of allergy, only a small part of the population with allergies is receiving maximal benefits. With 17 million people having allergy and only about 1,000 specialists in the field, it is obvious that the majority must receive their care from general practitioners, internists, rhinologists, dermatologists, pediatricians, and other specialists. Many of these practitioners feel that allergy is either a theoretical or didactic problem and that its application in practice is either unnecessary or undesirable. These are the doctors who allow hay fever to develop into asthma, who watch children develop emphysema while waiting for them "to outgrow" their asthma, who treat skin allergies with topical applications only, and who give penicillin on the slightest provocation, without any thought of the possible severe allergic reactions resulting. There are those who would rather ascribe their patient's asthma to emotional influence than to go through the laborious search for an allergic cause. These are the doctors who would banish their asthmatics to isolated areas in the quest for climatic cures, instead of realizing that in many instances the "climate" may be the dog, the feather pillow, or the occupational dust.

Many other physicians have gone to the other extreme. According to their interpretation what is not known is allergic. Thus they may regard psoriasis, acne, and nervousness as allergic manifestations. They may put total faith in skin tests and may eliminate every food that gives a slight reaction, true or false, on intradermal testing. They may go to extremes in diet, eliminating refined foods and making life unnecessarily miserable for the allergy sufferers. They are frequently led to give desensitizing injections with avoidable inhalant allergens, with insect pollinated pollen, and even with foods. In short, they believe and practice a kind of allergy of the extremist. The net effect, of course, is that these practices finally result in disrespect of other practitioners and the public for the field of allergy.

Whether he leans to one direction or the other, in the majority of cases it is not the fault of the practitioner. The chance is overwhelming that as a resident in internal medicine or any other specialty he had no exposure whatever to an allergy service or guidance from one trained in allergy. If he had an opportunity to obtain such exposure he ignored it, because in his internship he also failed to get even a smattering of allergy experience and thus his interest was not aroused. This lack of facilities or interest in his intern year was in large part due to the fact that in his medical school he had had little or, in some instances, no contact with instruction in allergy. Of 70 medical schools that replied to a recent questionnaire, many gave only four or five hours of teaching in allergy, while 26 gave none.

There is also a shortage of fully trained allergy specialists who have had adequate training in internal medicine or pediatrics and who have received at least one year of special training in allergy. At this time there are only 34 approved residencies in 18 institutions, and many of the openings remain unfilled. Obviously an insufficient number of young well-trained internists or pediatricians are interested in specialization in allergy. Some of the reasons they give are that (1) allergy is to narrow a field; (2) its clinical application and results are inadequate; (3) it does not offer a challenge; and (4) it is not treated with proper respect and seriousness in medical schools, hospitals, medical organizations, and in the eyes of many physicians. In all respects the young men are in error, except perhaps in regard to reason 4. As to the other reasons, the thinking is based on inadequate contact with allergy during undergraduate training. As to respect of the profession for this specialty, this would be entirely adjusted if a larger number of well-trained young men would enter the field of allergy and would themselves engage in teaching, practice, and research.

But what of the practitioner who recognizes that his teaching in allergy has been inadequate? What can he do? Short, intensive courses are available in connection with the two national allergy societies, the American Academy of Allergy and the American College of Allergists, and also by the American College of Physicians. Other courses of varying duration are offered by different institutions from time to time. The meetings of the national and regional or local societies usually afford considerable stimulus to one who has been already somewhat indoctrinated.

More teaching at the undergraduate and graduate level must be done if we are to overcome the lag between available knowledge of allergy and its actual proper application in practice to the hordes of allergy sufferers. The public also needs to be educated by personal contact, lectures, magazine and newspaper articles, popular books, radio, and any other proper channels. And this job should not be left to the punsters, the sensational lay science writers, and others who know little about the subject but are willing to tell a lot. This is a job for the well-informed physician, and, if done properly and ethically, without thought of personal gain, no one should object.

Inadequacies in Our Knowledge of Allergy

If our present-day knowledge of allergy were widely applied the care of allergic patients would be tremendously improved, but we would not feel satisfied altogether with its status quo. Only by admitting imperfections in our knowledge can we lay the foundation for overcoming them. We do not know all causes of allergy. In the perennial rhinitis and asthma group we can find an allergic cause for 50 to 70%. But what about the other 30 to 50%, in many of which cases patients also have eosinophils in the sputum or nasal smear? In many cases of atopic dermatitis and in more of the urticarial dermatoses we cannot find an allergic cause. Are they allergic or do they have some other background? Why does a patient fail to react to foods and yet be clinically allergic to them? What is the explanation of the lack of skin reactivity to drugs? An understanding of this might explain some of the puzzles of unidentified allergy. There is some basis for believing that a better knowledge of bacterial and viral allergy might help to unravel some of our present mysteries. The concept of sensitization to one's own modified tissue substances needs elaboration.

Desensitization is an accepted principle, but it needs to be improved. Many physicians and patients balk at its long-term programs, its frequently incomplete results, and the inconsistent duration of its effects. Much work is needed to make such treatment simple, safe, and lasting. This may be accomplished finally by such procedures as slowly absorbing antigens or modified antigens or by separation of haptenic from complete antigens. Such and similar goals presuppose a better understanding of the nature and chemistry of antigens and their antibodies and the products of their interaction, the persistence of antigens in the body, and the inherent differences between different types of antibodies.

It would help us to know many other basic facts. How do weather factors operate to influence allergy? To what extent can emotional and other psychic factors affect such conditions as asthma and urticaria? And what is the mechanism involved? What takes place immunologically or biochemically when a person with chronic asthma becomes temporarily relieved during an acute extrarespiratory infection? And might not an isolation of such a chemical mediator be applied to therapeutic use? Granting hereditary influence, what makes some people acquire allergy at one time and others years later, when all are exposed to the same environment?

These and many other puzzles require solution to help perfect our knowledge and practice of allergy. Many of such problems are being investigated in a growing number of institutions. The difficulties encountered are twofold: finances and personnel. Financial support of research appears to be shortening the gap quicker than the personnel problem. The newly organized Institute of Allergy and Infectious Diseases of the National Institutes of Health should aid materially in this support. The American Foundation for Allergic Diseases, organized by the two national societies, is progressing in its goals. It is beginning to foster fellowships and student scholarships and educating the public. Perhaps the bigger problem is manpower. Serious research in allergy requires biochemists, immunologists, physiologists, pharmacologists, physicists, and others. It must be done by teamwork with those who have clinical experience, interest, and understanding of the research needs. There are not enough basic scientists interested in this field, but their interest is growing and such teamwork is increasing. Accomplishment will breed respect; respect will result in interest; and interest will influence devotion of scientists and young clinicians to the field, which in turn will result in good research. Thus the cycle will be completed and continue to enlarge.

Summary

Allergic manifestations are many, affect millions of people, and result in extensive economic loss and disability. In the last 50 years much progress has been made in our knowledge of allergy, which makes it possible to diagnose and treat satisfactorily a large percentage of sufferers. Perhaps the greatest obstacle to maximum benefits of the care of these millions is the inadequate background in allergy possessed by many practitioners because of the meager teaching of allergy in medical schools. Imperfections in our knowledge of allergy and its more adequate management will be remedied by the increasing trend in research and the recent participation of national organizations that aim to support it.

185 N. Wabash Ave. (1) (Dr. S. N. Feinberg).

RADIATION—HELPFUL OR HARMFUL?

Mitchell R. Zavon, M.D., Cincinnati

• *The misuse of ionizing radiations for the treatment of benign conditions is still being recommended and practiced. Textbooks continue to list indications for hazardous uses of radiation without giving critical evidence of benefit. There is evidence that neither the new nor the established practitioners are being reached by recent information about the proper use of radiation and the need of protection. Fluoroscopy in particular is often done under conditions recognized as unsafe. For the safety of the patient, the physician, the nurse or technician, and others who may be helping, the physician who uses x-rays or radium should make sure that the newer knowledge of radiology is being applied in his practice.*

In an adaptive society such as ours, we change with the times or fall behind in the race. Of all the groups in our society, the medical profession has probably had to adapt to changes in as rapid a fashion as any other group. This has been particularly true in the last 50 years. This period has seen the introduction of undreamed of diagnostic and therapeutic tools. As in all groups, some have been able to keep pace with changes and some have fallen by the wayside. All in all, the profession has made a valiant effort, and a largely successful one, to keep medical practice abreast of scientific developments. Perhaps this is an opportune time, however, to ask that some of this "progress" be reevaluated and each of us inquire of ourselves what we are doing and where we are going. We might also inquire collectively whether we are bringing the fruits of progress to each other in our respective specialties, inasmuch as the human body is no respecter of the artificial bounds delineated by the specialty boards.

There are many trite phrases that are useful, if only to remind us in which direction to look. "Familiarity breeds contempt" is one such phrase. We were all startled by the news of the consequences of the atomic bomb, but x-rays and radium, the same horse in another color, have been used in medicine and by physicians for half a century. Why is it that the physician remains in awe of the atomic bomb and radioactive fall-out, but thinks nothing of the hazards of his x-ray equipment or the radium in his desk drawer? I ask this question only rhetorically, for the answer has been given: "Familiarity breeds contempt."

So common has the use of radiation become that it is not unusual to learn of the patient who goes to the physician who has a fluoroscope in preference to the man who does not include the use of that device in his physical examination. The public has come to expect the use of the x-ray and even to demand such use. What I should like to discuss is the medical use of ionizing radiation, the position of the medical profession in the use of this medium, and the implications of such use in the practice of preventive medicine and public health.

Primer in Radiation Physics

In order to make the terms understandable, let us briefly list a few types of radiation, their symbols, and their generally accepted relative biological effect. With the effect of x-rays used as 1, the relative biological effect of alpha (α) rays is 10-20; of beta (β) rays, 1-5; of gamma (γ) rays, 1; and of neutrons (n), 1-10.

All these types of radiation are called ionizing radiations, that is, their passage through matter produces charged particles either directly or indirectly. Ionization, and possibly other effects, can cause damage to living cells, and it is for this reason that we as physicians are usually interested in ionizing radiation.

Primer in Radiation Biology

The biological effects of any of these radiations are dependent on: (1) the type of radiation and its ionization density, (2) the tissue irradiated, (3) the amount of tissue irradiated, (4) the duration of irradiation and dose per unit time, and (5) the organism irradiated. Simply stated, radiation might be described as accelerating the aging process. It can cause a shortening of the life span. It can also cause many of the degenerative changes associated with the aging processes such as carcinoma, sarcoma, and cataract formation. We have all, I am sure, seen some of the bad results of working under the fluoroscope. In the older practitioner we may see signs of radiation exposure such as dry, cracked fingernails, increased keratinization on the hands, and cutaneous malignancy. Such changes may also be signs of advancing age. The increased incidence of leukemia among physicians as opposed to the general population has been written about on many occasions [1] and attributed to radiation exposure. Though the numbers involved are small, the statistical evidence appears to be valid.

Sterility resulting from radiation is largely a folk tale. It requires more radiation to cause sterility than it does to cause death, unless the dose be localized to the reproductive organs. Thus, death will usually occur before sterility. Unhappily, this information does not appear to be known to the average medical practitioner, and the feeling often prevails that, because the power of procreation has not been impaired by 10 or 15 years of radiation exposure, no significant effects have resulted. It is not my objective to discuss the biological effects of radiation in detail. That subject has been treated at great length by those better qualified than I.[2] I do propose to discuss the use to which radiation is being put by the physician and the training he is given for his use of radiation.

From the Kettering Laboratory, Department of Preventive Medicine and Industrial Health, College of Medicine, *University of Cincinnati.*

Read before the Section on Preventive and Industrial Medicine and Public Health at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

Use of Radiation by the Physician

With the exception of the use of radioisotopes for diagnostic and therapeutic purposes and the therapeutic use of radium and its daughters, the physician generally confines his use of radiation to the x-ray. The other types of radiation I have mentioned, alpha, beta, and gamma, are literally Greek to the average physician, and the neutron is used therapeutically in only a few places in this country. The x-ray is, however, used widely throughout the profession, both diagnostically and therapeutically. If one picks up a specialty textbook chosen at random and lists the uses of radiation in the specialty, a rather interesting collection of disease entities results.

For example, Curtis and Huffman[3] describe the use of radium implantation in uterine hemorrhage and in checking menstruation in healthy young women. Ormsby and Montgomery[4] list roentgen ray treatment as being of value in "keloid, tuberculosis verrucosa cutis (at times in lupus vulgaris), and forms of eczema, lichen planus, psoriasis, tinea capitis, favus, furunculosis, carbunculosis, erysipelas, granuloma pyogenicum, hidradenitis suppurativa, and other pyogenic infections, verrucae of different types, and in selected cases of pruritus vulvae et ani." Other disease entities are included as well, such as eczema and psoriasis, for which soft x-rays (grenz rays) are recommended. Casgrande and Frost[5] suggest that "x-ray therapy may be used alone or in conjunction with suprascapular nerve blocks using novocaine," for bursitis of the shoulder.

Many currently used textbooks list other nonmalignant entities for which radiation therapy is suggested. Current professional literature indicates that radiation therapy is being used fairly generally for nonmalignant disease. The increased awareness of the biological effects of radiation makes it more necessary to inquire about the effect of radiation on man. Do we have information as to the relative value of radiation versus other modalities in the treatment of nonmalignant conditions? In the treatment of malignant disease, there can be no question of even considering the delayed effects of radiation. In the treatment of nonmalignant disease, this same principle does not usually hold true, and we must then consider the voluminous clinical evidence of long-delayed effects from such treatment.[6]

Statistically valid, controlled studies, contrasting radiation therapy with other types of treatment of nonmalignant conditions or with no treatment, are either lacking or not generally known. In how many instances of radiation treatment of nonmalignant conditions is the situation after radiation therapy better than the situation before therapy? In how many instances is the delayed effect—10, 15, or even 30 years later—malignancy? Only rarely are such cases reported, and rarer still will be the case of the patient returning when the treatment is unsatisfactory to the physician who initiated treatment. I do not believe that anyone at this time knows the answers to these questions, but we do need the answers.

Recently investigations have been reported that give partial answers to some of my questions. To cite but two, I might mention the studies by Aub and others[7] and those of Simpson and co-workers.[6b] On the other hand, we have the work of Muller on genetic effects of radiation and the attempt to refute them by citation of a follow-up for several generations. When, according to Muller,[8] genetic effects may not show up for 20 or even 40 generations, it is a little absurd to attempt to refute such a statement with a follow-up of only three generations. The few suggestions that the medical profession be aware of genetic hazard from radiation and attempt to minimize such hazard have often been met by a type of polite ridicule. It is unfortunate that our medical training has not prepared us to receive this awe-inspiring possibility with an open mind. To minimize the possibility of damage in utero, the suggestion has been made that the chest film of the pregnant woman be taken with a leaded apron draped from her waist. This suggestion has generally been met with a smile or with open hostility. Thus, by not recognizing the possibility of danger, there is no danger. This is a dangerous doctrine.

Training of the Physician

It is a rare internship or residency, other than that in radiology, that includes experience in the radiology department or gives formal training in how to perform the radiological procedures that the future practitioner may be called upon to perform. How many internists have been shown, in the course of their training, how to use a fluoroscope in order to get the most out of the instrument with a minimum of danger to either the patient or themselves? How many orthopedic surgeons are taking films in the operating room during a hip-pinning without someone to hold the cassettes? How many residents in dermatology receive adequate training in the use of radiation therapy as commonly used in their specialty? By adequate training, I mean the type of training that the radiation therapist will accept as of good caliber Chamberlain[9] has written about the training of the nonradiologist: "Other physicians who need to use radiation in certain fields, can, and should, receive training in the special problems of radiation protection. To omit this important training for even the use of chest fluoroscopes or occasional radiography is the equivalent of omitting the basic training in any of the medical fields in preparation for the use of life-giving but potentially dangerous agents . . . ." Unfortunately, most of Dr. Chamberlain's fellow radiologists do not appear to share his feeling in this regard. Yet interns and residents complete their training and go into the world to practice medicine. For convenience or other reasons they purchase x-ray equipment and use it whether or not they happen to have had adequate training.

In a recent survey of one area, widespread use of the fluoroscope by pediatricians was noted.[10] Of some 35 fluoroscopes studied, less than one-half dozen could come close to meeting current standards.[11] There were numerous examples of equipment that generated more than 20 r per minute at the table top as contrasted to the present recommendation of a maximum of 10 r. Almost without exception, the pediatricians in office practice failed to carry out dark adaptation fully, many taking no time at all. To compensate, the screen brightness was increased, thereby increasing dosage to both patient and physician. Many of the physicians surveyed used neither protective gloves nor aprons. Many x-ray machines had inadequate filtration, inadequate cones, faulty shutters, and unprotected high-voltage wires. Ungrounded equipment was common, to mention an easily remedial nonradiation hazard. Though five of the physicians seen showed some evidence of radiation damage, it was the low-usage factor that undoubtedly prevented more extensive damage to the physician. Some of those surveyed do routine fluoroscopy of each child. I know of no figures indicating the value of this procedure to balance against the possibility of unnecessary radiation exposure.

What is most disquieting is that the situation described in 1955 is virtually unchanged from that described by Buschke and Parker in 1942 in Seattle.[12] They found failure in equipment not different from that our study again showed in 1955. The studies by Sonnenblick in New Jersey highlight the difference in usage between the radiologist and the nonradiologist.[13] He found that, for similar-sized patients under a fluoroscope, a radiologist might be using 1 ma. and producing a dose rate of 2 r per minute at the panel, the internist 2 ma. with a dose rate of 20.3 r per minute, and the pediatrician 5 ma. with a dose rate of 43.8 r per minute. Although these are not necessarily representative figures, the acceptable level at the time of this survey was 20 r per minute. The acceptable output is now 10 r. In my experience, office use of fluoroscopes seldom approaches these standards.

There is no evidence at this time that the information about protection from radiation and proper usage is reaching either the new or the established practitioner. Evidently the newer knowledge and the increased importance being attached to unnecessary exposure to radiation are not being disseminated to our aining institutions. The physician is not alone exposed to radiation. In addition to the patient, there are often the nurse, the technician, the nurse's aid, the student nurse, and anyone else who may be helping out. These people are additional responsibilities and additional reasons why the physician's training in the use of radiation requires improvement.

Needs of the Future

The uses of radiation in medicine and industry are widening yearly. Such an increase in usage correspondingly increases the likelihood of radiation exposure in a larger percentage of our population. To this increased use must be added the extra increment, however small, of radiation from atomic and hydrogen bomb fall-out. Because of our knowledge of the biological effects of radiation, it becomes increasingly urgent, as one of our responsibilities for the public health that we answer certain questions regarding medical usage of radiation and the training of the physician for that usage. The following are such questions. 1. What results from radiation therapy of nonmalignant conditions would be as well or better accomplished by other modalities of treatment? 2. What radiodiagnostic procedures are of value in specified situations and how often is it worthwhile to repeat the same procedure? 3. Is there really any value in limiting radiodiagnostic procedures in females in the reproductive age to the period immediately after menstruation as has been suggested?[14] 4. Can adequate training in specific diagnostic or therapeutic radiation techniques be given all medical practitioners as well as the specialist in order to satisfy minimum professional needs? 5. Will the radiologist assume responsibility for the training of other physicians in radiation in order to satisfy their minimum requirements in the use of radiation?

A last question might well be whether the physician, the physicist, or the engineer is to assume responsibility for the health of the population in relation to actual or potential exposure to radiation. The medical profession must be willing to concern itself with more than just the care of the patient; it must assume its full place in the public health picture with concern for the prevention of disease as well as its treatment. The concern for protection from radiation damage is a legitimate medical responsibility that will be assumed by others less able by training to evaluate the potential biological hazard, if the medical profession as a whole does not assume the responsibility.

Comment

In summation, I should like to quote from the preface to a recently printed booklet on protection from x-rays.[11] This booklet was issued by the National Committee on Radiation Protection, a group consisting of representatives of most of the professional and official groups concerned with radiation.

> The increasing use of ionizing radiations makes it necessary for the medical profession to exercise great caution and restraint in the use of these agents. Current methods and practices should be reviewed to see if the same result could be obtained with less radiation . . . Dermatologists and radiologists should avoid as much as possible the use of radiation for the treatment of benign conditions of persons occupationally exposed to radiation. It should be the duty of the physician, when prescribing radiation treatment, to ascertain if the patient is occupationally exposed to radiation.

I would add only that, if the x-ray equipment and the radium in the hospital or physician's office were treated with as much respect as the nuclear reactor and if safety requirements were as stringent as they were with intravenous therapy in the early days of intravenous therapy, we would have no question of difficulty. Unless some action is taken to improve conditions, we shall see a steady growth of regulating legislation such as has already been promulgated in one or more states. With such regulation must inevitably come restrictions on individual freedom in medical practice.

References

1. Henshaw, P. S., and Hawkins, J. W.: Incidence of Leukemia in Physicians, J. Nat. Cancer Inst. 4: 339-346 (Feb.) 1944. March, H. C.: Leukemia in Radiologists in 20 Year Period, Am. J. M. Sc. 220: 282-286 (Sept.) 1950.

2. Radiation Biology, vol. 2, edited by A. Hollaender, New York, McGraw-Hill Book Company, Inc., 1955.

3. Curtis, A. H., and Huffman, J. W.: Textbook of Gynecology, ed. 6, Philadelphia, W. B. Saunders Company, 1950.

4. Ormsby, O. S., and Montgomery, H.: Diseases of Skin, ed. 8, Philadelphia, Lea & Febiger, 1954.

5. Casgrande, P. A., and Frost, H. M., Jr.: Fundamentals of Clinical Orthopedics, New York, Grune & Stratton, Inc., 1953.

6. (a) Brown, W. M. C., and Abbatt, J. D.: Incidence of Leukaemia in Ankylosing Spondylitis Treated with X Rays: Preliminary Report, Lancet 1: 1283-1285 (June 25) 1955. (b) Simpson, C. L.; Hempelmann, L. H., and Fuller, L. M.: Neoplasia in Children Treated with X-Rays in Infancy for Thymic Enlargement, Radiology 64: 840-845 (June) 1955. (c) Cipollaro, C., and Einhorn, M. B.: Use of X-Rays for Treatment of Hypertrichosis Is Dangerous: Council on Physical Medicine, J. A. M. A. 135: 349-353 (Oct. 11) 1947.

7. Aub, J. C.; Evans, R. D.; Hempelmann, L. H., and Martland, H. S.: Late Effects of Internally-Deposited Radioactive Materials in Man, Medicine 31: 221-329 (Sept.) 1952.

8. Muller, H. J.: Manner of Dependence of "Permissible Dose" of Radiation on Amount of Genetic Damage, Acta radiol. 41: 5-20 (Jan.) 1954.

9. Chamberlain, R. H.: Radiation Protection Comes of Age, J. A. M. A. 153: 488-491 (Oct. 3) 1953.

10. Valaer, P. J., and Zavon, M. R.: Radiation Exposure of Pediatricians, to be published.

11. X-Ray Protection, Handbook 60, United States Department of Commerce, National Bureau of Standards, Dec. 1, 1955.

12. Buschke, F., and Parker, H. M.: Possible Hazards of Repeated Fluoroscopies in Infants, J. Pediat. 21: 524-533 (Oct.) 1942.

13. Sonnenblick, B. P.; Levinson, L. J.; Furst, N. J., and Koch, J.: Roentgen Output of Fluoroscopes in Routine Diagnostic Practice, J. Newark Beth Israel Hospital 2: 153-163 (July) 1951.

14. X-Rays During Pregnancy, editorial, J. A. M. A. 153: 218-219 (Sept. 19) 1953.

CLINICAL INVESTIGATION IN NAVAL HOSPITALS

Howard T. Karsner, M.D., Washington, D. C.

• *The pursuit of clinical research in naval hospitals is advantageous to the hospitals themselves, to the Navy, and to medical science in general. Such clinical research is at present based on a well-defined program only to a limited extent; to some extent it depends on the initiative and special interests of individual medical officers. Research projects, whether individual or organized, are encouraged in every way consistent with regulations. Continuity of research can be favored by establishing clinical investigation centers, by association with universities, and by various other means. The financing depends ultimately on appropriations from Congress for the over-all research of the Department of the Navy. The public needs to be impressed with the fact that in the naval hospital every advantage is taken of facilities to improve the care of the patients.*

Just as is true of the civilian hospital, the main purpose of the naval hospital is the care of the patient. The doctors, administrative personnel, nurses, dietitians, and secretaries have much the same function in both types of hospital. This is true also of acquaintance with the literature, attendance at scientific meetings, conferences with personnel of other institutions, staff meetings, seminars, and teaching of house officers, nurses, and other students. With these similarities, there are also differences in staffing, administration, and other functions in the two types of institutions. There is, however, a unity among naval hospitals, in that the pattern of operation is the same throughout, so that service in one hospital is directly continued with transfer of personnel to other hospitals. In many civilian hospitals, research is active and extensive, but this has been only moderately developed in the group of naval hospitals. The purpose of this paper is to indicate how clinical research in naval hospitals is currently conducted and how it may be expanded.

Naval Medical Research

Medical research in the Navy is conducted (1) in research laboratories of the medical department, (2) in naval hospitals, and (3) by contracts with extramural agencies through the biosciences division in the Office of Naval Research. Inservice research is under the direction of the surgeon general of the Navy, but this function is administered by the research division of the Bureau of Medicine and Surgery, with the aid of the medical research advisor to the surgeon general. The laboratories cover a broad spectrum of medical research, from fundamental studies to operational problems such as those of naval aviation and submarine medicine. Details are covered in other publications. Projects submitted to the Office of Naval Research are referred to the research division of the bureau for comment and funding. By this means universities and nonprofit research agencies undertake studies that fill in gaps in knowledge and otherwise aid the broad field of medical research of the Navy. With the cooperation of the bureau, of the Office of Naval Research, and of civilian agencies, an over-all program has been developed, carefully balanced as to the areas of interest and operations. More or less peculiar to the Navy is the fact that projects are initiated by the investigators, who are guided by the over-all program established jointly by the bureau and the laboratories. The higher echelons of the Department of Defense advise in various directions, especially the Assistant Secretary (Research and Development), the Assistant Secretary (Health and Medical), and the Chief of Naval Research. Aid is given by the National Research Council, especially its committee on naval medical research.

In only a limited way is clinical research in naval hospitals currently based on a well-defined program. Doctors in the hospitals, either singly or in groups, undertake projects that are initiated by their interest in a series of cases, in special studies of individual cases, and in methods of diagnosis and testing of therapeutic regimens.

The establishment of clinical investigation centers in naval hospitals must be accomplished within the framework of the hospital and naval regulations. The research projects of individual medical officers, outlined above, are not necessarily based on a program but naturally will be continued. The proposal for clinical investigation centers will provide for programmatic research and is broadly based to include not only the medical officers specifically assigned to the center but also other

---

Medical Research Advisor to the Surgeon General, U. S. N.

Read before the Section on Military Medicine at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

officers in the hospital who may wish to participate in the program and carry out such ideas and projects as they may devise in their particular fields. At least three aspects deserve consideration; namely, (1) the advantages to the Navy and to medicine in general, (2) the organizational patterns, and (3) financing.

Advantages of Clinical Investigation Center

The advantages to the Navy and to medicine as a whole are closely interrelated. The advantage to medicine as a whole is obvious, in that new knowledge obtained by research is valuable to all engaged in medicine. For realization of full advantage to the Navy, it is essential that the center shall be an integral part of the hospital. In these circumstances it may well augment the justifiable current pride of the personnel in the medical department of the Navy. The *esprit de corps* is excellent, but the advancement of medical research is calculated to elevate it. With the advantage of productive research, a good residency program, and competent staff members, service in a naval hospital is as attractive as is true of many civilian hospitals. This contributes to procurement of house officers, medical officers, and consultants. It is well known that medical students seek appointments as interns after discussion with their faculty advisors, experienced graduates, and fellow students. The faculty advisors consider all aspects of the hospital program and are guided in part by the research activities to which the intern is exposed. This is also largely true of the experienced graduate and in some measure of the fellow students. However, basic to all this is the reputation of the hospital, and that reputation rests in considerable measure on the teaching provided. There are various factors that make a good teacher, but the main one is inspiration for advancement of knowledge; this inspiration derives largely from productive investigation. In the over-all view, and with only rare exceptions, the best teacher is the man who enlarges his field by research. It does not necessarily follow that only the university hospitals fill the bill, for there are several hospitals without close university connections that are equally desirable from the student point of view.

Procurement is of interest as it applies to the regular medical officers, the reserve officers, and the consultants. It is not to be supposed that all will take part in research, but the stimulus offered by clinical investigation gives support to the hospital duties and may induce some not previously deeply interested to undertake research. Another possibility is that reserve officers on active duty may wish to become members of the regular corps. Important also is the interest of the allied sciences branch of the Medical Service Corps and of other personnel.

Organization

The organizational plan for a clinical investigation center entails consideration of the regular medical officers, reserve officers on active duty, other naval personnel, and civilian employees; sympathy and support by the hospital administration; and association with a university. There are regular medical officers who are dedicated to research and who, despite the policy of rotation, continue their research in different duty stations; however, the policy of rotation is not rigid, and, in special circumstances, an assignment may be prolonged. Reserve officers on active duty have often contributed to the program, but their tours of duty are fixed and their return to inactive status may interrupt projects. Occasionally a reserve officer will extend his tour in order to finish his investigation. The current policy of the medical department of the Navy is to encourage research in every way consistent with regulations, and, in this way, continuity is also preserved.

Continuity is additionally favored by the long service of civilian consultants, but it seems wise to plan for additional assurance. The approach then is via the medium of university association, so arranged that the integrity of the center as a naval establishment is maintained. The closer the university is physically, the better is the outlook.

There are two components, the military and the civilian. It is expected that the staff of the center will be augmented by civilians on a full-time and stable basis. Certainly one or more of these should be clinical men of good background in science and research, who will continue to be motivated by a consuming desire for productive investigation. In addition, there should be civilian scientists qualified in the so-called basic sciences, not necessarily doctors of medicine. These two groups would work harmoniously with the medical officers, consultants, and university authorities. Technical, secretarial, record-keeping, and editorial services are essential.

At this time it seems unwise to plan a definitive table of organization. Much depends on the quality and number of personnel, as well as funds available and other factors. Tentatively it seems practical to think of the operations as being under the supervisory direction of a council or committee composed of two representatives of a cooperating university and two medical officers of the naval hospital.

University Affiliation

The cooperation of a university is highly desirable from several points of view, too obvious to require enumeration. Such cooperation assures the continuing interest of competent investigators in prosecution of the program but at the same time raises a question as to how the civilian component of the center is to be employed. This might be through (1) civil service appointments or (2) contracts. At the present time it seems undesirable to make all employment on a civil service basis, but the reasons would require a consideration of the advantages and disadvantages of this type of appointment beyond the scope of this paper. Therefore, it seems that attainment of the objectives of the center would best be accomplished on the basis of a contract between the university on the one hand and the Office of Naval Research and the Bureau of Medicine and Surgery on the other. The details of such a contract would be settled on the basis of mutual agreement between the agencies concerned. The contract would provide funds for university participation and overhead, the funding to be by the Bureau of Medicine and Surgery. Naturally, any such contract would meet the approval of the command of the hospital. Payment of salaries and wages of civilians employed in the center would be through university channels, except that in some instances there may be a few in the staff who are already civil service employees. These latter are paid directly by the hospital. Those employed on a contractual basis must depend on the good faith of the Navy in the assurance of long-time operation of the center. Since congressional appropriations are on an annual basis, the positive commitments can only be annual; however, there is every indication that the Congress will continue its support in adequate degree. It is to be assumed that the cooperating university may wish to use personnel of the center in such instances as teaching and conducting of seminars. The Navy will welcome such association, and it is likely that the university will confer academic ranks in accord with the attainments in science.

Financing

The financing of medical research in the Navy and its hospitals is somewhat different from that which prevails in civilian hospitals. On the basis of a full acquaintance with the many items, Congress appropriates funds for the over-all research of the Department of the Navy. An allocation is made for medical research. The research division of the Bureau of Medicine and Surgery, with the approval of the surgeon general, further allocates sums for the various phases of medical research. In this allocation are the moneys for research in the naval hospitals and support of the clinical investigation center proposed for the U. S. Naval Hospital, Oakland, Calif.

Comment

There can be no disagreement with the statement of R. H. Williams[1] that the clinical investigator requires (1) clinical wisdom, (2) human relationships, and (3) scientific critique. All these are applicable to naval hospitals, but the human relationships or public relations are especially important in such an establishment as a naval hospital. This justifies a consideration of the social aspects of clinical investigation. The patients in the naval hospital are service personnel and their dependents. The hospital is much in the public eye, even more so than the civilian hospital. The parents and relatives of service personnel must be satisfied that the best of care is given. Studies that are of no direct benefit to patients cannot be condoned. Any experiments that may be dangerous cannot be permitted, and any that may disturb the cordial patient-physician relationship common in naval hospitals are excluded. These social relationships are self-evident. Not so clear is the necessity for impressing on the public the fact that in the naval hospital every advantage is taken of facilities to improve the care of the patients. The naval hospital should take its place among all other medical institutions in providing for progress—progress for the welfare of the whole structure of medicine, both military and civilian.

The opinions expressed are those of the writer and do not necessarily reflect those of the Department of the Navy or the naval service at large.

References

1. Williams, R. H.: Cultivation and Coordination of Clinical Research, *Am. J. M. Sc. 230:477-483* (Nov.) 1955

PSYCHIATRIC INTERVIEW AS TOOL OF MEDICAL DIAGNOSIS

Robert L. Faucett, M.D., Rochester, Minn.

• *Emotional problems or "nerves" are often considered etiological agents of relevance in many conditions for which patients consult physicians. This diagnosis cannot be justified or supported by an evaluation of symptoms alone, but data allowing a positive psychiatric diagnosis should be elicited. The absence of such data should cast doubt on the diagnosis and indicate the need for further investigation. Six case histories illustrate instances in which the use of the above principle was valuable in arriving at a proper diagnosis and planning an effective therapeutic approach.*

Recently much emphasis has been placed on the fact that emotional disturbances account for a great many of the conditions for which patients consult physicians. This emphasis sometimes leads the busy practitioner to accept psychoneurosis as the diagnosis without critical evaluation of the data leading to this conclusion. It is my purpose here to point out some of the pitfalls in psychiatric and medical practice that can arise by the uncritical use of psychiatric diagnosis. The dynamic psychiatric interview, when carefully used, can be an instrument of some precision whose principal ingredients are the skill of the interviewer and his insistence upon being allowed enough time to use his tools adequately. Although the psychiatric interview often may not indicate the nature of the organic disease from which the patient may be suffering, it may cast doubt on psychiatric disease as an explanation and thereby indicate the necessity for further examination.

The psychiatrist who sees patients in diagnostic consultation must be continually aware of this possibility and strive to sharpen his diagnostic acumen and also view his patient as a whole and not only as a psychiatric problem. He must be prepared to exclude psychiatric disease as an explanation of the troubles for which the patients come to him and must be humble enough to request further diagnostic help from his medical colleagues in situations in which he has reasonable doubt as to the positiveness of his diagnoses. The

---

From the Section of Psychiatry, Mayo Clinic and Mayo Foundation. The Mayo Foundation is a part of the Graduate School of the University of Minnesota

Read before the Section on Nervous and Mental Diseases at the 105th Annual Meeting of the American Medical Association Chicago, June 12, 1956 proper function of the physician is to relieve pain, whatever its cause, and, if the source of discomfort is in the environment, the physician, no less, is required to elucidate the data that make the assumption valid and to discuss his findings with his patient. Failure to assume this responsibility leads the physician to make diagnoses by exclusion. This pitfall is illustrated in case 1.

Report of Cases

CASE 1.—A 37-year-old woman was referred for psychiatric evaluation primarily because of the incompatibility of her many complaints with any recognizable pattern of organic disease. Her chief complaint was of sudden sensations in any or all parts of her body that appeared when she was upset or irritable, when she heard sudden and unexpected noises, or when she suddenly moved her neck, although these sensations could not be reproduced during the examination. In addition, she complained of a "bloated abdomen" and a feeling that "something slips in my back" when going up and down steps.

After having a thorough psychiatric history, the psychiatrist noted, "I cannot make a definite psychiatric diagnosis on this patient. Her symptomatology is bizarre, but her general manner and her life history do not impress me as those of a patient who is so emotionally ill as to produce the present somatic picture." After seeing the patient in several more interviews and talking with the husband, the psychiatrist asked for further neurological consultation. She was found to have absent abdominal reflexes, dysesthesia of the soles of the feet, and bilaterally accentuated Babinski reactions. The neurologist felt that the sudden sensations represented Lhermitte's sign, which is pathognomonic of multiple sclerosis, and suggested this diagnosis. When the psychiatrist discussed this diagnosis with the patient, she admitted that a similar diagnosis had been made previously by a competent neurologist elsewhere, but that she had concealed this fact because she wanted an "independent opinion." Further discussion then revealed that she had been responsible for the nursing care of a friend in whom a syndrome of organic disease of the brain had developed and she had been terrified by the thought that she had the same illness as the friend.

An all too common assumption is that people have neurotic symptoms in order to get attention or sympathy or to otherwise influence the behavior of others. The prominence of what appears to be a large secondary gain may often lead to an erroneous psychiatric referral (case 2).

CASE 2.—A 45-year-old married woman came to the Mayo Clinic because of repeated episodes wherein her behavior became peculiar; everything appeared distorted, color vision became faulty, and she behaved as if intoxicated. Upon recovery, she had complete amnesia for the episode. She had been referred to a psychiatrist because in one episode a physician had been called and, while she was awaiting his arrival, she had drunk a cup of cocoa. When he arrived, she was perfectly normal. Shortly after his departure, she again lapsed into "sleep," and her husband called the physician the following morning, which was Saturday. She could be aroused but was confused and disoriented. It was ascertained that the husband had planned a fishing trip that morning and had been prevented from going because of his wife's condition. Further history revealed that many of the previous episodes had occurred under similar circumstances. The psychiatric referral had been made on the assumption that her episodes were calculated to prevent his fishing trips, which she disapproved of. Further investigation revealed a hypoglycemic picture, and her symptoms were reproduced by a 19-hour fast. Operation disclosed a pancreatic adenoma, the excision of which relieved her of the difficulty, a 24-hour fast then being survived with no symptoms. Further history then revealed that, when her husband planned fishing trips, she slept late and did not eat breakfast, and often friends had discovered her in a comatose condition. Both she and they had then reproached the husband for exposing her to such an occurrence.

Neurotic illness does not develop for the reasons described above, but because of the attempt by the patient to achieve some measure of adaptation in the face of intolerable, unconscious emotional conflicts. The secondary gain occurs only after the illness is established. This patient did not give any data to validate a conflict of sufficient magnitude to cause such symptoms, and, once neurosis was eliminated, the procedures leading to a diagnosis were quite simple.

Many years ago Sir William Osler established the valuable dictum that a single diagnosis must be made to explain all the symptoms of the patient. Like all dictums, however, this one loses its value if it is observed too slavishly (case 3).

CASE 3.—A 42-year-old married woman came to the clinic complaining of lethargy, fatigue, insomnia, anorexia, constipation, amenorrhea, and inability to concentrate. She had been referred for electroshock treatment after a psychiatric consultation at home. She described episodes of forgetfulness of recent events in a peculiarly humorous fashion and described herself as "comical." No self-depreciation or feeling of guilt was elicited, however. Medical and laboratory examinations revealed a myxedematous patient with a basal metabolic rate of −39% and a value of 1.0 mcg. per 100 cc. of blood for protein-bound iodine. She was treated with thyroid extract, and the symptoms of myxedema disappeared. Her psychiatric symptoms remained only slightly improved, but since such symptoms are often the last to disappear in myxedema, a period of watchful waiting was decided upon.

The patient was seen eight months later and was adjudged to be euthyroid. The basal metabolic rate was −3%, and the value for protein-bound iodine was 4.6 mcg. She still complained of anorexia, lack of interest in home or family, and crying spells, and, although she was less forgetful, she still had trouble thinking and calculating. The psychiatrist was again impressed by the lack of guilty self-depreciation; as the patient expressed it, "I worry because I do not worry about my situation enough." She expressed anxiety about going down stairs and admitted to have fallen once and had awakened on several occasions with uncontrollable swallowing movements. She insisted that she felt there was something organically wrong with her and that her difficulties were not on a functional basis. Psychological testing revealed a test deficit with occasions of confusion that the psychologist felt to be on an organic basis. An electroencephalogram disclosed a grade 2 dysrhythmia focalizing in the right parieto-occipital region. Pneumoencephalography revealed a communicating porencephalic cyst in this region. No surgical treatment was recommended.

Although nothing could be done to alleviate her symptoms, the patient was glad to have had her own diagnosis confirmed and then to be absolved of "neurotic complaining." Modification of environmental responsibilities left her functioning well at a level within her capabilities.

The psychiatrist in this instance was made suspicious by the absence of some important features of depression in the clinical picture. The patient had many features of depression—psychomotor retardation, fatigue, disturbed sleep pattern, anorexia, constipation, and fits of crying—but missing was a very important criterion for the diagnosis: an endogenous loss of self-esteem and the presence of self-depreciation. In addition, she gave no historical data such as early emotional deprivation that would make her prone to depression, and no data could be elicited relative to shifts in her life situation that would diminish her self-esteem. The possibility that an individual may have two diseases must be constantly borne in mind, especially when one of them is an emotional disease. Perhaps one of the most valuable questions to ask a patient, once a satisfactory rapport has been established, is, "What do you honestly believe is your difficulty?" If the question is asked sincerely, it is surprising how often the patient is able to provide significant leads, as was so in case 3.

Frequently patients couch their complaints in such bizarre language that the physician can only conclude that the individual is psychotic. This is not invariably so, and the physician must be constantly aware that verbal behavior is often an inadequate tool for becoming acquainted with a patient's difficulties (case 4).

CASE 4.—A 61-year-old woman was referred by the ear, nose, and throat department because of her bizarre complaints of "ants crawling in and out of my skull." She insisted that a powdery substance was dropping from her skull to her neck. She was sure that previously a swarm of bees had flown into her ear and had not emerged. She maintained that the insects were really there and that this was not just a mannerism of description. Neurological consultation and x-ray examination of the skull resulted in an opinion that the patient had a tumor in the left frontotemporal region extending toward the base of the skull. Neurosurgical exploration revealed an intradiploic epidermoid cyst that was intruding intracranially; it extended underneath the left frontal lobe and had eroded the base of the skull. The surgeon noted that it was filled with a grumous powdery material "such as might be produced by ants."

The psychiatrist in this case, while being impressed with the bizarreness of the description and the rigid and delusional way in which the patient persisted in this type of description, was not satisfied. He attempted to find other psychotic elements in her behavior such as are frequently present in the patient with a somatic delusion. Patients with somatic delusions can often be led by skilled psychiatric interviewing to admit that they ascribe their difficulties to malignant machinations by persons, specific or nonspecific, in their environment. This patient had no such paranoid ideation nor was she otherwise psychotic, and further investigation revealed the nature of her difficulty.

The physician is often misled by his own emotional prejudice, which has been aroused by the patient's past behavior. This is especially true of those patients who are careless with the truth, ne'er-do-well, or alcoholic, as shown in case 5.

CASE 5.—A 43-year-old man, an unemployed laborer, was referred for psychiatric evaluation because of inability to work more than one or two days a week, fatigue, confusion under stress, backache, headache, and visual disturbance. He gave a long history of inadequate vocational and social adjustment. He had never held a job long and had been alcoholic for many years, being hospitalized for alcoholism three years previously. His life history revealed a long pattern of passive-dependent, immature, and impulsive behavior. He had fallen from a truck five years before, and this was followed by a period of unconsciousness. He had had a careful neurological examination and had been observed in the hospital for several days, but no evidence of intracranial neurological disease was noted. A long series of compensation suits followed this, but these had been settled with finality two years previous to this admission. He had been referred out of desperation by his local physician and the local welfare board because of his inability to remain employed.

Because his behavioristic pattern was relatively unchanged and because the patient described with some detail periods of confusion associated with clear-cut visual disturbances, in that objects to his right were always blurred and that he became confused when more than one object was in the visual field at one time, he was referred for neurological examination. This gave essentially negative results, but x-ray examination of the skull revealed an area of calcification to the right of the sella, which was much more pronounced than was indicated in roentgenograms taken five years previously. A right carotid angiogram did not reveal a mass intracranial lesion. The condition is still being studied, but it has been concluded that he has a right parasellar neurological lesion in addition to his lifelong character neurosis.

In this situation, the patient's severe and lifelong character neurosis, which had led to his poor general life adjustment and passive-dependent traits, made it easy to ascribe his symptomatology to his desire for further compensation, although a careful history revealed the fact that no further compensation was involved and, further, that the patient knew it. He was frank and realistic about his poor adjustment in the past, but there was nothing to indicate that this lifetime type of character neurosis should suddenly revert to a more integrated type of hysterical neurosis, which was the only way his presenting symptoms could be explained.

Comment

The contributions of psychiatry to medicine in recent decades have added a new dimension of rationality to the practice of the art of medicine. The notion of treating the person instead of the disease by use of the rational body of knowledge now accumulated is leading to a revolution now known as the practice of comprehensive medicine. This ancient ideal has been more closely approached by new insights into the effects of emotion and life situation on disease processes. But to take full advantage of these insights the knowledge must be used with the criticalness and skepticism that are the hallmark of good medical practice.

The psychiatrist who is asked for a diagnostic consultation on a patient with somatic complaints should endeavor to be as precise as possible in the rationale of his opinion. The positiveness of his opinion can be increased if he finds the clinical picture, psychodynamic history, and psychogenetic history in support of one another. In addition, he should endeavor to explain, from the above data, why the patient felt ill at the particular time he did and why he felt ill with his particular symptoms as an expression of emotional conflict. Insofar as he is unable to satisfy these criteria, the psychiatrist should be quite conservative in his opinion and eager for further investigation.

The practitioner who ascribes the complaints of a patient that could possibly be structurally caused to an emotional cause assumes a grave responsibility. Errors in diagnosis in this direction can threaten the patient's life or at best deny him the benefit of medical treatment, which more energetic diagnostic procedures would make available to him. On the other hand, insistence by the practitioner on a physical cause when the primary problem is an emotional one can prolong the disease and further solidify the patient's objection to psychiatric investigation. Referral of the patient for a diagnostic psychiatric interview may clarify the issue in both instances, provided the psychiatrist effectively brings to bear the tools of his specialty and is humble enough to say occasionally, "I don't know."

200 First St. S. W.

ANTIDIURETIC RESPONSE TO PIPEROXAN AS A DIAGNOSTIC TEST OF PHEOCHROMOCYTOMA

Alfred E. Leiser, M.D.
and
Arthur C. Corcoran, M.D., Cleveland

• Observations on the renal functional effects of piperoxan in patients with hypertension due to functioning pheochromocytoma had shown that, in such patients, this drug provokes a decrease in urine flow. This suggested that, with standardized hydration, the effect of piperoxan on urine flow might be useful in the evaluation of patients suspected of these tumors. Accordingly, fasting, recumbent patients were given 1 liter of 0.25% solution of sodium chloride orally and urine was collected for three or four successive 30-minute periods, the usual test dose of piperoxan being given intravenously after the second urine collection, when its effect on blood pressure was also observed.

In 3 normotensive patients and 32 patients with hypertension not due to pheochromocytoma, including 7 in whom piperoxan induced decreases of systolic pressure more than 30 mm. Hg, piperoxan had a diuretic effect, in that the volume of the third urine sample exceeded that of the second. The physiology of pheochromocytoma was then simulated in seven normal subjects by giving them infusions of levarterenol with and without a mixture of epinephrine. In these the diuretic response to piperoxan was not observed and antidiuresis occurred in those receiving the mixture of the two pressor amines. Further, in two patients with hypertension due to functioning pheochromocytoma, the volume of the third sample (after administration of piperoxan) was substantially less than that of the second urine sample.

The procedure is described as a confirmatory observation in the diagnosis of functioning pheochromocytoma. It seems to have the advantage of giving normal, diuretic responses in patients who show nonspecific depressor responses to piperoxan. Note is also made of the frequent occurrence of "false-positive" depressor responses to phentolamine in patients with essential hypertension under treatment with preparations of Rauwolfia.

Various adrenolytic and sympatholytic compounds have been used in pharmacological tests to establish the presence of functioning pheochromocytoma. None of these tests is conclusive. In the presence of hypertension, the two principal agents used are piperoxan (Benodaine) hydrochloride, which is primarily adrenolytic, and phentolamine (Regitine) methanesulfonate, which is both adrenolytic and sympatholytic. False-positive or depressor responses are observed with both agents, particularly in patients with uremia and also in those taking sedatives and certain antihypertensive drugs.[1] As noted below, false-positive responses are relatively frequent in patients who are taking Rauwolfia drugs and who are tested with phentolamine. Patients with hypertension very often are given barbiturates and/or Rauwolfia drugs and sometimes have uremic conditions, so that the occurrence of false-positive responses confuses the diagnosis of hypertension that is due to pheochromocytoma.

In a study of renal functional responses to piperoxan, Corcoran, Dustan, and Page[2] noted that piperoxan usually was somewhat diuretic in effect in patients who had hypertension from causes other than pheochromocytoma, whereas it was antidiuretic in four patients who had hypertension that was due to pheochromocytoma. The antidiuretic responses were proportionately greater than the falls of blood pressure elicited by the drug. They suggested that, under standardized conditions, the response of urinary flow to intravenous injection of piperoxan might serve as a confirmatory test in the evaluation of the blood pressure response. Accordingly, a simple procedure was devised and tested in patients with normal blood pressure, in patients with hypertension, in two patients with pheochromocytoma, and in persons with normal blood pressure who had been given intravenous infusions of levarterenol or mixtures of levarterenol and epinephrine, thus mimicking the altered physiology of patients having pheochromocytoma. The observations show that the measurements of urine volume constitute a simple, useful confirmatory procedure and, more significantly, that they are an aid in identifying false-positive, depressor responses to piperoxan.

Methods and Materials

The procedure was as follows. Fluid was allowed ad libitum, but food was withheld overnight. At 8 or 9 a. m., 1 liter of 0.25% sodium chloride solution was given orally, usually during the course of 10 minutes, after which time the patient voided. This urine specimen was discarded. The patient was asked not to smoke and to remain recumbent during the test, arising only to void. Urine was collected at 30-minute intervals for three or four periods, and the volume of each sample was measured. Immediately after the second voiding, piperoxan hydrochloride was given intravenously at a rate of 20 mg. in two minutes. While three or four urine collections were usually obtained during this study, the use of the test in diagnosis requires only the collection of specimens immediately preceding and after the administration of piperoxan.

The persons who were studied included 35 as controls. There were 3 with normotensive and 32 with hypertensive conditions. Among those with hyper-

---

From the Department of Endocrinology and the Division of Research of the Cleveland Clinic Foundation and the Frank E. Bunts Educational Institute. Fellow in Medicine, Cleveland Clinic (Dr. Leiser). Dr. Leiser is now at the Kelsey Leary Clinic, Houston, Texas.

tension, 22 had uncomplicated essential hypertension, 4 had essential hypertension in the malignant phase, 3 had chronic glomerulonephritis, one patient had chronic pyelonephritis, one had bilateral renal artery stenosis,[3] and one had diabetic intercapillary glomerulosclerosis; 7 of the 32 had azotemia (with blood urea levels of 60 mg. per 100 ml. or greater and serum creatinine levels of 2.9 mg. per 100 ml. or more). One patient with functioning pheochromocytoma was studied before and after removal of the tumor. An experimental group of seven healthy volunteers were given infusions of levarterenol or a mixture of levarterenol with epinephrine, during the administration of which the tests were performed as described.

TABLE 1.—*Blood Pressure and Urinary Flow in Response to Piperoxan Hydrochloride in Thirty-Five Control Patients*

		Blood Pressure		Urine, Vol in Ml					
				Before Administration		After Administration		Ratio of Vol of Collections 2 and 3	
Group	Case No	Control	Change	1	2	3	4		Remarks
A (Those with no significant decrease in blood pressure)	1	138/92	+30/18	78	127	237	150	0.53	
	2	168/114	—4/12	140	160	180	.	0.89	
	3	180/90	—12/0	33	69	220		0.31	
	4	186/90	—16/0	35	118	194		0.61	
	5	140/86	+12/2	24	26	110	63	0.24	
	6	164/104	—10/8	125	172	200	160	0.86	
	7	240/162	0/0	31	70	176		0.40	Blood urea level 65, serum creatinine level 3.9
	8	210/120	+30/12	32	38	255	250	0.15	
	9	170/100	—14/0	22	54	79		0.68	Blood urea level 60, serum creatinine level, 3.1
	10	154/90	0/0	27	30	74		0.41	
	11	224/110	—0/20	110	290	350		0.82	Phentolamine (—60/30)
	12	250/150	+20/0	22	110	360	300	0.31	Phentolamine (—44/30)
	13	226/120	—14/12	25	108	303		0.35	Phentolamine (—62/40)
	14	204/108	+16/4	18	120	362	219	0.33	Phentolamine (—42/30)
	15	200/96	0/0	13	40	72		0.56	Blood urea level 104, serum creatinine level 4.6
	16	220/130	+20/18	65	140	215		0.65	
	17	200/126	+10/4	22	80	118	130	0.67	
	18	162/100	—18/12	63	126	222	.	0.57	
	19	188/104	—10/10	40	108	186		0.58	
	20	194/114	+8/6	34	88	156		0.56	
	21	136/88	+12/0	36	90	156	.	0.58	
	22	204/100	+10/0	76	126	200		0.63	
	23	186/100	+10/0	58	63	99	.	0.62	
	24	204/114	—6/8	54	76	150		0.51	
	25	200/104	+10/8	80	186	242		0.77	
	26	172/100	+38/20	24	98	260		0.38	Phentolamine (—42/32)
	27	180/116	+36/10	20	108	397	320	0.27	
	28	148/88	+36/12	110	240	330	430	0.73	
B (Those with fall in blood pressure greater than 30 mm Hg)	29	190/116	—32/12	20	26	70	85	0.37	Blood urea level 124, serum creatinine level 5.8
	30	236/140	—48/16	65	230	280	250	0.82	
	31	196/88	—34/20	70	78	90	92	0.87	Blood urea level 68, serum creatinine level 2.9
	32	190/120	—38/14	30	53	190	102	0.28	Blood urea level 64, serum creatinine level 3.8
	33	180/108	—30/12	62	330	434		0.76	
	34	208/116	—36/18	24	98	197	260	0.50	
	35	212/120	—72/52	29	152	210	322	0.72	Blood urea level 104, serum creatinine level 5.0

Results

Control Group.—The data for 35 patients are summarized in table 1. Among these patients, 28 (group A) showed little change or an increase in systolic blood pressure; 7 (group B) showed decreases ranging from 30 to 72 mm. Hg and were considered to have false-positive, depressor reactions. Among these seven, four had azotemic conditions. No cause was established for the responses in three patients, although they may have been taking barbiturates. All of these patients (including those with depressor responses) during the 30 minutes after receiving piperoxan showed increased urinary flow as compared with the urinary flow in the 30-minute preinjection period. When expressed as a ratio of urine volume before the administration of piperoxan to the urine volume after it, the values ranged from 0.89 to 0.24, averaging 0.56.

After injections of phentolamine, five of the patients with nonuremic hypertensive conditions (cases 11, 12, 13, 14, and 26) showed decreases in blood pressure greater than 40/30 mm. Hg; the drop in one of these was 62/40 mm. Hg and in another 60/30 mm. Hg. Four of these patients had been taking reserpine, and they lost their depressor responses to phentolamine when the reserpine was withdrawn. None showed depressor responses to piperoxan. The condition of one patient who showed the greatest effect from phentolamine (case 13) was not uremic, nor was he taking a Rauwolfia drug; his responses in blood pressure and urine volume to piperoxan were normal, and a bioassay of the urine indicated no excess of pressor amine.

Pheochromocytoma.—The preoperative and postoperative responses of urine volume in a patient with functioning pheochromocytoma (table 1, case 8) are shown in table 2 (case 36). Preoperatively, piperoxan evoked antidiuresis, while postoperatively it evoked slight diuresis. The early history and findings concerning this young man were summarized by Corcoran, Dustan, and Page.[2] In brief, he was found in 1952 to have bilateral functioning pheochromocytomas. It was not excluded that the tumors were malignant, since they showed mitoses, although there was no evidence of capsular penetration. After operation the patient felt much improved, and his blood pressure returned to normal. However, hypertension slowly and progressively returned, and, about November, 1954, he again noticed excessive sweating and redness of his hands. These symptoms increased, and he was seen again in November, 1955. Whereas the attacks prior to the operation in 1952 had been paroxysmal, no paroxysms were observed during this recurrence.

TABLE 2.—*Preoperative and Postoperative Responses of Blood Pressure and Urine Volume to Piperoxan in Patient with Pheochromocytoma*

Case No.	Blood Pressure: Control	Blood Pressure: Change	Urine, Vol. in Ml.: Before Administration 1	Urine, Vol. in Ml.: Before Administration 2	Urine, Vol. in Ml.: After Administration 3	Urine, Vol. in Ml.: After Administration 4	Ratio of Vol. of Collections 2 and 3
36*	Preoperative:						
	200/128	—82/66	34	52	22	14	2.4
	Postoperative, 1 wk.:						
	134/98	—6/6	27	43	64	...	0.7
	Postoperative, 2 mo.:						
	144/96	—16/14	62	68	88	500	0.8

* Same patient as in case 8, table 1.[2]

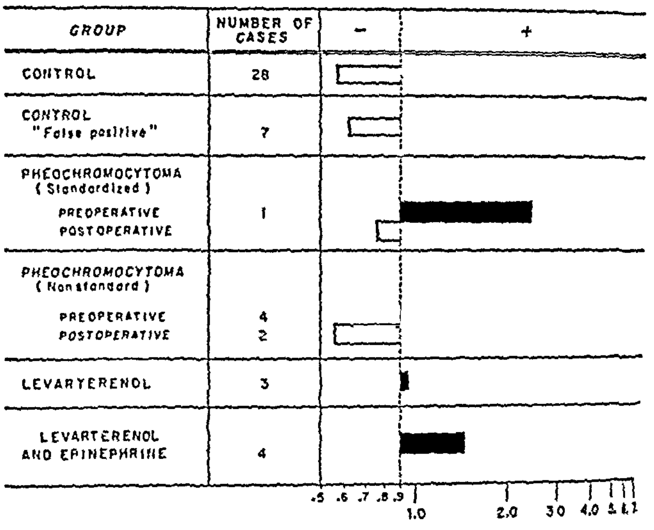
On examination, the significant physical findings were persistent tachycardia and a blood pressure of 208/150 mm. Hg. The basal metabolic rate was +49% of normal. The phentolamine test showed a fall of pressure of 62/60 mm. Hg, and the fall after administration of piperoxan was 82/60, the latter being associated with a decrease in urine flow. At operation, a malignant pheochromocytoma was removed from the left renal area, together with the left kidney, to which it was adherent. Postoperatively, responses to phentolamine, piperoxan, and histamine were all normal, including the responses to piperoxan in diuresis, and his condition has remained symptom-free and normotensive for two months.

TABLE 3.—*Blood Pressure and Urinary Flow in Response to Piperoxan in Normal Subjects*

Experimental Group	Case No.	Blood Pressure: Prior to Administration	Blood Pressure: Fall	Blood Pressure: Resting (Preinfusion)	Urine, Vol in Ml: Before Administration 1	Urine, Vol in Ml: Before Administration 2	Urine, Vol in Ml: After Administration 3	Urine, Vol in Ml: After Administration 4	Ratio of Vol of Collections 2 and 3
A (Infusion of levarterenol only)	1	174/80	—20/10	104/64	122	290	313		0.93
	2	166/106	—20/40	124/78	81	304	380		0.80
	3	156/98	—28/28	104/66	120	378	356		1.09
B (Infusion of levarterenol and epinephrine)	1	184/84	—74/26	120/70	133	351	220	172	1.6
	2	148/88	—30/42	118/64	0	134	124		1.08
	3	140/60	—40/40	104/50	28	154	161		0.96
	4	140/68	—26/18	116/68	10	185	95		1.9

Previous observations[2] of the responses in urine volume with administration of piperoxan were not made under the standardized conditions described in the present series. In the former series, four patients with functioning pheochromocytoma had shown antidiuretic responses to piperoxan preoperatively (ratios of urine volumes before and after administration greater than 2), and the two patients tested after removal of the tumors showed diuretic responses with corresponding ratios of urine volumes of less than 1. The observations in the patient in case 36 (table 2), tested under standardized conditions, accord with this experience, in that preoperatively he showed an antidiuretic response to piperoxan that persisted into the second half-hour of urine collection, whereas, after removal of the tumor, the response was diuretic on two occasions.

Experimental Group.—Three healthy male volunteers were infused continuously with levarterenol at rates of 20 to 40 mcg. per minute to maintain the systolic blood pressure in excess of 40 mm. Hg above the resting level prior to performing the studies on response in urine volume to piperoxan. This dosage rate was then maintained throughout the experiment. Four healthy male volunteers were similarly infused with a solution containing epinephrine and levarterenol in concentrations of 1 and 4 mcg. per milliliter, respectively, maintaining an increase in systolic blood pressure that was greater than 25 mm. Hg and a pulse rate more than 30 beats per minute in excess of the resting levels prior to the test. The data are summarized in table 3. Both the depressor and the antidiuretic responses to piperoxan were more striking in the group receiving levarterenol with epinephrine than in the group receiving levarterenol alone. In the latter group the urine volume ratios before and after the administration of piperoxan varied from 0.80 to 1.09, averaging 0.94. In the volunteers infused with levarterenol and epinephrine combined, this ratio ranged from 0.96 to 1.9; three ratios each were greater than 1 and the average ratio of all was 1.2.



Schematic summary of ratios of volume of urine collection taken immediately after administration in control group of 28 patients with hypertension; 7 control patients with hypertension with false-positive blood pressure responses; preoperatively and postoperatively in groups of 1 and 4 patients with pheochromocytoma without uniform hydration, and in 3 normal volunteers receiving infusions of levarterenol and 4 receiving a mixture of levarterenol and epinephrine. The dotted base line indicates the highest ratio found in the control group with hypertension, and the bars are drawn to the mean of the observations in each group

Comment

Pheochromocytoma is a rare cause of hypertension, but its recognition may lead to cure. Any simple procedure that will enhance the diagnostic accuracy of available pharmacological tests is therefore desirable. Infusion of epinephrine or levarterenol in a person who does not have hydropenia has been shown to promote excretion of a dilute urine, the flow greatly diminishing after the infusion has been discontinued.[4] Administration of piperoxan to patients with functioning pheochromocytoma also results in antidiuresis[2] as if by pharmacological "withdrawal" of pressor amine. A like response to piperoxan occurs in healthy volunteers infused with epinephrine and levarterenol and, to a lesser extent, with levarterenol alone. The mechanism of this antidiuretic response is not clearly understood; it is in part attributable to a decreased rate of glomerular filtration.[2]

The antidiuresis that followed injection of piperoxan in patients with functioning pheochromocytoma was marked, the rate of urinary flow decreasing to about one-third for the rate before injection. The urine response after administration of piperoxan appeared to be specific. All controls, whether with normotensive or hypertensive conditions, irrespective of depressor blood pressure response, exhibited increased urinary flow when given piperoxan. Only those with an excess of circulating catechol amines showed antidiuresis.

Among the 32 control patients with hypertension, the greatest ratio of the 30-minute volume of urine before administration of piperoxan to the collection after administration was 0.89; and the average was 0.56. In five patients with proved pheochromocytoma, this ratio was greater than 2 in all instances. After surgical removal of the tumor, the ratio reverted to less than 1 in the case reported above and less than 1 in two other patients having pheochromocytoma who were studied postoperatively by Corcoran, Dustan, and Page.[2] The average ratio in normal experimental subjects in whom only levarterenol was infused was 0.94, whereas infusion of both levarterenol and epinephrine in another group resulted in an average ratio of 1.39. Thus, a ratio greater than 0.9 would suggest a positive antidiuretic response.

We conclude that the procedure described adds to the possibility of diagnosis of pheochromocytoma in office practice. Errors in its interpretation may result from (1) the patient's premature ingestion of the saline load; (2) dehydration or vomiting; (3) pheochromocytoma with paroxysmal hypertension in a normotensive phase; and (4) the presence of a pheochromocytoma that produces levarterenol only.

Summary and Conclusions

Antidiuresis following intravenous administration of piperoxan (Benodaine) hydrochloride was noted in six patients with functioning pheochromocytoma, in four normal subjects infused with levarterenol plus epinephrine, and, to a lesser extent, in three subjects infused with only levarterenol. No antidiuresis occurred after injection of piperoxan into 35 control patients, including 32 with varying degrees of hypertension not due to pheochromocytoma, although 7 of the patients with hypertension exhibited depressor responses that could be classified as false-positive. A simple method, described above, based on the effect of piperoxan on urine volume, may be utilized in an office practice to constitute a useful confirmatory test for pheochromocytoma and, more significantly, as an aid in identifying false-positive depressor responses to piperoxan. False-positive depressor responses to phentolamine (Regitine) methanesulfonate but not to piperoxan were observed in patients with hypertension taking Rauwolfia drugs.

Addendum

Since submission of this paper, the test has been used in the diagnosis of pheochromocytoma in an additional patient (table 4, case 37). The experience demonstrates a further advantage of the procedure, since the widely fluctuant blood pressure levels of this patient vitiated the interpretation of tests dependent solely on measurements of blood pressure. This patient is a woman 58 years old who complained principally of episodes of painless nausea and vomiting, often associated with profuse perspiration and palpitation, which occurred shortly after rising in the morning. In January, 1955, a cholecystectomy was done because of cholelithiasis, with subsequent temporary relief of vomiting, which recurred during the third postoperative month. Diabetes was discovered at the time of operation but was considered mild. She also experienced frequent episodes of nocturnal sweating. The appetite had diminished during the past year, and with this she had lost 20 lb. (9.1 kg.) in weight. She noted polyuria and polydipsia only a few weeks before being seen in May, 1956.

Table 4.—*Preoperative and Postoperative Responses of Blood Pressure and Urine Volume to Piperoxan in Patient with Pheochromocytoma*

Case No.	Blood Pressure		Urine, Vol. in Ml.				Ratio of Vol. of Collections 2 and 3
			Before Administration		After Administration		
	Control	Change	1	2	3	4	
37	Preoperative						
	164/88	irregular	(vomiting)				
	182/104	irregular	25	73	26	28	2.0
	144/90	irregular	38	83	45	...	1.8
	Postoperative, 1 wk.:						
	104/80	none	30	84	480	...	0.17

On examination she seemed tense and anxious, chronically ill, and in a dehydrated condition, with acetone odor to the breath. The initial blood pressure was 230/130 mm. Hg. The urine contained glucose, acetone, and diacetic acid; blood sugar level was 543 mg. per 100 ml.; and plasma carbon dioxide–combining power was 10.8 mM. per liter. She was given fluids and insulin, with relief of these manifestations. However, the diabetic state was severely fluctuant, with wide variations in blood sugar levels and frequent insulin reactions, i. e., a state of "brittle" diabetes. Further, it was noted that the blood pressure was also widely fluctuant, with variations from 230/130 to 70/50 mm. Hg during a single observation period of 10 minutes.

Blood urea level was 27 mg. per 100 ml., and basal metabolic rate +14% of normal. Histamine was given at a time when blood pressure was 116/66 mm. Hg, with an immediate fall to 70/50 and secondary rise to 250/144 mm. Hg, at which point the patient complained of nausea, fulness, and flushing. Phentolamine was given intramuscularly, with an immediate fall in blood pressure to 140/80 mm. Hg. During the subsequent 10 minutes, blood pressure ranged spontaneously from 188/96 to 62/40 mm. Hg.

The piperoxan diuresis test was done on three occasions. The first test was invalidated by vomiting and an insulin reaction. At the second test, blood pressure fell to 82/32 mm. Hg immediately after the injection and shot up immediately to a range of about 200/120 mm. Hg, with subsequent wider fluctuations. The ratio between the volumes of the second and third collections was 2. The third test showed less fall in blood pressure than the second, but the ratio of the volumes of the second and third collections was 1.8. Bioassay of the urine for pressor amine indicated a content equivalent to 280 mcg. per 24 hours, the standard being levarterenol.

A large (about 150 gm.) nonmalignant pheochromocytoma was removed on June 3, 1956. In the immediate postoperative period, the diabetes became much easier to control, there were no insulin reactions, and the patient's blood pressure was persistently low. Three months postoperatively the glucose tolerance test was normal and all evidence of diabetes had disappeared. The experience in this case demonstrates the diagnostic value of the piperoxan diuresis test in a patient with severely fluctuant hypertension. The clinical state of this patient seems to correspond to that of a patient studied by one of us (A.C.C.) and described in detail by Goldner.[5]

2020 E. 93rd St. (6) (Dr. Corcoran).

Drs. E. N. Collins and Penn G. Skillern gave permission to report the case in the addendum.

References

1. Gifford, R. W., Jr.; Roth, G. M., and Kvale, W. F.: Evaluation of New Adrenolytic Drug (Regitine) as Test for Pheochromocytoma, J. A. M. A. **149:** 1628-1634 (Aug. 30) 1952. Emlet, J. R.; Grimson, K. S.; Bell, D. M., and Orgain, E. S.: Use of Piperoxan and Regitine as Routine Tests in Patients with Hypertension, ibid. **146:** 1383-1386 (Aug. 11) 1951. DeCourcy, J. L., and DeCourcy, C. B.: Pheochromocytoma and the General Practitioner, Cincinnati, DeCourcy Clinic, 1952.

2. Corcoran, A. C.; Dustan, H. P., and Page, I. H.: Antidiuresis and Other Renal Responses to Piperoxan in Pheochromocytoma, Circulation, **14:** 221-226 (Aug.) 1956.

3. Poutasse, E. F.; Humphries, A. W.; McCormack, L. J., and Corcoran, A. C.: Bilateral Stenosis of Renal Arteries and Hypertension, J. A. M. A. **161:** 419-423 (June 2) 1956.

4. Nickel, J. F.; Smythe, C. McC.; Papper, E. M., and Bradley, S. E.: Study of Mode of Action of Adrenal Medullary Hormones on Sodium, Potassium and Water Excretion in Man, J. Clin. Invest. **33:** 1687-1699 (Dec.) 1954.

5. Goldner, M. G.: Pheochromocytoma with Diabetes: Case Report and Discussion, J. Clin. Endocrinol. **7:** 716-723 (Oct.) 1947.

CENTRALIZED TREATMENT FOR SERIOUSLY ILL SURGICAL PATIENTS

J. Murray Beardsley, M.D., J. Robert Bowen, M.D.
and
Carmine J. Capalbo, M.D., Providence, R. I.

• *The critically ill surgical patient in some instances suffers from inadequate care because of the shortage of nursing personnel. Such patients should be segregated in an area staffed by specially trained personnel; the unit here described has one supervisor, graduate nurses, practical nurses, orderlies, a general duty aide, and a dressing room aide. One full-time surgical resident is assigned to it. The unit is built with certain features, such as glass partitions, that facilitate observation; it is also equipped with certain facilities that never leave this area. Records especially emphasizing the needs of such patients have been developed. Certain administrative problems, such as the selection of patients and their subsequent removal to regular quarters, have been solved satisfactorily. This arrangement guarantees expert care to those who need it most, relieves pressure in other areas, allows a more generous use of auxiliary help, and lightens the demand for private nursing care for the individual patient.*

With the increase in the number and complexity of surgical operations that are being performed, the time has come for a new look at the care of the critically ill surgical patient. This is especially true at this time, since we are faced with a critical shortage of trained graduate nursing personnel. In the zeal for training nurses and doctors and because of the necessity for scientific hospital programs, along with the emphasis on shorter hours of work, there is danger that the patient may become the forgotten man.

The definition of adequate care has ramifications that are far-reaching and embodies a vigilance and a degree of teamwork on the part of well-trained nurses, auxiliary personnel, house staff, and attending physicians heretofore not demanded. The care of the seriously ill surgical patient is a specialized duty and requires nursing skills that can be developed only by continued exposure to this type of problem. The careful attention to fluid balance records, gastrointestinal and thoracotomy tubes, pharyngeal suction, and other equally important facets of the postoperative period are well appreciated by both doctors and nurses.

Patients who have had operations of a less traumatizing type, such as routine herniorrhaphies, appendectomies, vein strippings, hysterectomies, and pilonidal sinus excisions, fare very well, providing they have received the benefits of a period of observation in a recovery room. However, patients who have been subjected to multivisceral procedures for cancer, cardiac or pulmonary surgery, or any difficult major operation imposed on an already physiologically disturbed situation need care that can be provided only on a unit adequately staffed with intelligent, well-trained personnel.

Approach to the Problem

In the past, two methods have been employed in an attempt to solve the problem of inadequate care of the seriously ill patient. The first, a step in the right direc-

---

Surgeon-in-Chief (Dr. Beardsley), Assistant Surgeon (Dr. Bowen), and Surgical Resident (Dr. Capalbo), Rhode Island Hospital.

tion that should continue to be encouraged, has been the utilization of auxiliary personnel as practical nurses and hospital aides. The second is the time-honored use of a private duty nurse for those patients who need constant observation. The latter rules itself out automatically as a solution to the over-all problem, since, with the existing shortage, there are not enough such nurses to go around, even if the average patient could afford them, which he cannot.

The use of auxiliary personnel care is an accepted method of compensating for nursing shortage, but we must all realize that the graduate nurse will always be the key figure. However, on certain shifts it is common practice today to assign only one or two graduate nurses to a busy surgical unit, and much of their time is taken up with administrative duties, which makes it impossible for the critically ill patient to obtain the necessary care. The more efficient approach to the problem is to segregate all seriously ill surgical patients in a single unit that is staffed by personnel especially trained for the job. The care of this type of patient requires specialized training that is on a par with that of personnel assigned to an operating room team. It is, of course, important that their interests be in this realm and that they have the necessary background and motivation.

Another defect in the care of the hospital patient has been lack of cooperation between the various groups responsible for his care. This responsibility rests with the doctor, the nurse, and the administration. The doctor, who is held fully accountable for the patient's progress, has little to say about the planning of the care that his patient is to receive. It is obvious that unilateral planning by any one group not only is a mistake but in addition leads to unnecessary misunderstandings that are easily corrected when there is full cooperation of all concerned.

The philosophy of segregating all seriously ill patients in a single area to be cared for by specially trained personnel and cooperation in the planning of this care have an impact not only in this limited sphere but in the entire hospital and on the over-all problem of nursing shortage. The removal of this type of patient from the general wards sharply reduces the need for graduate nurses in those areas. It also practically eliminates the need for three private duty nurses to be assigned to a single patient.

Physical Facilities

The new Rhode Island Hospital, through the foresight of those concerned with its planning, has incorporated within it two adjacent wings on the same floor that are especially designed for the care of the type of patient under discussion; these are called the special care unit. This area differs from other units in that a nursing station is in the center of each wing in place of the standard nursing station at the base of the two wings. It also has a more liberal use of glass partitions, making it possible for practically all patients to be observed from the nursing stations. In all, there are 28 beds, 16 on one wing and 12 on the other, serving an average surgical census of 295 (127 general surgery patients and the remainder patients in the surgical specialities). The total bed capacity of Rhode Island Hospital is 627. Private rooms are available for those with terminal conditions or for those who would bother others. Sleeping quarters for a full-time resident, a laboratory, a minor surgery room, and a large dressing room are provided. On the same floor, adjacent to the unit, is a conference room equipped with a blackboard and conference table. This unit is on the floor directly above the operating room, which is considered important, since most admissions are from the recovery room, which is within the operating suite. Each bed is provided with a suction outlet, an oxygen device, and sphygmomanometer on the adjacent wall. An emergency switch is conveniently placed near each nursing station, and the signal is heard in the resident's quarters on the same floor.

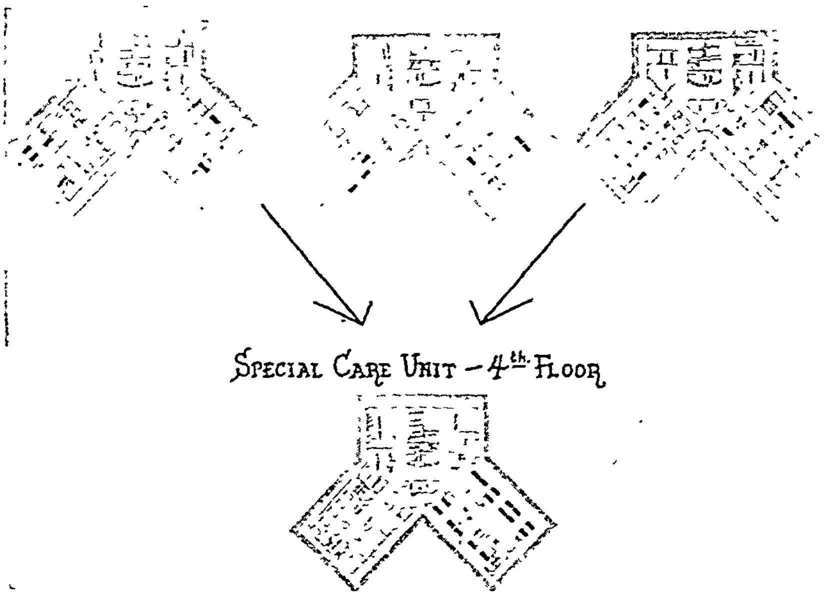


Fig 1.—Graphic portrayal of consolidation of critical surgical patients on a special unit.

Staffing of Unit

At the present time the unit is staffed by one supervisor, two head nurses, nine other graduate nurses, eight practical nurses, four orderlies, one general duty aide, and one dressing room aide. One full-time surgical resident is assigned to this unit. He is usually at the second-year or third-year level and rotates through the unit for a three-month period. He is covered on his nights off by a surgical resident, who is rotating through one of the specialties, usually pathology. In the main, this coverage has been adequate, but it is not ideal. Due to the shortage of personnel, an ideal nursing complement of one nurse for every three or four patients is not available. However, it has worked out reasonably well except on occasions at night when two or more patients with serious problems have been admitted. Since the basic philosophy of the unit is to provide specialized care at all times to patients who are seriously ill, a dictum of nonrotation of personnel has been followed. We consider this to be the most important feature of the program, and it provides a group who are familiar with the patients from day to day. It also has resulted in an almost unparalleled *esprit de corps;* nurses have been known to work two consecutive shifts to cover for an associate unable to report for duty.

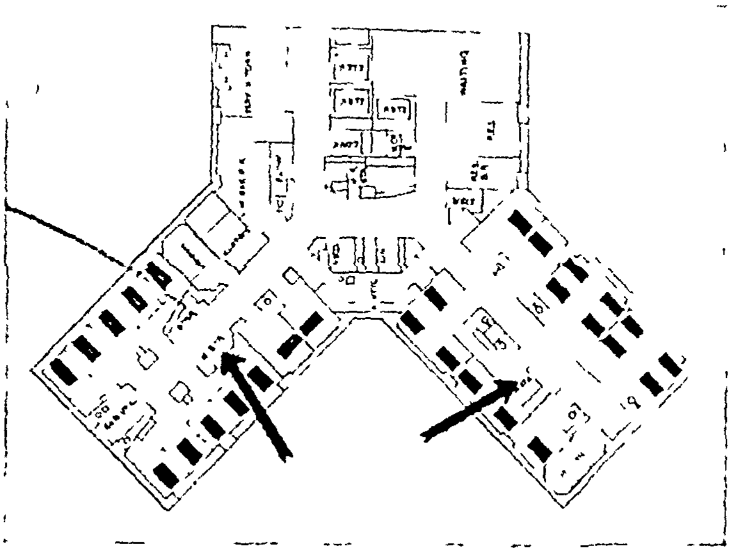


Fig. 2.—Architect's diagram of special care unit. Arrows point to centrally located nursing stations.

Each nurse has been trained to draw blood and administer fluids intravenously. This practical experience is supplemented by instruction on the part of the resident and house staff. In a short space of time, a deeper insight is instilled into all personnel regarding the necessity for accuracy in such frequently neglected items as quantity and character of tube drainage, total daily intake and output, degree of moisture in the tracheobronchial tree, and significant changes in blood pressure and pulse.

Equipment

The interval of time between the onset of symptoms and the initiation of remedial measures in any emergency may be the determining factor in survival. For this reason, specifically listed stationary equipment never leaves the unit. The equipment includes a tracheotomy set, thoracentesis tray, paracentesis tray, adult's and baby's laryngoscopes, adult's and baby's cut-down sets, pneumothorax machine, lumbar puncture set, pneophore, incubator, in-bed scales (Acme), pharyngeal airways, baby's transfusion set, special drug tray, one-bottle and three-bottle chest suction apparatus, an aliquot of crystalloid and colloid solutions for intravenous use, oxygen administration outlets at each bedside, and various types of intestinal decompression tubes.

A standard, well-equipped laboratory is on the same floor, and, in addition to basic items for doing such procedures as complete blood cell counts, hematocrit determinations, and urinalyses, a microcentrifuge is provided, making it possible to do a microhematocrit determination within three or four minutes without doing a venipuncture. This is particularly useful in cases of massive upper intestinal bleeding or burns in which frequent hematocrit determinations are essential.

Records

Certain new forms have been drawn up to allow for consolidation of all pertinent data regarding the patient's status in any 24-hour period. These records are kept on a clipboard at the foot of the bed. On inspecting this clipboard, the first sheet seen is a standard temperature, respiration, pulse, and blood pressure sheet that is used throughout the hospital. The next form is a new fluid balance and burn sheet that is constructed in such a way that the intake and output are summarized every 8 hours and totaled every 24 hours ending at 7 a. m. A space is provided below this total for the recording of the amount of measured positive or negative fluid balance. The volume of fluid lost from emesis or diarrhea is estimated and recorded in the output column on each occasion. In the lower right-hand corner of the sheet, there is a line provided for the entry of the patient's weight in kilograms. When a patient is weighed, the resident-in-charge supervises, and the weighing is done at the same time and under the same conditions every morning. By utilizing the above information, one has a more accurate guide as to the status of the patient's fluid balance.

There are four columns on the right portion of the fluid balance sheet that are used to record the determinations for urinary specific gravity, chloride, and pH and for blood hematocrit and hemoglobin. The last column is reserved for determinations that may be ordered frequently throughout the day. The reverse side of this sheet serves as the nursing note form. An effort has been made to simplify nursing notes. Many routine nursing procedures that were formerly charted have been discarded; only essential facts are recorded.

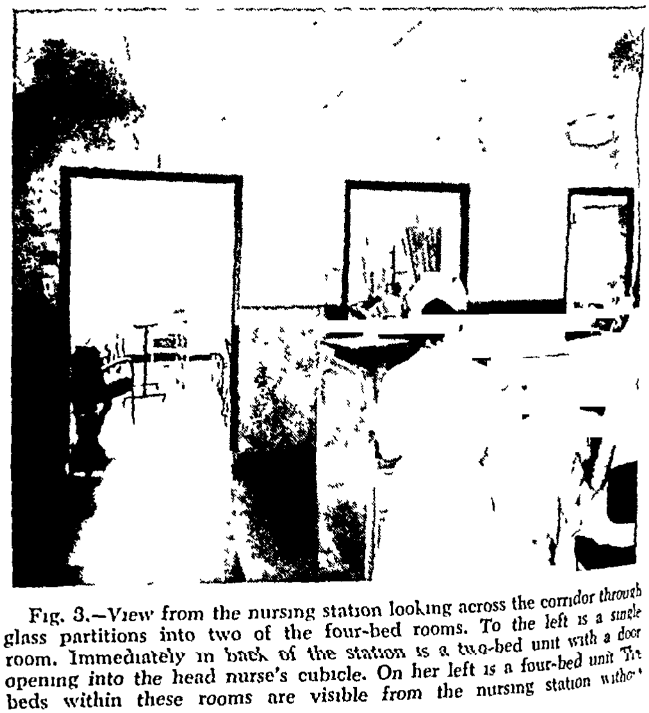


Fig. 3.—View from the nursing station looking across the corridor through glass partitions into two of the four-bed rooms. To the left is a single room. Immediately in back of the station is a two-bed unit with a door opening into the head nurse's cubicle. On her left is a four-bed unit. The beds within these rooms are visible from the nursing station witho entering the rooms.

For those patients who present problems in electrolyte balance, a form was designed to represent graphically the fluctuations from one determination to another. Different colors are used to denote each type of ion. With this chart it is possible to record accurately serum Na^+, K^+, Cl^-, and CO_2 findings on the particular day they were obtained. Such a sheet obviously would be needed only in exceptional cases. It is not intended to serve as more than a recording device to depict, in a more graphic fashion, fluctuations of serum electrolytes from their normal levels. The fact is stressed at all times that intelligent electrolyte therapy is predicated on a knowledge of the volume and source of fluid loss as well as the volume and content of administered fluids. Three horizontal columns have been incorporated at the bottom of this sheet in which the blood and plasma volume excess or deficit and blood urea nitrogen results may be recorded.

Two additional forms have been designed that aid in the recording of vital statistics of this unit. A special care sheet that summarizes the pertinent data regarding the patient's stay and course is printed on green paper and incorporated in the chart. This makes for ready identification of the chart in the record room. To insure against loss of records for statistical study, a large log book is kept on the unit. Upon the admission of a patient, the name and pertinent data relative to the patient are recorded. On discharge, the remaining data are entered by the resident in charge of the unit.

Selection of Patients

All emergency patients, such as those with active gastrointestinal bleeding or severe burns, may be admitted directly to the special care unit at the discretion of the resident-in-charge. All patients leaving the operating room who require special observation for variable periods of time, on the recommendation of the surgeon and the anesthetist, may be sent directly from the recovery room to the unit. As a rule, this has been anticipated, the units have been notified in advance, and the bed that the patient formerly occupied has been given up. The patient who has had a routine gastrectomy may remain in the unit for two or three days. Patients who have undergone heart or lung surgery may remain five to seven days. Those who have had certain types of gallbladder surgery may require one or two days of observation. Patients with severe burns frequently require more prolonged care. Some patients who are not necessarily critically ill but who are in potentially dangerous situations may be kept here for close observation. Those with chronic conditions are not admitted to the unit.

The resident-in-charge is vested with a considerable degree of authority in deciding when special care is no longer required. Since he is there at all times, he can best decide which patients may be moved to regular quarters. As a matter of courtesy, he is expected to speak to the visiting surgeon before actually moving his patient. The final decision regarding admission or discharge is vested in the chief of surgery, but so far this authority has not been exercised because of the fine cooperation of all surgeons, who have not abused the privileges of this excellent unit.

Administration of the Unit

Two committees have been organized that may be described as a higher and a lower echelon committee. The higher echelon includes the hospital director, the director of nurses, chief of surgery, and chief of anesthesiology. This committee functions when policy problems must be decided and also gives the much needed authority for the lower echelon, or working, committee. The lower echelon committee is made up of one member of the surgical service as chairman, one member of the department of anesthesiology, the senior surgical resident, the special care resident, the chief of the nursing service, the director of records, and one member of the administration. Every two weeks this committee makes rounds on the unit and holds a conference to ensure that the ideas and philosophy of the special care unit are being put into effect. At this time, a frank discussion is held so that any mistakes or differences can be rectified and suggestions made for improvements. Thus, we are able to meet at frequent intervals with persons from all departments that have to do with the care of the patient. Even after the short period of time that this system has been in effect, it is obvious that it is an ideal method for a more complete understanding of all people involved.

Summary and Conclusions

The shortage of nursing personnel has become a serious problem to the extent that, in many instances, the critically ill surgical patient is suffering from inadequate and inefficient care. Segregation of all critically ill surgical patients in a single area of the hospital staffed by nurses especially trained accomplishes the following things: 1. Expert care is guaranteed to those who need it the most. 2. The pressure is relieved in all other areas, lessening the need for graduate nurses and allowing for a more generous use of auxiliary help. 3. The demand for private nursing care for the individual patient is lightened. A special care unit at Rhode Island Hospital has been our method of converting this philosophy into actual operation. Our experience has convinced us that a special care unit for surgical patients is one solution to the serious nursing problem that faces us today.

154 Waterman St. (Dr. Beardsley).

Meconium Ileus.—Primary side-to-side ileotransverse colostomy and complementary proximal Witzel ileostomy is to be recommended in the treatment of meconium ileus. The more obvious advantages of this operation are as follows: 1. It is a single-stage procedure. 2. Immediate restoration of intestinal continuity is afforded. 3. Immediate decompression of obstructed intestine is permitted. 4. A means of irrigation is provided by which pancreatic enzymes may be used to liquefy and remove the obstructing, abnormal meconium. 5. No intestinal resection is done, nor does one seem warranted, considering that no lesion intrinsic to the intestinal wall exists. 6. There is reason to believe that the terminal ileum and right colon do not remain defunctionalized but rapidly take on their duties when the side-tracking anastomosis is no longer activated by distal obstruction. 7. The disadvantages of a double-barrelled skin ileostomy, no matter how brief and how minimized, are averted.—T. D. Throckmorton, M.D., and Philip M. Porter, M.D., Treatment of Meconium Ileus by Ileotransverse Colostomy, *A.M.A. Archives of Surgery*, June, 1956.

DIAGNOSIS OF CONGENITAL DYSPLASIA OF THE HIP IN THE NEWBORN INFANT

Sherman S. Coleman, M.D., Salt Lake City

• *Actual dislocation of the hip, with the femoral head lying completely out of the acetabulum, seldom exists at birth. It develops as a gradual process that should be watched for throughout the first year of life in every child. The possibility of recognizing at birth the dysplastic hips that will progress to subsequent dislocation was investigated by (1) examining 3,500 newborn infants specifically for skeletal deformities and (2) securing pelvic roentgenograms from 150 unselected newborn infants for a study of normal dimensions, averages, and ranges. It was found that in the newborn infant the usual physical criteria (such as unilateral shortening of the extremity) for the diagnosis of congenital hip dysplasia are inadequate and unreliable and that discrepancies between the clinical and the x-ray findings (such as a high acetabular index) were distressingly frequent. Congenital hip dysplasia was diagnosed in 32 of the 3,500 infants. It is impossible as yet to tell which joints will become stable spontaneously, which will persist as subluxations, and which will progress to frank dislocations. Since the treatment is simple, it should be applied in all cases that suggest a hip dysplasia.*

The tragedy of late diagnosis of the sequelae of congenital dysplasia of the hip is apparent in any children's hospital. At the Primary Children's Hospital, I examined 3,500 newborn infants during a period of 10 months. This report presents my observations and conclusion that diagnosis of dysplasia of the hip in the newborn infant is possible in the majority of cases. Since it is common knowledge that the earlier the treatment can be instituted, the better are the results, it logically follows that, if the diagnosis can be made at birth, treatment could begin within hours or a few days thereafter. In order to make such a diagnosis, every newborn infant should be given "the dignity of one thorough orthopedic examination."

Each resident who has served at the Latter-Day Saints Hospital has recorded his observations on newborn infants under his care, and I have had access to their data. Thus, records covering more than 11,000 examinations of newborn infants have been available. In analyzing the statistics, it was observed that a wide difference existed from one year to the next in the number of congenital hip dysplasias reported. It became apparent that discrepancies existed, either in the method of examination, in the criteria for diagnosis, or in the terminology employed by different examiners. As the study progressed, further questions arose as follows: What is a dysplasia of the hip in the newborn infant? Can the diagnosis be made at birth? If so, with what degree of accuracy? Of what significance and how reliable is an x-ray examination of the pelvis at birth? Finally, how many dysplastic hips are passing unnoticed during the precious months of rapid and impressionable growth of the pelvis? An attempt has been made in this study to set forth criteria for the diagnosis of dysplasia of the hip in the newborn infant and also to suggest answers to these questions. It is hoped that it may contribute to the knowledge of dysplastic hip disease and provide an aid to those entrusted with the early examination and care of these children.

Definitions

Throughout this report terms will be used that require clear definition for the purpose of discussion. These are dysplasia, subluxation, and dislocation (luxation) of the hip. The term congenital hip dysplasia was introduced by Hilgenreiner[1] in 1925. It is a general term denoting, as Gill[2] described, delayed or defective development of the hip joint and its associated structures. In this regard, it may be considered a precursor to the clinical entities of subluxation and dislocation of the hip.

The terms subluxation and dislocation of the hip are used similarly to that outlined by Putti.[3] In a subluxated hip the cartilage of the acetabulum and the femoral head are in contact; however, there is an abnormal relationship between the two. The term hip dislocation (or luxation) refers to a condition in which the cartilage of the acetabulum and the femoral head are not in contact, and the head lies completely out of the acetabulum.

Material and Methods

In the case of examinations covering 3,500 newborn infants, each was examined specifically for skeletal deformities existing at birth. With few exceptions, all infants whose physical examinations suggested the possibility of a congenital dysplasia of the hip had pelvic x-rays. Thus, a correlation between the clinical findings and x-rays in 27 cases in which there was presumptive diagnosis of dysplasia of the hip was made possible.

In order to establish more clearly the normal x-ray picture of the newborn infant, pelvic x-rays were taken of 150 consecutive newborn infants, unselected except on the basis of parental consent. The technique employed in making the x-ray picture was carefully designed, and I personally positioned and x-rayed each infant. As noted by previous investigators,[4] the position of the infant during radiography influences the x-ray picture; therefore, several infants were x-rayed in different positions and their measurements and findings were compared. This was done in order to determine the position that provides the most accurate and consistent results, with the least likelihood of error. The position agreed upon is basically similar to that employed in other studies. It is described and illustrated in figure 1. A true anteroposterior view of the pelvis is made, care being taken to eliminate possible errors from rotation, pelvic tilt, or parallax.

From the Primary Children's Hospital. Dr. Coleman is now from the Department of Orthopaedic Surgery, Northwestern University, Chicago.

The acetabular index was then measured, and the values encountered in these otherwise clinically normal hips were recorded and the average value was computed. High and low values were also recorded. Additional observations were made concerning the integrity of Shenton's line, the depth of the acetabulum, and the relationship of the femoral neck to the acetabulum according to the "H" line. These observations are summarized in the discussion that follows. In all cases a correlation between the x-ray findings and the physical findings was recorded. In the 27 newborn infants with dysplasia of the hip, similar observations were made, and the data concerning their acetabular indexes were recorded. Nine premature infants were included in the study in order to compare the x-ray appearance of their pelves with those of full-term infants.

Observations

Physical Findings.—The criteria initially employed by me to establish the diagnosis of congenital hip dysplasia by physical examination were those usually listed. These included limited abduction of the flexed hips, increase in depth or asymmetry of inguinal or thigh skin folds, unilateral shortening of the extremity, palpable abnormalities about the hip, and Ortolani's[5] "sign of the jerk." A careful attempt was made to elicit each sign. As the investigation proceeded, it became clear that most of these findings were rarely present in any infant. The impression was gained that, in the newborn infant, the usual criteria for the diagnosis of congenital hip dysplasia are inadequate and unreliable. Most of the conventional signs are late developments, occurring secondarily to progression of the dysplasia into a subluxation or a true dislocation of the hip. An analysis of each physical sign, along with my observations, follows.

Significant persistent limitation of abduction of the flexed thigh in the newborn infant is uncommon, and when it is present it is difficult to evaluate early because so often it is equivocal. Almost all infants can easily abduct their thighs to 80 degrees, and in some they can be abducted well beyond 90 degrees. For evidence of hip dyplasia in the newborn infant, reliance simply on limitation of abduction of the hips gives the observer a false sense of diagnostic security. In only 3 of 30 cases diagnosed as dysplasia of the hips in this study, the infants exhibited limitation of abduction of the flexed thigh. In one of these it was equivocal. On the other hand, in three infants with the most pronounced dysplasias, the hips were capable of being abducted easily beyond 90 degrees. Well over one-half of the cases diagnosed by me were overlooked by the initial examiner because of the conspicuous absence of limited abduction of the hips.

In the newborn infant, absence of limited abduction in hip dysplasia is understandable. In the first place, the joint at birth is seldom truly dislocated[6]; rather, it is merely unstable, having either a capsule that is excessively lax or a socket of inadequate depth, or both. None of these conditions can logically explain limitation of abduction. In the average case of congenital dysplasia of the hip, it is usually as the condition progresses to a true subluxation or dislocation that persistent contractures of the adductors take place.[7] This is probably a gradual, insidious process and should be watched for throughout the first year of life in every child.

The skin folds of a newborn infant are difficult to interpret, and, even at best, asymmetrical skin folds are only suggestive. At birth there is a normal "springy" tightness of certain muscle groups, particularly the hip flexors. This tightness is often slightly asymmetrical. It is physiological during the first few weeks of life, and it can be traced in part to the flexed position of the hips in utero. Howorth[8] suggests that this infantile hip-flexion contracture is a phase in the normal development of the hip joint as it passes from the flexed to the extended position. Certainly such variable factors influence the formation of skin creases, making them diagnostically unreliable. In the presence of mild asymmetrical flexion contractures in the newborn infant, particularly in the absence of other findings, skin creases are virtually meaningless.

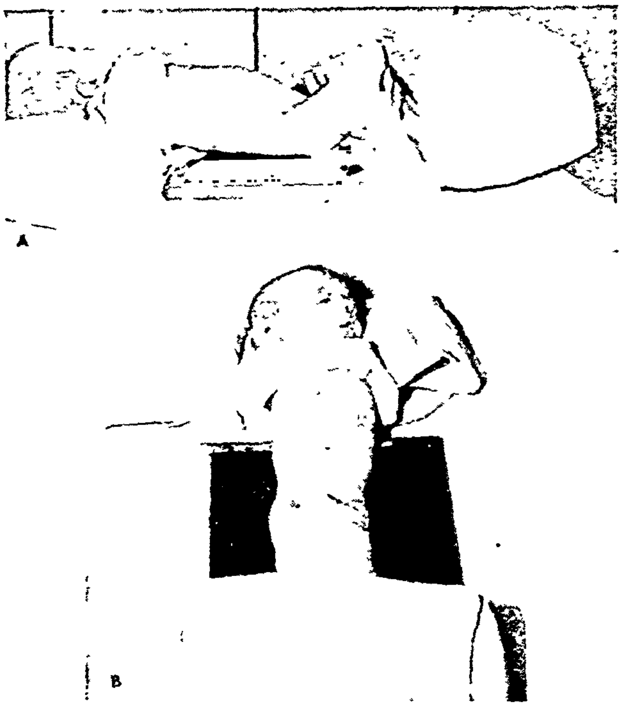


Fig. 1.—*A*, side view of infant in position for x-ray. Lower extremities are wrapped in an Ace bandage with patellae facing anteriorly. Legs are held in parallel alignment by means of pad between legs. Legs are placed on one sandbag 2 in. high, which allows controlled amount of flexion at hips. Another sandbag lies on top of legs to hold them firm. Each arm is restrained with a sandbag. X-ray tube is centered over symphysis pubis. *B*, front view, showing method of restraining infant and position of child on cassette. Rotation is the only variable to control.

Regarding true unilateral shortening of the extremity, in this study, it was not discernible on any of the newborn infants having a diagnosis of dysplasia of the hip. The explanation for this again lies in the important observation that the hip joint is rarely dislocated at birth. At least this obtains in the cases not associated with multiple deformities of the type that Hass[9] and Badgley[10] call "teratological." It is true that complete dislocation of the hip has been reported in a 5-month fetus,[10] and a rare few cases are recorded of infants having dislocated hips at birth; however, in nearly every case of simple congenital dysplasia of the hip, the femoral head is not dislocated in the newborn infant. Thus, true shortening of an extremity is rarely encountered at birth, and, by the same token, palpable abnormalities about the hip joint were not found except those incident to eliciting the "jerk of exit and entry."

The jerk of entry was described by Ortolani [5] in 1935. This consists of a palpable jerk incurred as the subluxated or dislocated hip is reduced into the socket by abducting the flexed thigh and levering the femoral head into the acetabulum. Following this procedure, if the thigh is adducted, the head slips out over the posterior acetabular rim, producing a jerk of exit. This sign is best elicited in the later months of infancy when the secondary signs of hip dysplasia, particularly early dislocation, have occurred. In the newborn infant, however, since dislocation or significant subluxation of the hip rarely exists, Ortolani's maneuver, as described above, cannot be performed. Rather, the reverse of this maneuver must be executed, that is, a jerk of exit must initially be sought.

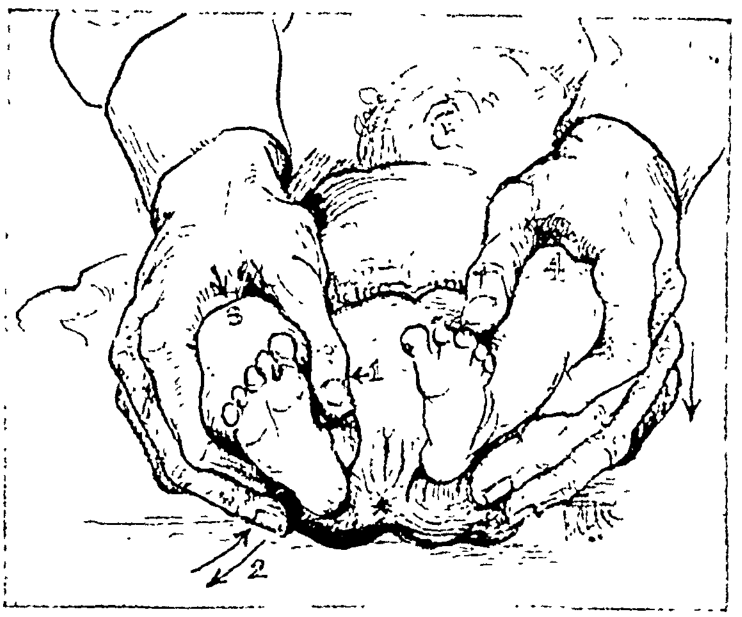


Fig. 2.—Method of examination. One hand steadies pelvis by firmly grasping knee (4) of one leg and exerting downward pressure on the flexed thigh. The other hand grasps the opposite extremity as follows: The fingers overlie the greater trochanter (2), and the thumb is placed over the medial aspect of the upper thigh near the inguinal crease (1). This provides firm grip on the proximal end of the femur. Employing the knee as a fulcrum (3), posterolateral force (arrow) is gently exerted on the upper end of the femur in an attempt to displace the femoral head.

This jerk of exit can be demonstrated as a very definite palpable and sometimes visible displaceability of the femoral head as it passes over the posterior rim of the acetabulum, into a temporarily subluxated position. It is not merely a snapping sensation. Many infant's hips exhibit palpable snaps with the slightest manipulation into the frog position, but it is likely that these are normal ligamentous and capsular phenomena. It was my observation that, in the newborn infant, the jerk of exit is the principal reliable physical finding that suggests a hip dysplasia. The displaceability can be elicited in most cases only if carefully sought. This requires a gentle, well-controlled attempt to displace the hip laterally or posteriorly; this was the technique adopted in this study. There is no undue force exerted, and no attention is paid to the commonly felt snapping phenomena. The hips are flexed and slightly abducted. The pelvis is fixed on the one side by vertical pressure on the thigh while the examiner gently tries to displace the femoral head on the opposite side (fig. 2). In order to be considered positive, palpable displaceability of the head of the femur must take place. As there is some variation in the ease with which the femoral head can be displaced, it is likely that the easier the displacement occurs, the more shallow is the acetabulum and the more severe the dysplasia.

The anatomic factors that may permit this to occur have been mentioned earlier. These are excessive laxity of the capsule and ligaments of the hip and unusual shallowness of the acetabulum, particularly its posterior portion. Howorth [8] suggests that capsular laxity is the principal fault that initiates the chain of events leading to dislocation of the hip. Ortolani,[11] on the other hand, found in studying three fetal dislocations at autopsy that deficiency of the posterior acetabular rim is the major fault. It is concluded from this study that both conditions play a role in the pathogenesis of hip dysplasia in the newborn infant. Capsular laxity is certainly not the only factor, as evidenced by the occasional infant in whom excessive hip-joint motion is exhibited but in whom there is no demonstrable displaceability of the femoral head. From observations in this investigation of exclusively clinical material, it is concluded that shallowness of the acetabulum, particularly its posterior portion, must be the principal defect in the newborn infant and that capsular laxity may or may not coexist. Evidence for this defect, in the form of displaceability of the femoral head from the socket, must be sought for in every newborn infa by the maneuver described above. When present, presumptive diagnosis of dysplasia of the hip can b made.

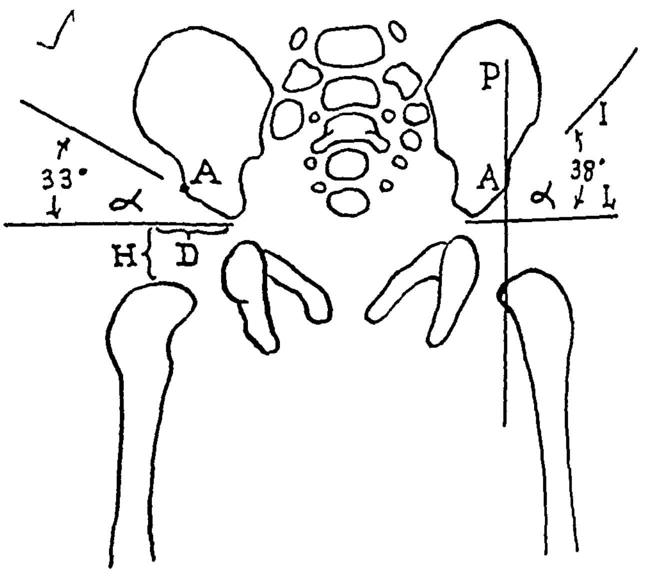


Fig. 3.—Drawing from roentgenogram of pelvis of newborn infant. (Th infant's hips were normal on physical examination.) "A" indicates anter inferior iliac spine; "L" is horizontal line of Hilgenreiner, drawn throu comparable points on triradiate cartilage; "I" is line drawn parallel t acetabular roof; angle formed between "I" and "L" is acetabular index, "P" is Perkins' line, a perpendicular dropped through anterior-infe iliac spine at right angles to "L"; "H" is distance between "L" and hi point on femoral neck; and "D" is distance between triradiate cartilage intersection of "H" and "L."

X-Ray Findings.—One of the distressing observatio made early in the study was the discrepancy betwe x-ray findings and the clinical findings, this being p ticularly true concerning the acetabular index. Th index is the angle that the slope of the acetabular ro makes with a horizontal line drawn through comparable points on the triradiate cartilage (fig. 3). Hilgenreiner[1] drew attention to the possible diagnostic significance of this angle in 1925. Kleinberg and Lieberman,[12] on the basis of x-ray examinations of 23 newborn infants, concluded that an acetabular index above 30 degrees at birth suggested a potential dislocation of the hip. They also determined the average index to be 27.5 degrees. In this study of 300 clinically normal hips, these values were not substantiated. Significantly higher values were obtained, showing that 30 degrees, rather than being the upper limit of normal, is about the average for newborn infants. Brewer[13] and others concur in this observation.

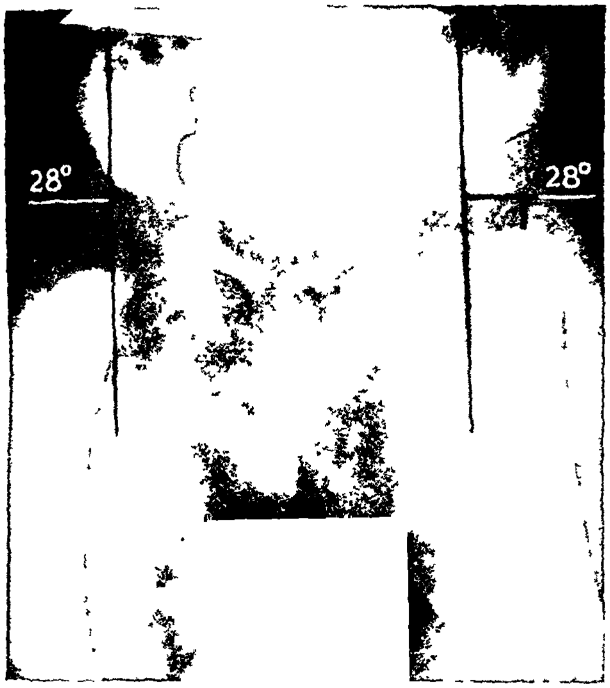


Fig 4.—Pelvic x-ray of newborn female infant having displaceability of the left hip on physical examination. Acetabular indexes are equal, being below average. Lateral disposition of left femoral neck is apparent, as is significant discrepancy in Hilgenreiner's "H" and "D" lines. In this case there is some alteration in Shenton's line on affected side

A wide range of measurements was recorded, varying from 20 to 42 degrees. The mean was computed at 30.86 degrees. The standard deviation was 3.8 degrees. Lower and upper limits of normal ranged from 23.3 to 38.5 degrees (95% of normal hips should fall within this range). The range of values and the number within each range of the 300 normal hips are as follows: 20-21 degrees, 2; 22-23, 5; 24-25, 24; 26-27, 25; 28-29, 44, 30-31, 68; 32-33, 53; 34-35, 54; 36-37, 14; 38-39, 9, 40-41, 1; and 42-43, 1. An interesting finding concerns the measurements of the acetabular indexes in nine premature infants, born between seven and eight and one-half gestational months. No significant difference was noted between the average indexes of these infants and those of full-term babies. In fact, the only difference was that the premature infants exhibited values more uniformly around 30 degrees. The range of values and the number within each range for these 18 hips are as follows: 24-25 degrees, 2; 26-27, 4; 28-29, 4; 30-31, 2; 32-33, 1; 34-35, 2; 36-37, 2; and 38-39, 1. The mean value was 30.2 degrees.

Additional observations were made relating to the sex of the infants and their height and weight. A slight increase in the average acetabular index was noted in females as compared to males. This was, however, not statistically significant. No reliable correlation could be drawn between the size of the infant and the acetabular index. This is understandable, for the acetabular index appears to be only a measure of the degree of ossification of the roof of the acetabulum. It does not necessarily reflect skeletal size.

Thirty babies were considered to have congenital dysplasia of the hip by physical examination. X-ray examinations were made of 27. Sixteen had bilateral dysplasias on physical examination; thus, there were a total of 43 clinically abnormal hips. The acetabular index was measured in each abnormal hip. The range of values extended from 28 to 49 degrees, and the average index was 36.5 degrees, showing that, in these abnormal hips, the average index was 6 degrees higher than values encountered in the series of normal hips. The range of values and the number within each range for 43 clinically abnormal hips are as follows: 28-29 degrees, 4; 30-31, 7; 32-33, 4; 34-35, 4; 36-37, 4; 38-39, 6; 40-41, 5; 42-43, 4; 44-45, 1; 46-47, 3; and 48-49, 1. On the basis of the values computed above on the clinically abnormal hips, it is noteworthy that only 14 out of 43, or 33%, exhibited values significantly above the normal range. The suggestion is, therefore, that the acetabular index shows diagnostic correlation in only one-third of the clinically abnormal hips examined radiographically.

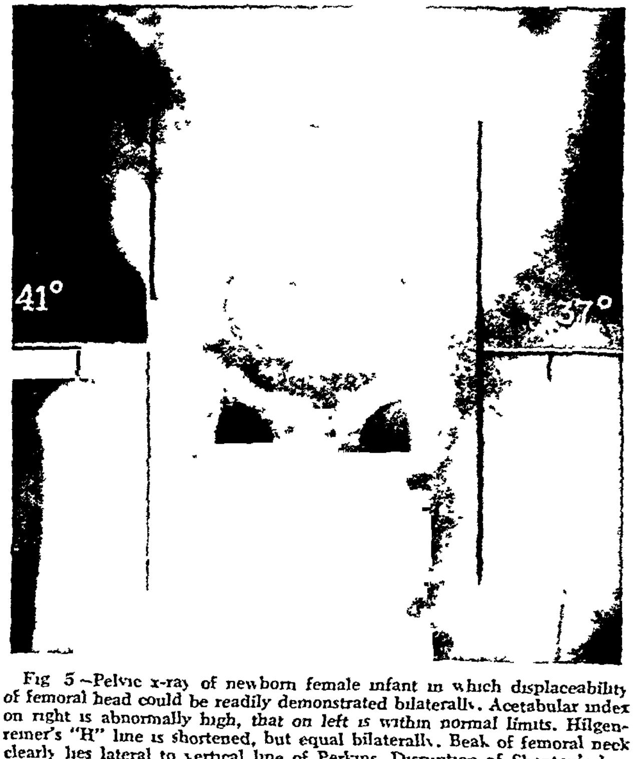


Fig 5.—Pelvic x-ray of newborn female infant in which displaceability of femoral head could be readily demonstrated bilaterally. Acetabular index on right is abnormally high, that on left is within normal limits. Hilgenreiner's "H" line is shortened, but equal bilaterally. Beak of femoral neck clearly lies lateral to vertical line of Perkins. Disruption of Shenton's line is equivocal.

In evaluating other radiographic features of the dysplastic pelvis of the newborn infant, variations were encountered but no single deviation was consistently found. Shenton's line is very difficult to ap-

4. Bost, F. C.; Hagey, H.; Schottstaedt, E. R., and Larsen, L. J.: Results of Treatment of Congenital Dislocation of Hip in Infancy, J. Bone & Joint Surg. **30-A**:454-468 (April) 1948. Burman, M. S., and Clark, H. C.: Roentgenologic Study of Hip Joint of *Infant in First 12 Months* of Life, with Reference to Early Diagnosis of Its Congenital Dislocation, Am. J. Roentgenol. **44**:37-47 (July) 1940.

5. Ortolani, M., cited by Hart, V. L.: Congenital Dysplasia of the Hip Joint and Sequelae (in the Newborn and *Early Postnatal Life*), *Publication* 102, American Lecture Series, *Monograph in American Lectures in Surgery*, Springfield, Ill., Charles C Thomas, Publisher, 1952.

6. Chapple, C. C.: Congenital *Dislocation* of Hip in Infancy, J. Pediat. **6**:306-315 (March) 1935.

7. *Hart, V. L.: Congenital Dysplasia* of the Hip Joint and Sequelae (in the Newborn and Early Postnatal Life), Publication 102, American Lecture Series, monograph in American Lectures in Surgery, Springfield, Ill., Charles C Thomas, Publisher, 1952, p. 80.

8. Howorth, M. B.: Congenital Dislocation *of Hip, Ann. Surg.* **125**: 216-236 (Feb.) 1947.

9. *Hass, J.: Congenital Dislocation* of Hip, Springfield, Ill., Charles C Thomas, Publisher, 1951.

10. Badgley, C. E.: Etiology of Congenital Dislocation of Hip, J. Bone & Joint Surg. **31-A**:341-356 (April) 1949.

11. Ortolani, M., cited by Massie, W. K., and Howorth, M. B.: Congential Dislocation of Hip: III. Pathogenesis, J. Bone & *Joint* Surg. **33-A**: 190-198 (Jan.) 1951.

12. Kleinberg, S., and Lieberman, H. S.: Acetabular Index in Infants *in Relations to* Congenital Dislocation of Hip, Arch. Surg. **32**:1049-1054 (*June*) *1936.*

13. Brewer, B. J.: Congenital Dislocation of Hip—New Concepts in *Early Diagnosis and Treatment in* Infancy, Wisconsin M. J. **51**:869-873 (Sept.) 1952.

14. Perkins, G.: Signs by Which to Diagnose Congenital Dislocation of Hip, Lancet **214**:648-650 (March 31) 1928.

15. Massie, W. K., and Howorth, M. B.: Congenital Dislocation of Hip: III. Pathogenesis, J. Bone & Joint Surg. **33-A**:190-198 (Jan.) 1951.

15A. Faber, A., cited by Hart,[7] p. 140.

16. Marx, V. O.: New Observations in Congenital Dislocations of Hip in Newborn, abstracted, J. Bone & Joint Surg. **20**:1095 (Oct.) 1938.

17. *Slavík, J.*, in discussion *on* Hart, V. L.: Congenital Dysplasia of Hip Joint: Relationship Between Congenital Subluxation and Congenital Dislocation, J. Bone & Joint Surg. **31-A**:372 (April) 1949.

OLD PROBLEMS AND NEW CHALLENGES IN MEDICAL EDUCATION

Edward L. Turner, M.D., Chicago

• *There is need for continuous revision of curriculum, techniques, and methodology in medical education. Examples of current problems are the increasing amount of specialization, the decreasing number of patients who are wards of the public, and the chaotic state of postgraduate education. Programs instituted in the name of correlation and integration must be reexamined often to make sure that the intended results are achieved. Teaching and research are copartners when they are well balanced, but teaching must not be allowed to become an incidental matter, for research in itself cannot supplant the need for continuous study and preparation for teaching. The recruitment of basic scientists has become an important administrative problem. No single formula will solve all these problems, but it is important to remember that medical education involves the teaching of individuals who are destined to care for other individuals, and that its prior task is to inspire.*

"Times and men and circumstances change about your changing character with a speed of which no earthly hurricane affords an image. What was best yesterday—is that still the best in this changed theater of tomorrow? Will your own past truly guide you in your own violent and unexpected future?" These words written by Robert Louis Stevenson aptly portray this dynamic, exciting, and uncertain period of history and suggest the eternal challenge of preparing to meet the needs of today and of the tomorrow that lies ahead. No phase of human endeavor can be described as static in the current scene. The ever increasing scientific knowledge associated with these changes in "time and men and circumstances" has made many traditions, tools, and techniques adequate and effective yesterday now inadequate and obsolete in meeting the challenges of today or in preparing for those of the future.

The past half-century has witnessed enormous advances in scientific knowledge applicable to medicine, which have been reflected by significant changes in medical practice. They have necessitated marked readjustments in medical education. No one can be clairvoyant in regard to the future when knowledge is advancing at such an unprecedented rate. An effort to discuss and reemphasize some of the challenges in medical education that lie ahead may seem almost foolhardy when events are taking place with such acceleration. Old problems present new angles, and new challenges appear on every side. My position is somewhat like that of a student in one of Prof. William Lyon Phelps' classes some years ago. At the end of a pre-Christmas examination, this student handed in a paper on which he had written, "God only knows the answer to this question. Merry Christmas." Professor Phelps returned the paper with the notation: "God gets an A; you get an F. Happy New Year."

Background Preparation

Some of the problems giving concern to medical educators today are more fundamental than the problems of medical education itself. They extend into the area of education prior to admission to medical school and include the question as to just what constitutes the most desirable background preparation. A quarter of a century ago, emphasis was well nigh exclusively directed toward the scientific aspects of premedical education, almost to the point of exclusion of social sciences and the humanities. Since physicians deal with people and should be in the best possible position to understand them, many educators in the field of medicine felt that a more balanced educational background was needed. This soul-searching resulted in a gradual swing of the pendulum toward the concept of a broad, general education as the most desirable background for a physician.

Such a background is a highly desirable possession for any individual regardless of his sphere of activity. However, at the present time, when scien-

---

Secretary, Council on Medical Education and Hospitals, American Medical Association.

Read at the 80th Anniversary Celebration, Meharry Medical College, Nashville, Tenn., June 6, 1956.

tific advances are being made more rapidly than ever before in history and when a solid scientific knowledge is more important than ever, there is also increasing concern over those areas of education that do not fall under the classification of the natural sciences. Just what is meant by a broad, general education? Just how significant is breadth unless there is also a degree of depth? How can the background of the student preparing for medicine be adequately scientific and also include a broad interest in and full appreciation of the socioeconomic facets of human interrelationships? How can we avoid the type of premedical pattern that would tend to stereotype background preparation for a field that offers such a variety of opportunities as are inherent in medicine?

Undoubtedly, one of the keys to this dilemma lies in the development of better intercommunication and closer cooperation between those responsible for medical education and those responsible for preparing students for it. Individuals advising and guiding potential medical students through their college years will be in a position to be of maximum assistance if they fully appreciate the objectives of medical education and the background experiences deemed most helpful in achieving them. It would seem that medical educators have a direct challenge to assist in bridging this academic gap more effectively to the mutual advantage of all concerned.

Undergraduate Education

At the turn of the century, the basic objective of undergraduate medical education was to prepare the student to enter practice. Today, the basic objective of undergraduate medical education is to aid the student in laying the foundation upon which he may build further experience, directed toward certain goals, prior to the initiation of practice. Thus, undergraduate medical education currently plays the role of partial, rather than total, preparation for professional life. How can this partial preparation be made most effective so that it will serve as a suitable foundation for the area of practice, teaching, or research that its possessor will subsequently develop?

This age of specialization has been described by some serious writers as an age of isolation marked by competition between specialists who tend to maintain a laissez-faire attitude toward others. Such an attitude, in turn, lessens the sense of obligation to cooperate and, at times, seems to foster an unwillingness to share in the complex problems of a total group. Sometimes specialists, while working to the best of their ability and aiming at the optimum performance of their own tasks, may find that their actions are determined by thinking and action that are unrelated to each other. I would be willing to offer a substantial wager that every dean has encountered situations of this type in the course of his routine administrative responsibilities. How, in any one given situation, can responsible medical educators overcome this facet of specialization that it has helped to create? This is important if the basic foundation that is to be erected during undergraduate medical education is designed so that its partial role in the total development of the physician will be of maximum value, regardless of the ultimate direction of practice, teaching, or research. What is the best way to coordinate an educational experience in specialist environment so as to develop an educational opportunity that will not lack human and social direction? How can educational programs in medicine be planned so as to offer an all-embracing opportunity for the development and full appreciation of the medical and social problems of patients and maintain intellectual, emotional, social, and technological components in reasonable balance? What are the best approaches in a given medical school environment to insure the development of and to maintain the teamwork necessitated by specialization and avoid the trend toward the increasing impersonalization inherent in fragmentation? These are questions of serious nature that require study, planning, and suitable action if the partial role of undergraduate medical education is to be made the substantial foundation for graduate and continuing medical education that it should be.

Traditional Patterns in Education

Questions such as these can be answered and the problems they raise solved only if there is broad, general faculty appreciation of institutional objectives and the interdigitating functions of various departments in achieving them. Today, when knowledge is advancing so rapidly, there is need for constant study and almost continuous revision of curriculum, techniques, and methodology. However, tradition in medical education, as in many other areas, at times becomes a matter of real concern in efforts to make needed readjustments. Some individuals and some groups seem to forget that tradition is man made and that it should constantly be reevaluated and adhered to or discarded in line with fundamental common needs. Basically, there is nothing so good that it cannot be improved. Although there is much that is good in tradition and many traditions should be steadfastly cherished and fostered, they should not be permitted to stand in the way of sound progress. Years ago Nietzsche observed, "Every tradition grows more venerable—the more remote is its origin, the more confused that origin is. The reverence due it increases from generation to generation. The tradition becomes holy and inspires awe." Arnold commented, in more picturesque fashion, that he was "well satisfied that if you let in but one little finger of tradition, you will have in the whole monster, horns and tail and all."

The point in question is that traditional patterns in curriculum planning and the associated educational techniques and methods are difficult to readjust unless those who are charged with the responsibility of their organization and supervision are fully aware of the factors that require modification in light of the constantly changing scene. No one person in a medical school setting can effectively accomplish the creation of a new pattern for the over-all group. Only a representative group, cognizant of all facets of total curriculum content and with clear-cut objectives, can keep a medical curriculum dynamic and reasonably balanced. Additive material to be included within restricted time allocations necessitates intelligent alterations and subtraction of outmoded or less relevant data. During recent years additive material has accumulated at a rate more rapid than can be counterbalanced by the simple process of deletion alone. This necessitates consideration of ways and means whereby time allocations devoted to excessive or unessential detail may be modified in favor of developing sound concepts of general principles. However, the understanding of general principles necessitates certain basic factual knowledge.

Every responsible medical educator, therefore, constantly encounters the challenge in his own field as to the determination of what constitutes essential factual information and how it can best be utilized to aid in the development of the sound knowledge, understanding, and judgment desirable in the physician. This is where intelligent imagination assumes an importance almost as great as that of knowledge. Whitehead has pointed out, "Knowledge does not keep any better than fish," and that in "successful education there must always be a freshness in the knowledge dealt with." He furthermore indicates, "The properly trained man has some hope of obtaining an imagination disciplined by detailed facts and necessary habits," and this certainly should be one of the basic goals of sound medical education.

Correlation and Integration of Teaching

During recent years much has been said about correlation and integration of medical teaching. A good deal is being done in the name of correlation and integration that falls far short of actually accomplishing such results and tends to reduce the significance of these terms. Genuinely effective correlation and integration also necessitate full appreciation and understanding of the things that are being brought together as well as comprehension of the objectives being sought. Efforts along these lines require an open-minded approach to problems and a willingness to make effective adjustments without compromise on quality or achievement of objectives. Unless these efforts are designed to develop a better educational mousetrap and give fair promise of doing so, nothing of material value is accomplished. Some facets of medical education correlate or integrate with ease and effectiveness, while others present difficult and perplexing enigmas that almost defy other than isolated approach. Correlation and integration of certain aspects of medical education are means whereby some of the problems mentioned earlier in this discourse may be approached as well as effectively solved. However, no faculty should delude itself into the belief that such efforts are simple, for they involve careful background planning, discussion, and supervision when activated. The easiest and laziest way is to side-step such efforts and teach in the splendid isolation of specialization. This more traditional approach is time consuming, involving a great deal of duplication of effort on the part of both teachers and students that can ill be afforded.

Flexibility in Departmentalization

One of the major academic challenges and problems today is, therefore, to determine "how to make the ancient rigid framework of departmentalization serve the purpose of medical education in its true relation to biology and the basic sciences." [1] The challenge extends into the area of overcoming this rigid framework through reasonable flexibility or through the creation of a new framework susceptible to flexibility. Unfortunately, it is necessary to keep in mind that "broad philosophies are one thing, and pedagogic expedients another." It is stimulating to observe the increasing cooperation that is currently under way between departments in medical schools and between medical schools and other areas of academic discipline. The rigid framework of departmentalization has of necessity become more flexible with the realization that, in the current setting, no departmental discipline is sufficient unto itself. Basic sciences spill over into each other's domains and into almost every facet of clinical activity. Honest appraisal of any departmental discipline demonstrates that, if it were to be stripped of the knowledge contributed by other departments today, there would be little remaining but a ghost of the past.

Teaching and Research

Teaching and service were the two major component functions of medical education in the United States during the early years of the current century. There was little evidence of any real effort to advance knowledge in the majority of the medical schools of that period. However, at the time of the first serious survey of medical schools by the Council on Medical Education of the American Medical Association, one of the 10 criteria used to evaluate institutions rested in determining whether or not faculty members had made or were endeavoring to make original contributions to knowledge through research. Today, experimental investigation, or research, is universally recognized as one of the three major activities of a medical school. Deitrick and Berson [2] indicated that research "is the principle means by which the medical school fulfills its fundamental obligations for the advancement of knowledge." Research today necessitates a considerable portion of the faculty time in most institutions and has been associated with increasingly large financial support.

It is hardly necessary to remind you that teaching and research are co-partners where they are well balanced and each given its due emphasis. Actually, investigation in a research project and good medical practice are fundamentally kindred in spirit, method, and objective. In facing his responsibilities, the physician encounters the same type of challenges that confront the scientific investigator. Each patient is an individual presenting a problem that must be studied and analyzed, submitted to rational therapeutic procedures, and then followed to the point of satisfaction with the result of such analysis, conclusion, and action.

Physicians have need of the same type of alert, systematic, thorough, and critically open-minded approach that characterizes the research scholar. A medical school whose faculty personnel are not actively seeking answers to the myriad of unsolved problems confronting them would hardly be worthy of its name and would furnish a dull environment for both teacher and student.

Research, however, is a term that has been handled in recent years almost as loosely as coordination and integration and has played an even greater role in determining how faculty personnel utilize their time. The importance of research, with its potential and increasing impact on medicine as well as on human welfare, can be readily appreciated by surveying the procession of discoveries and the subsequent application of this knowledge that has occurred in recent years. It was to be anticipated, with the glamour and potential values now associated with the word research, that conflicts would inevitably arise in medical schools involving problems of balance between research and teaching functions. There is no denying the fact that in numerous instances research has overshadowed the total activities of some individuals with teaching responsibilities to the point where the latter have become an incidental rather than a major matter of concern. This is not in the best interests of medical education, for research in itself cannot supplant the need for continuous study and preparation for teaching. It cannot replace the lack of supervision when it becomes so time consuming that it sidetracks teaching responsibilities. It is important for medical faculties to remind themselves that the primary function of a medical school is to offer the learning opportunities and environment needed in the basic education of a physician. Good teaching, therefore, is of paramount importance; good teaching balanced with good research on the part of the faculty greatly enhances educational potential. The shirking of teaching responsibilities in the pursuit of research, real or fancied, cannot be condoned in the individual charged with teaching as a major obligation. This merely emphasizes that these two important functions of a medical school must each be given their due recognition and emphasis in keeping with the personnel, facilities, and financial resources available to the institution.

Problems of Administration

The problems and challenges that confront responsible administrators in this fascinating field of medical education become increasingly numerous and more complex as the scene changes. Those that have been presented represent only a few of the broad issues confronting all schools today. One matter of increasing concern lies in the relative dearth of manpower in the basic medical sciences. Recent years have witnessed the development of many new fields of scientific interest that are competing for top caliber youthful intellect. Economic competition for well-qualified young basic scientists has developed that is difficult for medical schools and their parent universities to meet effectively. Within medical schools themselves, there has been increasing competition for the basic scientists through their increasing utilization in clinical research programs. This increased utilization of the basic scientists in clinical investigation is to be highly commended and further encouraged. However, it is important that opportunities for teaching and research as well as economic reward be of such nature within the basic science areas themselves that they may remain virile and dynamic through attracting and retaining adequate personnel as well as through the development of personnel to meet needs in these other fields. Recruitment of personnel in these fields presents the administrative challenge of meeting more effectively some of the economic aspects of making such careers more attractive.

As has been indicated earlier, the rapidly changing socioeconomic pattern during recent years has had great impact on medical practice and has necessitated significant readjustments in both undergraduate and graduate medical education. The day is not long past when the great reservoir of patients ordinarily involved in medical education and training fell within the group of individuals known as wards of the public. In those days, most private patients or patients who covered part of their cost were considered as unavailable in a medical education program. Prepaid insurance and welfare programs have changed the traditional setting drastically in a relatively short period of time. The philosophy of medical education has of necessity undergone tremendous readjustment, necessitating recognition and acceptance of the fact that any and all categories of patients are suitable and available for participation in medical education programs if they are properly indoctrinated into its meaning and significance by their physicians. Thus, there is increasing incorporation of the private patient into undergraduate and graduate medical education in most institutions. Trends are sufficiently well established so that the time may not be far distant when all institutions must adapt their programs so as to utilize effectively the potentialities of the private patient and patients covered by one form or another of prepaid insurance.

Graduate and Postgraduate Education

This trend has, however, created problems in certain fields of graduate medical education that are not easy to solve effectively. How, for instance, is the surgical resident to receive preparation through the assumption of increasing responsibility on a service consisting primarily of private patients? Where does responsibility lie in such a situation, and how can it be solved to the mutual satisfaction of the patient, the resident, and the responsible residency supervisor? Answers to problems of this nature are being furnished in various ways in different institutions. The impression is gained that the need for working out satisfactory solutions to problems of this type has been beneficial in many ways, as it tends to curtail independent, unsupervised responsibility. The effective solution of problems of this nature actually holds promise of improving rather than weakening graduate education in the long run.

detectable clinically. This should prevent unnecessary opening of the chest for cardiac massage and other measures. The observer can initiate other measures to return the blood pressure to normal without loss of valuable time in trying to assure the correct diagnosis.

Ventricular Fibrillation.—During ventricular fibrillation, the heart muscle loses its power of effectual contraction and the various bundles beat independently and asynchronously in a fascicular type of activity. This results in failure of ejection of blood from the heart, with absence of pulse and blood pressure. During ventricular fibrillation, the galvanometer needle of the cardiac monitor produces very small, irregular, and highly erratic oscillations, completely lacking any rhythmicity. The baseline (isoelectric line) wanders throughout the range of the dial. Here again, the cardiac monitor duplicates the electrocardiographic pattern (fig. 2*D*).

Comment

The cardiac monitor was developed to allow continuous, instantaneous visualization of the electrical activity of the heart as an aid to the surgeons and anesthesiologists in a large general hospital. The device would be of even greater value in the small hospital or for use during dental anesthesia, when a qualified anesthesiologist is less likely to be available. The small size, portability, and self contained power supply of the monitor suggest its use in ambulances and by police and fire department rescue and resuscitation squads in cases of drowning, electrocution, vehicular accidents, and severe injury or illness. In civil disasters or combat situations, the availability of the monitor would facilitate sorting of living from dead casualties and resuscitation and treatment under very adverse conditions.

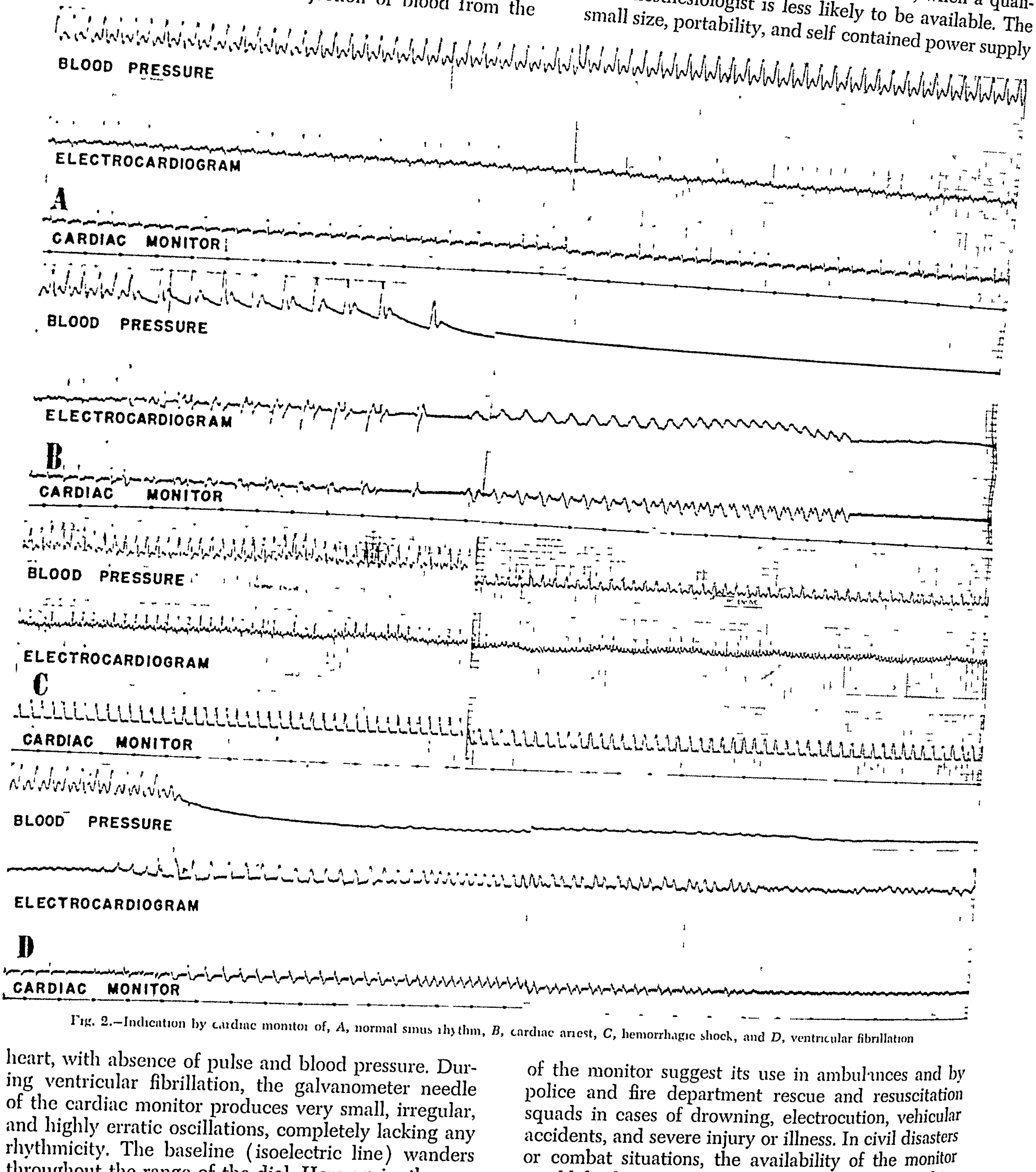


Fig. 2.—Indication by cardiac monitor of, *A*, normal sinus rhythm, *B*, cardiac arrest, *C*, hemorrhagic shock, and *D*, ventricular fibrillation.

Summary

The cardiac monitor is a portable, battery-powered electronic device for monitoring the electrical impulse of the heart. The amplifier is a multiple-stage transistor circuit, the output of which feeds a milliammeter and a headphone. Under normal conditions, and in cardiac arrest, shock or peripheral vascular collapse, and ventricular fibrillation, the monitor gives a characteristic, diagnostic response.

References

1. Beck, C. S.; Weckesser, E. C.; and Barry, F. M.: Fatal Heart Attack and Successful Defibrillation: New Concepts in Coronary Artery Disease, J. A. M. A. **161**: 434-436 (June 2) 1956. Reagan, L. B.; Young, K. R., and Nicholson, J. W.: Ventricular Defibrillation in Patient with Probable Acute Coronary Occlusion, Surgery **39**: 482-486 (March) 1956. Beck, C. S., and Rand, H. J., III: Cardiac Arrest During Anesthesia and Surgery, J. A. M. A. 141:1230-1233 (Dec. 24) 1949. Stewart, B. D.; Virtue, R. W., and Swan, H.: Cardiac Arrest and Ventricular Fibrillation: Experimental Study in Dogs with Acute Hypoxia and Hypercapnia and in Dogs with Chronic Hypoxia, A. M. A. Arch. Surg. **66**: 703-713 (June) 1953. Stephenson, H. E., Jr.; Reid, L. C., and Hinton, J. W.: Some Common Denominators in 1,200 Cases of Cardiac Arrest, Ann. Surg. **137**: 731-744 (May) 1953.

STUDY OF RESPIRATORY LIVER METABOLISM IN SURGICAL PATIENTS

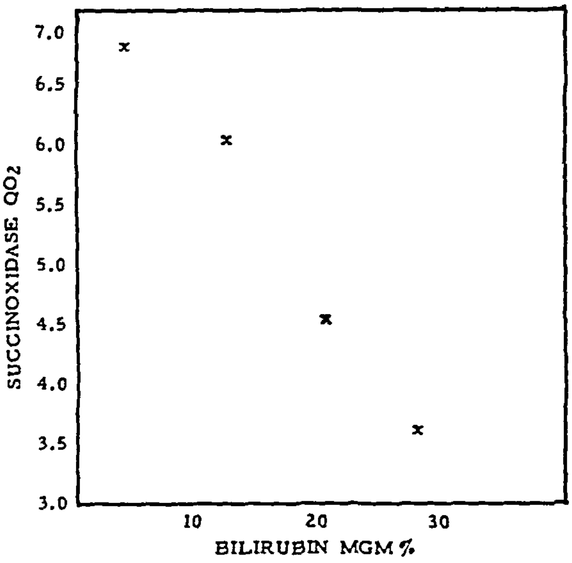
H. Clinton Davis, M.D.
Irwin S. Morse, M.D.
Edward Larson, Ph.D.
and
Mark Wynn, M.S., Miami, Fla.

The usual liver-function studies coupled with needle biopsy of the liver have been valuable in appraising liver disease. They permit an accurate appraisal of the pathology without an exploratory operation, and frequently they avert an unnecessary surgical procedure. Yet, the occasional poor correlation between the laboratory and pathological reports serves as a constant stimulus to develop new methods of research or to reapply older techniques for further biological information. Direct physiological tests on liver tissue have been used for many years in experimental work on small animals; however, relatively little work has been done on the respiratory metabolism of the human liver. The frequency with which liver biopsy specimens are taken at the operating table for pathological examination, and the benignity of the procedure, have prompted us to send a portion of our specimens to both the pathologist and the physiologist.[1] To our knowledge, at the start of this study, in 1952, oxygen quotient studies had never been reported on human liver.

As the Gillmans[2] and Waterlow and Patrick[3] have pointed out, in the study of altered metabolic regulation it is better to concentrate on dynamic processes rather than to measure metabolites of tissues. A study of tissue enzyme activity would appear to help us to get nearer to a basic understanding of the problem. In 1954, Waterlow and Patrick[3] reported their progress with enzyme studies on fatty liver in infants. Various enzyme systems were investigated in their series, and there was a suggested reduction in cholinesterase and succinoxidase activity in fatty liver tissue.

Method

The 10 patients used in this study were undergoing surgery for gallbladder, colon, or pancreatic disease or peptic ulcer; 4 patients with obstructive jaundice had liver-function studies in the course of their preoperative evaluation. Wedge biopsy specimens weighing approximately 1.5 gm. were removed from the liver edge in 10 patients and placed into a precooled sterile container. The specimen was then immediately sectioned, weighed, and placed in the Warburg apparatus for oxygen determinations. The oxygen consumption was determined by the direct Warburg procedure on slices, with Krebs-Ringers succinate as the substrate.[4] Oxygen consumption was expressed as QO_2, or the number of microliters of oxygen consumed in one hour by 1 mg. (dry weight) of tissue. Biopsy specimens were taken early in the operative procedure to avoid a factor of prolonged anesthesia and shock. Both general and spinal anesthesia were used. Concomitant liver sections for histological study also were made for most of these individuals.



Liver succinoxidase QO_2 and serum bilirubin levels in four patients with obstructive jaundice.

Results

There was no increased morbidity referable to the liver biopsy performed at the time of laparotomy. The six patients with grossly normal livers underwent subtotal gastrectomy in five instances, and one had a resection of the transverse colon. The histological examination of liver biopsy specimens, available in four of these patients, suggested no functional liver pathology. The oxygen consumption, expressed as QO_2, varied from 4.74 to 8.86 in these six cases (average 6).

Three patients in this series underwent palliative surgery for malignancy at the head of the pancreas; another patient had common-duct stones with obstructive jaundice. Each patient showed hepatic derangement, both by histological examination of the liver and by the liver-function studies. Their QO_2 determinations varied from 3.63 to 6.79 (average 5.3). The patients with the highest bilirubin levels had the lowest QO_2 values (see the table and the figure). How-

---

From the Department of Surgery, University of Miami School of Medicine and United States Veterans Administration Hospital, Coral Gables, Fla.

ever, surgery was frequently performed considerably after the bilirubin determination had been done, and, therefore, all bilirubin values could have been higher at laparotomy. The patient with the most severe liver damage died on the ninth postoperative day in hepatic and adrenal failure.

Comment

The presence of succinic dehydrogenase in tissues was discovered by Battelli and Stern,[5] who noted that, when succinate was added to certain tissues, the oxygen uptake was markedly increased and malic acid was produced. More recent work has shown that the catalytic dehydrogenation of succinate is the result of the action of succinic dehydrogenase, cytochrome-C, and cytochrome oxidase.[6] The components of this reaction are referred to as the "succinoxidase system." Succinic dehydrogenase is found in bacteria, molds, insects, and most tissues of vertebrates that have been tested. Schneider and Potter [6] determined the activity in heart, kidney, liver, brain, skeletal muscle, spleen, lung, and Jensen sarcoma of the rat.

Findings in Ten Surgical Patients on Whom Respiratory Liver Metabolism Studies Were Done

Date	Diagnosis and Operation	Type of Anesthesia Before Liver Biopsy	Finding on Microscopic Examination of Liver Biopsy Specimen	Liver-Function Tests	QO_2
1/14/53	Peptic ulcer (duodenal); gastric resection	Continuous spinal, intravenous; 10 mg. tetracaine (Pontocaine) hydrochloride, 1/150 grain (0.4 mg.) scopolamine	No examination	None	4.78
1/21/53	Cancer of transverse colon, gastric polyp; resection	Continuous spinal, intravenous; 5 mg. tetracaine, 50 mg. meperidine, 1/300 grain (0.2 mg.) scopolamine	No examination	None	4.86
1/28/53	Obstructive jaundice, cancer of head of pancreas	Intravenous, inhalation; 0.25 gm. thiopental (Pentothal) sodium, cyclopropane	Obstructive jaundice	12/31/52: icteric index 93 units; cephalin flocculation 2+; alkaline phosphatase 25 Bodansky units, thymol turbidity 2.8 units/100 cc.; serum bilirubin 13 mg (van den Bergh direct 6.6, indirect 6.4), cholesterol 1,087 mg., cholesterol esters 80 mg./100 cc.	6.17
2/6/53	Duodenal ulcer; gastric resection	Intravenous, inhalation; 0.5 gm. thiopental, 60 units curare	Hemosiderosis	None	6.03
2/9/53	Common-duct stone; common-duct exploration	Spinal, intravenous; 10 mg. tetracaine, 50 mg. meperidine	Hemosiderosis; obstructive jaundice	1/28/53: sulfobromophthalein retention 47.5% after 45 min.; icteric index 28.9; cephalin flocculation 4+; alkaline phosphatase 20 Bodansky units, thymol turbidity 2.2 units/100 cc.; serum bilirubin 3.55 mg. (van den Bergh direct 2.5, indirect 1.05), cholesterol 268 mg./100 cc.	6.79
2/10/53	Marginal ulcer; gastric resection	Intravenous, inhalation; 0.5 gm. thiopental, 60 units curare, cyclopropane	Hemosiderosis	No liver-function studies; total serum proteins 7.8 gm., with 4.29 gm. albumin and 3.51 gm. globulin/100 cc.	4.74
2/12/53	Obstructive jaundice, cancer of pancreas	Continuous spinal; 4 mg. tetracaine	Obstructive jaundice	2/11/53: Urine 4+ for bile, negative for urobiligen; icteric index 122; cephalin flocculation 4+; alkaline phosphatase 53 Bodansky units, thymol turbidity 2.2 units/100 cc.; total serum proteins 6.6 gm., with 8.5 gm. albumin and 3.1 gm. globulin/100 cc.; serum bilirubin 27.7 mg. (van den Bergh direct 16 mg.), cholesterol esters 64 mg./100 cc.	3.63
2/16/53	Chronic duodenal ulcer; gastric resection	Continuous spinal; 6 mg. tetracaine	Hemosiderosis	None	6.45
2/18/53	Peptic ulcer; gastric resection	Continuous spinal, intravenous; 10 mg. tetracaine, 100 mg. meperidine, 1/150 grain scopolamine	Hemosiderosis	None	8 86
3/16/53	Cancer of head of pancreas	Intravenous, inhalation; 0.5 gm. thiopental, cyclopropane	Obstructive jaundice	3/2/53: icteric index 112; cephalin flocculation 1+; alkaline phosphatase 14.7 Bodansky units, thymol turbidity, 1.3 units/100 cc.; serum bilirubin 20.8 mg. (van den Bergh direct 14.3, indirect 6.5) cholesterol 469 mg., cholesterol esters 135 mg./100 cc.	4.48

Several reports have appeared on the correlation of changes in activity of the succinic dehydrogenase of various tissues with changes in the function of these tissues. The activity in the rat embryo liver increases rapidly during the late embryonic and early postnatal life and reaches the adult level within 15 days after birth.[7] The activity is much lower in rat hepatoma than in normal liver, i.e., the activity in liver tumors is about one-fourth that in normal liver.[8] Meyer found that the activity in the functional corpus luteum of the ovary during pregnancy is two and one-half times greater than in the nonfunctional diestrous corpus luteum.[9] Studies of this type provide the basis for insight into the mechanisms of specialized physiological processes. The activity of succinic dehydrogenase in various kinds of tissues has been studied by determining the rate of reduction of methylene blue and by the measurement of oxygen uptake in the presence of the cytochrome system. By the use of the reaction mixture of Schneider and Potter for optimum activity,[6] the enzyme is made the limiting factor in the system and the oxygen uptake is a measure of the maximum activity of the dehydrogenase.

This pilot study was undertaken in an effort to determine whether direct physiological studies on human pathological tissues would be practical and informative. While voluminous reports are available on lower animals, this approach to the study of pathological physiology has been neglected in man. The succinic dehydrogenase enzyme system was selected because of the relatively high QO_2 readings that could be anticipated. The many other enzyme systems and methods of studying cellular activity provide numerous avenues for future research.

To date, oxygen-quotient studies do not appear to be practical from a clinical diagnostic standpoint. The limitations of in vitro studies are immediately apparent. It is not possible to state the normal QO_2

values for human liver from this small series. Normalcy, in the true sense, must be judged by normal liver-function tests and normal histological appearance. Samples from the liver edge may not be truly representative of the entire organ, although deep and superficial samples do not show any significant consistent changes in the cell count and appearance in our studies in dogs.[10] Waterlow and Patrick found the average oxygen-quotient value of succinoxidase in infants to be 4. Our QO_2 values were approximately 6 when averaged on six male adults. Another group with obstructive jaundice had slightly lower readings. This material is presented in the hope that it will stimulate interest in the possibilities of tissue physiology. Enzymatic investigations are now being extended to the study of experimental and clinical cirrhosis; the effect of anesthesia, anoxia, shock, and ischemia of the liver; and the effect of acute and chronic obstructive jaundice. Specimens from patients with acute and chronic hepatitis have not been available, for these patients rarely come to laparotomy.

Summary

Liver succinoxidase, oxygen-quotient, (QO_2) determinations were made on 10 patients undergoing upper abdominal surgery. Values suggested slight impairment of in vitro activity of the enzyme system in the presence of obstructive jaundice in comparison to apparently normal liver. The concept of performing direct physiological studies on human tissue is believed to be of possible value just as it has been in laboratory animals. The clinical physiologist could well fill some of the gaps in our understanding and assessment of problems of altered metabolism.

1242 duPont Bldg. (32) (Dr. Davis).

Virgil Moon, M.D., and Robert B. Thomson, M.D., reviewed the pathological material for this study.

References

1. Larson, E., Wynn, M. F., Morse, I. S., and Davis, H. C. Oxygen Consumption of Liver, Fed. Proc. 13:378 (March, pt. 1) 1954.

2. Gillman, J., and Gillman, T.: Perspectives in Human Malnutrition Contribution to Biology of Disease from Clinical and Pathological Study of Chronic Malnutrition and Pellagra in African, New York, Grune & Stratton, Inc., 1951.

3. Waterlow, J. C., and Patrick, S. J.. Enzyme Activity in Fatty Livers in Human Infants, Ann. New York Acad. Sc. 57:750-763 (May 10) 1954

4 Umbreit, W. W., Burns, R. H., and Stauffer, J. F.. Manometric Techniques and Tissue Metabolism, Minneapolis, Burgess Publishing Company, 1949.

5. Battelli, F., and Stern, L.: L'oxydation de l'acide succinique comme mesure du pouvoir oxydant dans la respiration principale des tissus animaux, Compt. rend. Soc. biol. 69:554-556, 1910, Influence de quelques facteurs sur l'oxydation de l'acide succinique par les tissus animaux, ibid 69:370, 1910.

6. Schneider, W. C., and Potter, V. R.: Assay of Animal Tissues for Respiratory Enzymes Succinic Dehydrogenase and Cytochrome Oxidase, J. Biol. Chem. 149:217-227 (July) 1943.

7. Potter, V., Schneider, W. C., and Liebl, G. J. Enzyme Changes During Growth and Differentiation in Tissues of Newborn Rat, Cancer Res 5:21-24 (Jan.) 1945.

8. Schneider, W. C., and Potter, V. R. Biocatalysts in Cancer Tissue, Succinic Dehydrogenase and Cytochrome Oxidase, Cancer Res. 3:353-357 (June) 1943.

9. Meyer, R. K.; Soukup, S. W., McShan, W. H., and Biddulph, C., Succinic Dehydrogenase in Rat Ovarian Tissues during Pregnancy and Lactation, Endocrinology 41:35-44 (July) 1947.

10. Morse, I. S.; Thomson, R.; Larson, E., and Davis, H. C.: Unpublished data.

DIRECT-VISION INTRACARDIAC SURGERY FOR PULMONARY STENOSIS

Earle B. Kay, M.D.
Henry A. Zimmerman, M.D.
and
Frederick S. Cross, M.D., Cleveland

In the past, cases of pulmonary stenosis have been surgically corrected by variations of the Brock[1] procedure, with instrumentation through the right ventricle to open the stenosed pulmonary valve. Swan[2] has demonstrated by postoperative cardiac catheterization studies that a valvulotomy so performed may be inadequate and responsible for failure of reduction of right ventricular pressure as compared to those performed by the open method through the pulmonary artery with the patient under hypothermia.

We have attempted to ensure an adequate valvulotomy by the use of direct-pressure measurements taken in the right ventricle and pulmonary artery at the operating table both before and after the valvulotomy in order to evaluate the effectiveness of the technical maneuver and adequacy of the opening.[3] If sufficient equalization of the two pressures on opposite sides of the pulmonary valve failed to occur, further attempts were made to open the pulmonary valve until the pressures approximated each other. By following this practice we were able to increase the number of satisfactory results, and in the presence of pure valvular pulmonary stenosis this appeared adequate.

It was not always possible, however, to determine the exact intracardiac lesions by the preoperative cardiac evaluation studies. In some instances, instead of a valvular stenosis an infundibular stenosis was found at the time of surgery in close proximity to the pulmonary valve; in others, we relieved a valvular stenosis only to find later that there was an additional infundibular stenosis present; and in still others a valvular stenosis was relieved only to be followed by the untoward pulmonary complications of an associated ventricular septal defect. Consequently, there are situations where direct visualization of the pulmonary outflow tract during surgery is not only desirable and advantageous but also mandatory.

There is no question that a stenosed pulmonary valve can be opened better under direct vision than by blind instrumentation. This is especially true in the treatment of infundibular stenosis, in which the closed techniques are even more unsatisfactory. With the use of heart-lung machine, oxygenation and sustained circulation can be maintained during open cardiotomy. This allows direct vision of the entire ventricular chamber valves, and septums. The congeni-

---

From the Surgical-Medical Service, St. Vincent Charity Hospital, and the Surgical Service, St. Luke's Hospital.

tally stenosed diaphragm representing the pulmonary valve can be retracted into the field of vision and opened, and new valve cusps can be fashioned. An associated infundibular stenosis can be easily excised. An associated ventricular septal defect, if present, is readily apparent and in turn can be adequately closed. Similarly, the atrial septum can be explored, and, if a defect of this septum is present, it too can be closed. Consequently, at the termination of the procedure a better operation has been performed; additional defects have been corrected, if present; and later complications such as pulmonary hypertension from an undetected ventricular septal defect have been avoided.

The operative findings present in the first five patients operated on with use of our heart-lung machine lend support to the above opinions (see table). Three of these patients had additional defects that had not been apparent preoperatively but that were easily detected and corrected under direct-vision surgery. The pump oxygenator employed during operation on these first five patients consisted of a rotating disk oxygenator in conjunction with a Sigmamotor pump. A Lauck pump is being substituted at the present time. The description of this machine and the experimental data will be the subject of a separate report.

Findings in First Five Patients Operated On

Case No.	Diagnosis, Preoperative	Found at Surgery
1	Valvular pulmonary stenosis	Valvular pulmonary stenosis
2	Valvular pulmonary stenosis Ventricular septal defect	Valvular pulmonary stenosis Ventricular septal defect
3	Valvular pulmonary stenosis	Infundibular pulmonary stenosis Ventricular septal defect
4	Valvular pulmonary stenosis	Valvular pulmonary stenosis Infundibular pulmonary stenosis Ventricular septal defect
5	Ventricular septal defect	High ventricular septal defect Low ventricular septal defect

The main argument against the employment of a direct-vision open cardiotomy is the possibility of a higher operative mortality, at least initially. We are in full agreement that extracorporeal circulation should not be employed until the operators are thoroughly versed not only with its experimental use but also with the technical problems associated with intracardiac surgery in patients. The machine in itself is only one of many factors that must be considered for success. There was one death among the first five patients, in the fourth one operated upon. This patient had severe cardiac malformations consisting of a valvular pulmonary stenosis, an extensive infundibular stenosis, and a large ventricular septal defect. It is felt that this death was not due to the use of the pump oxygenator with open cardiotomy per se but rather to the patient's severe underlying cardiac problem. He did well during the period of cardiac bypass perfusion but developed multiple cardiac standstills, necessitating massage after the thoracotomy incision was closed. The other four had their defects corrected and made an uneventful recovery.

Conclusions

The development of the pump oxygenator not only enables the cardiac surgeon to perform operations within the open heart under direct vision more effectively than heretofore possible with blind techniques but also permits him to detect and correct additional abnormalities that might otherwise remain undetected.

10465 Carnegie Ave. (Dr. Kay).

This study was supported in part by a grant from the Cleveland Area Heart Association.

References

1. Brock, R. C.: Surgery of Pulmonary Stenosis, Alexander Simpson-Smith Lecture, Brit. M. J. 2: 399-406 (Aug. 20) 1949.

2. Swan, H.; Cleveland, H. C.; Mueller, H., and Blount, S. G., Jr.: Pulmonic Valvular Stenosis: Results and Techniques of Open Valvuloplasty, J. Thoracic Surg. 28: 504-512 (Nov.) 1954.

3. Zimmerman, H. A., and Kay, E. B.: Use of Direct Pressure Measurement at Operating Table to Evaluate Acute Results of Corrective Cardiac Surgery, J. Thoracic Surg. 27: 425-427 (April) 1954.

ISOLATION OF JAPANESE B ENCEPHALITIS VIRUS

REPORT OF A FATAL CASE IN AN AMERICAN SOLDIER RETURNED FROM KOREA

Lieut. Col. Harold E. Shuey (MC), U.S. Army
and
Lieut. Col. Trygve O. Berge (MSC), U.S. Army

References to only three cases of Japanese B encephalitis occurring in persons in the United States after arrival or while en route to this country from epidemic centers in the Far East have been published.[1] From none of these was the isolation of the virus reported. To our knowledge, this is the first case of Japanese B encephalitis in the United States in which the etiological agent has been recovered.

Report of a Case

Present Illness.—A 22-year-old enlisted man was admitted to the U. S. Army Hospital, Fort Lawton, Wash., on Sept. 13, 1954, complaining of fever, retro-orbital pain, and headache of two days' duration, not relieved by acetylsalicylic acid, acetophenetidin, and caffeine (ACP) capsules or other medication. On the previous day, the patient had nausea and was hospitalized aboard ship after three episodes of vomiting. There were no cramps or diarrhea, nor was there any difficulty in urination.

History.—The patient had been with an ambulance company located at Chunkok, Korea, north of the 38th parallel, from Feb. 12 to Aug. 25, 1954. From Aug. 26 to Aug. 31, 1954, he was attached to a replacement depot at Pusan in southeastern Korea. On the latter date, he departed from Pusan for the United States on a military transport. Prior to the onset of the present illness, 11 days after boarding ship, he had been in perfect health. The patient denied any recent respiratory infection, cough, or sore throat. The history contained no mention of any insect bites.

Physical Examination.—On his admission to the hospital at Fort Lawton, the pulse rate was 118 per minute with regular rhythm. The temperature was 100.6 F (38.1 C) and the blood pressure, 138/70-62 mm. Hg. The ear, nose, and throat examination was

---

From the Sixth Army Area Medical Laboratory, Fort Baker, Calif.

negative. The chest was clear to auscultation and percussion. The heart was of normal size, and no murmurs were audible. The abdomen was scaphoid, and the liver and spleen were not palpable. There was no tenderness. All deep and superficial reflexes were equal and symmetrical. The admission diagnosis was idiopathic hemorrhagic fever.

Course in Hospital.—On the evening of Sept. 13, the temperature was noted to have ranged between 102 and 104 F (38.9 and 40 C) during the day. There was bilateral conjunctivitis and marked photophobia. The patient had become markedly confused. The pulse rate had fallen to 72 per minute. Respirations were 14 per minute, the temperature 102.4 F (39.1 C), and the blood pressure 140/70 mm. Hg. Nuchal rigidity and bilateral enlarged axillary lymph nodes were noted. The patient could move all extremities. The face was flushed. The attending physician felt that the diagnoses of choice were encephalitis or poliomyelitis. At 9 p.m. the patient complained of chills and continued retro-orbital headache. The temperature rose to 104.8 F (40.4 C). On Sept. 14 the temperature remained elevated, rising to 105.6 F (40.9 C). Mental processes slowed. The patient was unable to retain fluids. No petechiae were seen on the skin. The blood pressure was stable at 125/60 mm. Hg. Photophobia was marked. There were no changes in the nuchal rigidity or deep reflexes. The pupils were equal, but the fundi could not be examined because of the patient's inability to cooperate. At 3:20 a. m., Sept. 15, the patient was comatose and frothy sputum was seen in the mouth and nose. Wet rales were audible in the axillas. He was placed in a high Fowler's position, and tracheal suction and oxygen administration were instituted. The right pupil was dilated to 5 mm. Respirations were 24 per minute and labored. The blood pressure was 170/110 mm. Hg. The apical heartbeat gradually became weaker, and the patient died on the fourth day after the onset of illness. The final clinical diagnosis was acute encephalitis, possibly of Japanese B virus etiology, with terminal pulmonary edema.

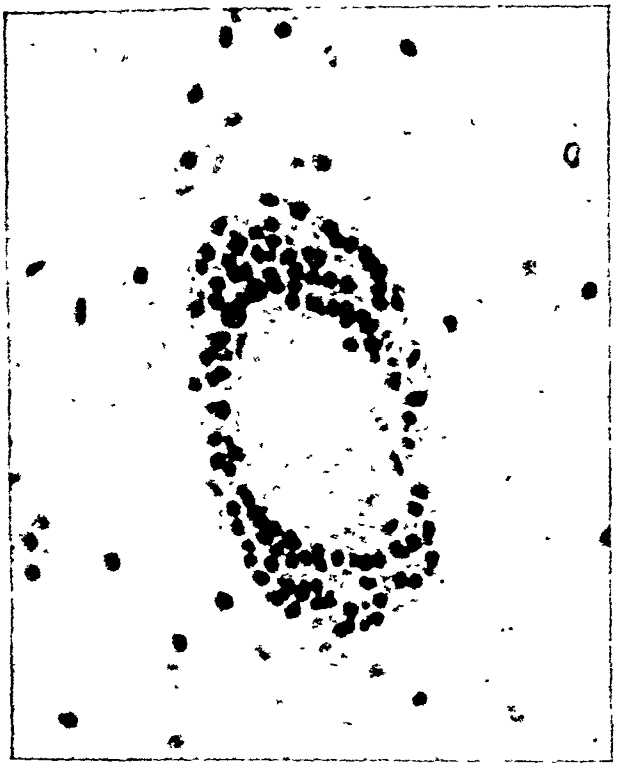


Fig. 1.—Photomicrograph showing perivascular cuffing with lymphocytes.

Laboratory Findings.—On Sept. 13 the hemoglobin level was 14.5 gm. per 100 cc. and the white blood cell count 15,500 per cubic millimeter, with 89% neutrophils, 6% lymphocytes, 4% monocytes, and 1% basophils. The urine had a specific gravity of 1.034, was amber in color, had an acid reaction, and contained a trace of albumin, amorphous urates, and sediment. A blood culture was negative. Roentgenograms of the chest were negative. On Sept. 14 the urine contained 20 to 25 white blood cells per high-power field. The spinal fluid contained 407 cells per cubic millimeter, with 29% polymorphonuclear leugocytes and 71% lymphocytes. The spinal fluid protein level was 57 mg. per 100 cc., with no increase in globulin. Another blood culture taken on this date was negative.

Gross Pathological Findings.—An autopsy performed nine hours after death revealed a well-developed male about 22 years of age weighing 185.5 lb. (84.1 kg.) and measuring 70 in. (177.8 cm.) in length. The external examination was not remarkable. The head and neck, thyroid, and mediastinum were within normal limits. The right lung weighed 840 gm. and the left, 720 gm. The cut surfaces revealed marked pulmonary edema and vascular congestion. The heart weighed 400 gm., and the valves and musculature were normal in appearance and measurements. The coronary arteries showed moderate atherosclerosis. The liver weighed 2,000 gm. and on cut section showed moderate edema. The gastric mucosa was moderately congested. The small intestine was minimally dilated without evidence of volvulus or paralytic ileus. The fecal matter in the large intestine was green and fluid in character. The spleen weighed 250 gm. and exhibited moderate congestion of the parenchyma. The pancreas was not remarkable. The combined weight of the adrenal glands was 14.9 gm. They showed minimal lipid depletion. The right kidney weighed 220 gm. and the left, 230 gm. The cut surfaces showed diffuse congestion. The genitourinary organs were otherwise normal in appearance. The brain weighed 1,520 gm. The convolutions were slightly flattened and the parenchyma mildly edematous. There was moderate congestion of the superficial vessels. No petechiae were noted in the gray or white matter. There was no obstruction in the ventricular system.

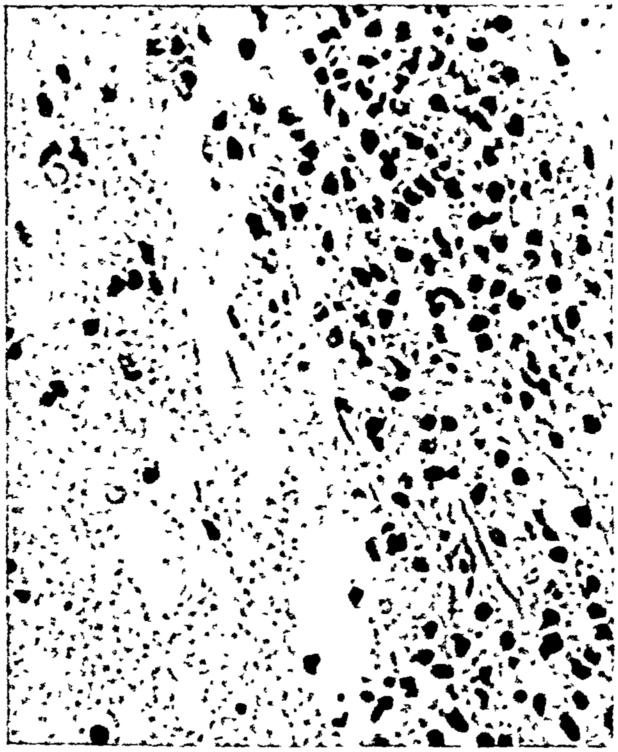


Fig. 2.—Photomicrograph showing microglial nodule and degenerating neurons (within and outside the lesion).

Microscopic Pathological Findings.—Sections of the lung revealed marked vascular congestion and protein-rich edema fluid within the alveoli containing numerous red blood cells and macrophages. The heart and aorta showed no significant findings. Liver sections showed marked congestion of the sinusoids, particularly around the central veins. The spleen sections revealed engorgement of the red pulp with blood. No significant findings were seen in the pancreas. Sections of the kidneys showed congestion of the glomeruli and of the blood vessels in the cortex and medulla and minimal cloudy swelling in the cells of the convoluted tubules. Multiple sections of the brain and spinal cord revealed widespread focal necrosis throughout the cortical gray matter and white matter, with infiltrations of lymphocytes and polymorphonuclear leukocytes. There was phagocytosis of ganglion cells, particularly prominent in the area of the olivary body. Satellitosis was noted in a few areas. There was diffuse cuffing of the blood vessels with round cells (fig. 1) but no perivascular hemorrhages within the parenchyma, although present in a few areas in the meninges. Small focal areas of necrosis were present in the cerebellum, but there was no dissolution of the Purkinje cells. In areas throughout the brain, a moderate glial proliferation was noted. Focal destruction of ganglions was seen in the basal nuclei. Within the spinal cord, areas of degeneration were noted with no singular localizing phenomena, although many were in the area of the anterior horn cells. There was some glial proliferation accompanied by infiltration with round cells and polymorphonuclear leukocytes (fig. 2). In general, the focal areas of necrosis were seen throughout the motor cortex, basal ganglions, cerebellum, and spinal cord.

TABLE 1.—*Summary of Complement-Fixing Titers with Indicated Antigens Against Japanese B and St. Louis Encephalitis Guinea Pig Antiserums**

Antigens	Tested Serums: Titers JBE (Nakayama)	SLE (Hubbard)	Normal Serum
Isolated virus	1:128	1: 64	<1:32
JBE (Nakayama)	1:128	<1: 32	<1:32
SLE (Hubbard)	1: 32	1:128	<1:32
Normal mouse-brain ..	<1: 32	<1: 32	<1:32

* Abbreviations: JBE, Japanese B encephalitis; SLE, St. Louis encephalitis

Isolation and Identification of Virus

Specimens of brain tissue and pectoralis major muscle were received in the frozen state for virus isolation attempts. Portions of spinal cord received in a separate container were found to have thawed en route. Portions of all tissues were ground in sterile 10% solution of skim milk, in a proportion of 10% by weight. After centrifugation to remove gross particulate matter, each suspension received 250 units of penicillin and 250 mg. of streptomycin per milliliter. Bacteriological cultures of the suspensions in thioglycollate broth showed no evidence of viable organisms. Groups of newborn white mice (1 to 3 days of age) were inoculated with 0.01 ml. intracerebrally and 0.03 ml. intraperitoneally of the respective tissue emulsions. Young weaned mice (21 days) received 0.03 ml. intracerebrally. In addition, 6-day-old chick embryos were inoculated with 0.1 ml. amounts of the various suspensions by the stab method.

No agent was recovered either from the muscle tissue or from the spinal cord material in mice or in embryonated eggs in the original passage attempts. Blind passages were not made. Five of eight newborn mice inoculated with cerebral tissue, however, showed signs of illness on the fourth postinoculation day and were killed for passage. The remaining mice were moribund on the sixth and seventh days. Adult mice inoculated with the same material showed signs of illness first on the sixth day, followed by definite paralysis and death on the eighth and ninth days. A single mouse survived the first passage observation period of 28 days. Cultures of brain material from killed mice were bacteriologically sterile. The same human brain emulsion inoculated into six-day embryonated eggs produced death of the embryos on the fourth to the sixth day. This line was not continued, since the agent appeared to produce disease readily in mice.

The agent was established in second mouse-brain passage by inoculation of 10% solution of infected brain suspension intracerebrally from suckling mice into new groups of newborn and young adult mice. All of 28 newborn mice showed spasms on the third day after inoculation and were killed for seed virus and antigen preparation. Young adult mice showed ruffled fur and a hunched position on the third day, at which time one-half of the mice were killed. The remaining mice died on the fourth and fifth days.

Antigen for virus identification by the complement-fixation technique was prepared from infected mouse brains harvested three days after inoculation. Brains were ground in sterile saline solution to a concentration of 20% by weight and stored overnight at 5 C. The emulsion was then centrifuged at 2,000 rpm for 30 minutes; the supernatant fluid was drawn off and again centrifuged in the cold for 30 minutes at 10,000 rpm. Aqueous merthiolate was added to the high-speed supernatant to a final concentration of 1 in 10,000 as a preservative, and the supernatant was employed as a complement-fixing antigen in box titrations against Japanese B encephalitis (JBE) and St. Louis encephalitis (SLE) guinea pig immune serums. The results are summarized in table 1. Results, while suggestive, were inconclusive, because of the marked cross reaction with both JBE and SLE antiserums.

TABLE 2.—*Identification of Isolated Virus as Japanese B by Intracerebral Neutralization Tests with Known Guinea Pig Immune Serums*

Tested Serums	Dilutions of Virus 10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	LD_{50}	Logs Neutralized
Normal rabbit	6/6*	6/6	4/6	2/6	0/6	$10^{-7.6}$	—
JBE (Nakayama)	2/6	1/6	0/6	—	—	$10^{-4.9}$ or <	2.6 or >
SLE (Hubbard)	6/6	6/6	3/6	0/6	—	$10^{-7.0}$	0.5
WEE (Rockefeller Institute)	6/6	6/6	3/6	1/6	—	$10^{-7.2}$	0.3

* *Numerator indicates* number of deaths; denominator indicates number of mice inoculated.

Identification of the virus was made by means of the intracerebral mouse neutralization test,[2] with use of mouse-brain virus and known guinea pig antiserums. Undiluted antiserums for JBE, SLE, and Western equine encephalomyelitis (WEE) viruses were tested in tenfold dilutions of the unidentified second-passage mouse-brain virus. As shown in table 2, JBE antiserum was found to neutralize at least 2.6 logs of virus, while SLE and WEE antiserums neutralized 0.5 log or less.

A portion of the original human brain material was transmitted to the Department of Virus and Rickettsial Diseases, Walter Reed Army Institute of Research, for confirmation of the isolation and identification. The report indicated that an agent that caused fatal nervous system disease in suckling and adult mice was again recovered. The agent was shown to produce viremia in newly hatched chicks, and chicks thus infected were found, two weeks after infection, to possess hemagglutination-inhibiting antibody for JBE virus, by use of the technique developed at the 406th Medical General Laboratory.[3] Serums obtained from infected chicks six weeks after inoculation were also shown to neutralize nearly 4 logs (10,000 L. D_{50}) of a known strain of JBE virus by the conventional neutralization test in mice (table 3).

Comment

Outbreaks of Japanese B encephalitis have been described by Sabin and co-workers[4] and by Lincoln and Sivertson[5] among American military personnel stationed in epidemic areas in the Far East, including Korea. The latter authors detailed their findings in more than 200 cases occurring in soldiers in the Pusan perimeter in the late summer and fall of 1950, the area where the present patient most likely contracted the infection in 1954. A probable incubation period of 8 to 15 days has been ascribed to this disease[6]; the patient was in Pusan between the 11th and 17th days prior to the onset of illness.

TABLE 3.—*Identification of Isolated Virus as Japanese B by Intracerebral Neutralization Tests with Infected Chick Serums and Known Viruses*[*]

Tested Serums	Logs of Indicated Virus Neutralized JBE (ML 311)	SLE (Hubbard)	WEE (California)	EEE† (480)
Chicken No. 1	3.9	1.1	0.2	0.1
Chicken No. 2	3.8	0.7	0.2	0.1
(Pool) No. 3 and 4	3.7	1.2	0.3	0.1

[*] Data furnished by Department of Virus and Rickettsial Diseases, Walter Reed Army Institute of Research

† EEE, eastern equine encephalitis

Although no attempt was made to recover the virus from the blood of the patient reported here, it is quite possible that he had viremia when he arrived in the United States. Renewed emphasis should be given to the warnings of Hammon[7] and Reeves[8] of the possibility of introduction, by cases such as this, of the Japanese B encephalitis virus into the United States where potential vectors and suitable hosts are present. Reeves and Hammon[9] have demonstrated that seven species of three genera (Culex, Aedes, Culiseta) of mosquitoes indigenous to the western U. S. can transmit a mouse-brain-adapted strain of JBE virus to mice in the laboratory. These authors consider that the virus might well become established if introduced into areas where our native encephalitides are now endemic.

Summary

A fatal case of Japanese B encephalitis developed in an American soldier returning from Korea. Etiology of the disease was established by recovery of the virus from brain tissue and its identification by neutralization tests with specific immune serums.

Lieut. Col. William C. Butz, M. C., U. S. Army, Chief of Laboratory, Madigan Army Hospital, furnished the clinical abstract and autopsy findings.

Carmen Morris and Beatrice England gave technical assistance in this study.

References

1. Hammon, W. M.: Public Health Problems Relating to the Viral Encephalitides in the Far East and the Pacific Islands, Proceedings of the 17th Annual Conference of the California Mosquito Control Association, 1949, Berkeley 1, Calif., pp. 12-15. [illegible], F. F., and [illegible], C. E.: Japanese B Encephalitis in American Soldier Returning from Korea, New England J. Med. **249**: 531-532 (Sept. 24) 1953.

2. Smadel, J. E.: Serologic Reactions in Viral and Rickettsial Infections, in Viral and Rickettsial Infections of Man, Rivers, T. M., editor, ed. 2, Philadelphia, J. B. Lippincott Company, 1952, pp. 70-78.

3. 406th Medical General Laboratory and Far East Medical Research Unit, Clinical Laboratory and Research Report, 1951, p. 24.

4. Sabin, A. B.: Epidemic Encephalitis in Military Personnel: Isolation of Japanese B Virus on Okinawa in 1945, Serologic Diagnosis, Clinical Manifestations, Epidemiologic Aspects and Use of Mouse Brain Vaccine, J. A. M. A. **133**: 281-293 (Feb. 1) 1947. Sabin, A. B.; Schlesinger, R. W.; Ginder, D. R., and Matumoto, M.: Japanese B Encephalitis in American Soldiers in Korea, Am. J. Hyg. **46**: 356-375 (Nov.) 1947.

5. Lincoln, A. F., and Sivertson, S. E.: Acute Phase of Japanese B Encephalitis: Two Hundred One Cases in American Soldiers, Korea, 1950, J. A. M. A. **150**: 268-273 (Sept. 27) 1952.

6. Olitsky, P. K., and Casals, J.: Viral Encephalitides: Japanese B Encephalitis, in Viral and Rickettsial Infections of Man, edited by Rivers, T. M., editor, ed. 2, Philadelphia, J. B. Lippincott Company, 1952, pp. 226-232.

7. Hammon, W. M., and Reeves, W. C.: Recent Advances in Epidemiology of Arthropod-Borne Virus Encephalitides, Including Certain Exotic Types, Am. J. Pub. Health **35**: 994-1004 (Oct.) 1945.

8. Reeves, W. C.: Encephalitis Problem in United States, Am. J. Pub. Health **41**: 678-686 (June) 1951.

9. Reeves, W. C., and Hammon, W. M.: Laboratory Transmission of Japanese B Encephalitis Virus by Seven Species (Three Genera) of North American Mosquitoes, J. Exper. Med. **83**: 185-194 (March) 1946.

Duodenostomy.—Duodenostomy has not been accepted as a standardized procedure. Undoubtedly misfortunes have followed its use in some cases. . . . Possibly the untoward sequelae were the result of faulty technique in the performance of gastric resection rather than imperfection in the procedure per se. In the past seven years, our opinion has been strengthened that the occasional selected utilization of duodenostomy will provide a margin of safety that cannot otherwise be achieved. . . . A controlled duodenal fistula is preferable to an insecurely closed duodenal stump which may result in leakage. Welch has advocated the use of concomitant catheter jejunostomy. We consider this to be an unnecessary adjunct. Possibly our enthusiasm to study the procedure may have stimulated us to utilize duodenostomy more frequently than was absolutely necessary. On the other hand, the procedure could have been employed advantageously in a few other selected cases. In our hands we have found duodenostomy preferable to an insecure closure of the duodenal stump by other methods. Its greatest field of usefulness may lie in the hands of younger less experienced gastric surgeons. As our experience with duodenostomy has increased, we have become more enthusiastic about the advantages of its occasional selected use and less impressed with its disadvantages. The two most serious complications, leakage about the catheter and electrolyte imbalance due to the loss of duodenal content, have in our hands been of no consequence. Proper closure of the duodenum about the catheter plus the use of Penrose drains has rendered the first complication inconsequential. Proper performance of gastric resection renders obstruction in the afferent loop almost nonexistent. The development of a persistent duodenocutaneous fistula . . . did not occur in our series.—C. G. McEachern, M.D., R. E. Sullivan, M.D., and J. E. Amis, M.D., Duodenostomy, A. M. A. Archives of Surgery, June, 1956.

SPECIAL ARTICLE

THE NATURAL HISTORY OF DISEASE

FRANK BILLINGS MEMORIAL LECTURE

William S. Middleton, M.D., Washington, D. C.

Appropriately, we are met today to honor the memory of a great clinician and medical statesman, Frank Billings, in Chicago, where his fine professional stature and eminence were attained. In 1878, a sturdy farm lad from Iowa County, Wisconsin, matriculated in the Chicago Medical College (now Northwestern University Medical School). Of splendid Anglo-Saxon stock, he was superbly endowed physically and intellectually. Upon completion of a common public school education, young Billings had attended the Platteville (Wisconsin) State Normal School for two years. Thereafter, he taught a country school in the town of Eden. His prompt advancement to the principalship of the Platteville High School was, in retrospect, a true forecast of his driving ambition and capacity.

Upon graduation from the Chicago Medical College, Dr. Billings served an internship in Cook County Hospital, a coveted post for the young physicians of that period. The investment of postgraduate studies in London, Paris, and Vienna gave his career an impetus that brought him shortly to the forefront of medicine in Chicago. Aside from Dr. Billings' personal attributes, his activities in the introduction of laboratory methods into clinical practice were probably the "open-sesame" to his initial success that eventually carried him to a position of preeminence in American medicine.

Dr. Billings was a born leader. He literally dominated every gathering he attended by the force of his presence and personality. Both at Northwestern University Medical School and at Rush Medical College, his efforts brought fruit in the improvement and the expansion of the physical plants. He was particularly effective in enlisting the financial support of wealthy Chicagoans in medical philanthropy. From his vantage point, Dr. Billings led the attack on nostrums and subnormal medical schools. The Council on Pharmacy and Chemistry and the Council on Medical Education and Hospitals of the American Medical Association were natural products of his energetic representations. His thoughts on medical education were especially advanced in the advocacy of the utilization of full and part-time clinical teachers in an integrated program. His recommendations for the coordination of public and private hospitals in a teaching plan are still valid and might be reviewed with profit in the light of a changing picture. With characteristic prescience, Dr. Billings urged the establishment of a national examining board.

Lest the erroneous impression of an impersonal austerity be gathered from this recital of achievements, it should be recorded that Dr. Frank Billings was fundamentally a warm, kindly man. Physically massive, he was just as large of heart. Out of the abundance of his life and substance he gave unstintingly to every worthy cause. The connotation of the term "builder" that is so regularly applied to Dr. Billings in this community may deprive posterity of a measure of the deep humanity of the man. Rarely are the dominant qualities of accepted leadership so blended with the depth of human sympathy that characterized him. His students, nurses, interns, and associates adored him. Dr. Billings died in his 79th year (Sept. 20, 1932). His memory is held in reverence by a host of friends, both lay and professional, who were privileged to associate with him in his manifold activities.

Development of the Study of Disease

Health is no longer viewed in the negative sense as the mere absence of disease. Health connotes a harmony of mind and body with self and environment. This balance will obtain with the normal activity of every vital and supporting function. The nice adjustments of the body to its surroundings have been grouped under the term homeostasis by Cannon. Selye has extended this concept in his theory of adaptation. The internal milieu of the mammalian body is a complex, ever-changing medium of physical, physiological, and chemical factors so integrated in health as to maintain a sense and a presence of well-being. The present viewpoint, for example, emphasizes the continuous alterations in chemical constituents upon momentary changes in bodily or tissue requirements. Such changes may involve simple chemical reactions, or they may invoke complex physical, enzymatic, and steroid mechanisms. As long as the reserve of the involved elements is adequate, physiological equilibrium may be maintained. To this harmonious balance, the term eucrasia (eucrasy) has been applied.[1] An unnatural imbalance through an exhaustion of the reserves or an inability to meet demands from normal or abnormal sources results in a disturbance of function. Such disruptions find expression in symptoms and eventually in signs arising from pathological changes in tissues or organs.

From the beginning of recorded time, man has endeavored to interpret the manifestations of disordered function. The concepts reflect the state of human knowledge of a given period. From time to time, medical advance has been impeded by attempts to apply rigid criteria in the grouping of diseases. Nosology has, on occasions, been viewed as an end rather than an instrument in our hands. Indeed, systems of practice have been built on such insecure foundations. With the ascendancy of morbid anatomy and the splendid dividends from clinical-pathological correlations in the early 19th century, "dead-house" medicine dominated the scene for a period. In fact, in certain quarters no diagnosis was complete without the autopsy findings! Microbiology came into high estate in the late 19th and early 20th centuries. With its rise came the clinical fixation upon etiology. The last three

---

Chief Medical Director, Department of Medicine and Surgery, Veterans *Administration.*

Read before the Section on Internal Medicine at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956.

decades have witnessed an upward surge in the physiological and the physiological-chemical knowledge of bodily reactions in health and disease. The impact of physical, physiological, steroid, enzyme, and nuclear physical-chemical observations on medical thought and practice has been stupendous in recent years and will increase.

In this advance, medicine must never lose sight of fundamental facts. Sydenham[2] wrote, "A disease in my opinion, how prejudicial soever its cause may be to the body, is *no more than a vigorous effort of nature* to throw off the morbific matter, and thus recover the patient." In this light, disease must not be considered as an isolated phenomenon nor a series of more or less related phenomena. Man is rarely the passive host of "morbific matter" but reacts more or less violently, dependent upon the nature of the alteration induced locally or generally. Regardless of whether the inciting factor be microbial, nutritional, metabolic, degenerative, or neoplastic, there are always contributing circumstances in the evolution of the state of inequilibrium termed disease that must be given due consideration in the true comprehension of its natural history.

Within the memory of many physicians still active in the practice of medicine, there have been many radical changes in the mode of infectious diseases and in the clinical expression of specific infections. The exanthems are waning in incidence and severity. Black measles, black scarlet fever, and black smallpox are now only terrifying memories. Diphtheria, with its toll of morbidity and mortality, is largely controlled. Typhoid no longer recurs each summer and autumn to reflect the limitations of sanitation and the contamination of the water (and milk) supply. Lobar pneumonia is a rarity in our teaching hospitals. Suppurative mastoiditis and empyema are relics of a past that medicine would forget. Tuberculosis is losing some of its terror, but it is by no means a vanquished threat to health and life. Syphilis and gonorrhea are more adequately treated than ever before, but the failure to eradicate these diseases reflects the limitations of purely curative medicine. Moreover, man is paying a penalty for the disruption of the biological balance of nature through the introduction of antimicrobial agents. Resistant strains of pathogenic bacteria are appearing. Rickettsial and viral infections have increased with the abatement of bacterial diseases. With the change in the flora of the body under antimicrobial therapy, fungal infections have emerged in increasing frequence.

Observation and Experimentation

The time for reflection is now at hand. Before the countenance of certain of these diseases has vanished from the earth, we must attempt to commit to the printed record every detail of their course. At best, our observations are fragmentary. The published accounts of diseases too frequently represent the subjective reports of the patient, supplemented by the periodic examinations of the physician. From these bits and pieces, a composite picture is reconstructed. This reproduction is frequently at variance with the autobiographic accounts of physicians suffering from the same disorder. Sydenham's[2] account of his own gouty attacks is a classic example of this truth. A physician should be a "minister (or servant) and interpreter of nature" (Hippocrates). By observation and experimentation, medicine must strive to fill the gaps in a comprehensive understanding of the natural history of disease.

Sir Thomas Lewis,[3] while deploring the cleavage, bespoke the separate training of physicians for clinical medicine and for clinical science: "This science seeks, by observation and otherwise, to define diseases as these occur in man: it attempts to understand these diseases and their many manifestations and, here especially, makes frequent use of the experimental method." In his evolution of the thesis, Lewis indicated that two different types of psychological attributes were involved: "Self-confidence is, by general consent, one of the essentials to the practice of medicine, for it breeds confidence, faith and hope. Diffidence, by equally general consent, is an essential quality in investigation, for it breeds inquiry." Obviously, an acceptance of this position would spell a sharp limitation to the observational approach of which Lewis stated, "Eventually, however, the fertility of this method greatly declines by a process of exhaustion and, for those who can read the signs, this time has come in medicine." Trotter[4] voiced a similar reservation thus: "This limitation is the circumstance that the observer must wait upon the natural occurrence of the phenomena he wishes to study. The phenomena may be too infrequent for their significant recurrence to come within the span of human life, they may be too complex and too closely mixed with irrelevant events for the invariable sequence they possess to be detected."

Actually, the contention that observational and experimental skills are incompatible is untenable. The ramifications of the scientific approaches to the study of man in health and disease exceed the capacity of any physician to encompass, much less to apply them to the multitudinous clinical problems with which he is confronted. Wherever possible, these scientific methods must be invoked in the elucidation of covert situations, but a proper sense of proportions must be preserved. Mackenzie[5] said, "When I see the modern cardiologist getting his assistant to take an x-ray photograph of the heart and electrocardiogram, and even a blood-pressure reading, and then behold him sitting down to study these reports, I am truly amazed. I never could have realized that the practice of medicine could have become so futile and ineffective." Certain of the random chemical probings in the guise of medical practice are even more astounding. Without depreciating these studies one iota, let it be clearly understood that the only individual competent to direct the care of the patient is the physician. If he be wise, he will welcome the support of his associates in the basic sciences for coordinate clinical study. From their joint efforts will come a more complete understanding of the patient's problems and more intelligent treatment.

Indeed, out of such cooperative efforts have come material advances in the clinical appreciation of certain disorders in very recent years. Pheochromocytoma was a poorly understood neoplasm until physiologists and pharmacologists clarified the background. Aldosteronism emerged as a distinct clinical entity upon the definition of its steroid responsibility. Agammaglobulinemia awaited electrophoretic fractionation of the serum protein for elucidation of the attendant recurring infections. The unusual symptoms and signs attendant upon carcinoid of the intestinal tract with hepatic metastasis represent an extraordinary example of the interdependence of observation and experimentation in the explanation of disordered function. With Charcot we may say, "Disease is from of old and nothing about it has changed. It is we who change, as we learn to recognize what was formerly imperceptible."

Hence, it behooves the physician to preserve his clinical acumen, as he accepts and extends the application of newer laboratory methods to the study of his patients. Indeed, his position must be fortified from a psychological standpoint to avoid the impersonality of the laboratory. If the physician is to capitalize on this advantage, however, the time is ripe for a new approach to the natural history of disease. With due attention to the experimental and laboratory contribution to this vital subject, there remains a vast area for reexploration and inquiry. John Brown[4] wrote, "Symptoms are universally available; they are the voices of nature." Mackenzie[5] said, "When we search for the recondite and the obscure, we fail to recognize the simple and the obvious." The English school has produced a number of great clinicians in the Hippocratic pattern. Thomas Sydenham[6] said:

> In writing, therefore, a history of diseases, every philosophical hypothesis which hath prepossessed the writer in its favor, ought to be laid aside, and then the manifest and natural phenomena of diseases, however minute, must be noted with utmost accuracy, imitating in this the great exactness of painters, who in their pictures copy the smallest spots or moles in the originals; for it is difficult to give a detail of the numerous errors that spring from hypothesis.

Thomas Willis[7] was a true seeker for knowledge, as witnessed in the following statement:

> After I had not found in Books what might satisfy a mind desirous of truth, I resolved with myself to reach into living and breathing examples; and therefore sitting oftentimes by the Sick, I was wont carefully to search out their cases, to weigh all the symptoms and to put them, with exact Diaries of the Diseases, into writing, then diligently to meditate on these; and then begin to adapt general notions from particular events.

In a similar spirit, William Heberden[8] afforded the following plan:

> The notes, from which the following observations were collected, were taken in the chambers of the sick from themselves, or from their attendants, where several things might occasion the omission of some material circumstances. These notes were read over every month and such facts as tended to throw any light upon the history of a distemper or the effects of a remedy, were entered under the title of the distemper in another book, from which were extracted all the particulars here given relating to the nature and cure of diseases.

Heberden's account of diabetes[8] serves as an example of the application of his method:

> An unusual thirst is first taken notice of, with a tongue rough and furred, and a bad taste in the mouth; the appetite fails; the pulse is too quick; the strength and flesh waste; the skin is in a burning heat, without the least tendency to sweat; the thirst makes these patients drink immoderately, and of course they make water much more frequently than is common to them, and in much larger quantities, like hysterical persons. . . . The urine in a diabetic is said to have a honey-like sweetness; but, in my judgment, formed upon the most perfect cases of this distemper, it ought in most persons rather to be called insipid; in one joined with a fever, I found it sweetish.

Even more illustrative of Heberden's clinical portraiture is the account of angina pectoris first published in 1768.[8] Indeed, this account may be taken as a proper model for the natural history of disease. Abstracted in essential detail, it reads:

> The seat of it, and sense of strangling and anxiety with which it is attended, may make it not improperly be called angina pectoris.
>
> They who are afflicted with it, are seized while they are walking (more especially if it be up hill, and soon after eating) with a painful and most disagreeable sensation in the breast, which seems as if it would extinguish life, if it were to increase or continue; but the moment they stand still, all this uneasiness vanishes.
>
> In all other respects, the patients are, at the beginning of this disorder, perfectly well, and in particular have no shortness of breath, from which it is totally different. The pain is sometimes situated in the upper part, sometimes in the middle, sometimes at the bottom of the os sterni, and often more inclined to the left than to the right side. It likewise very frequently extends from the breast to the middle of the left arm. The pulse is . . . not disturbed by this pain. . . . Males are most liable to that disease, especially such as have passed their fiftieth year.
>
> After it has continued a year or more, it will not cease so instantaneously upon standing still; and it will come on not only when the persons are walking but when they are lying down, especially if they lie on their left side, and oblige them to rise up out of their beds. In some inveterate cases it has been brought on by the motion of a horse, or a carriage, and even by swallowing, coughing, going to stool, or speaking, or any disturbance of mind. . . .
>
> Some have been seized while they were standing still or sitting; also upon first waking out of sleep; and the pain sometimes reaches to the right arm, as well as the left, and even down to the hands, but this is uncommon: in a very few instances the arm has at the same time been numbed and swelled. . . .
>
> The termination of the angina pectoris is remarkable. For, if no accidents intervene, but the disease go on to its height, the patients all suddenly fall down, and perish almost immediately. Of which indeed their frequent faintnesses, and sensations as if all the powers of life were failing, afford no obscure intimation.

Infectious Diseases

Unfortunately such accuracy of clinical observation is the rare exception in modern medical writings. This deficiency becomes increasingly apparent in the welter of laboratory data, relevant and irrelevant, that so frequently clutters papers in the medical journals. The natural history of the infectious diseases has been reasonably well recorded. Particularly is this true where the etiological agent has been isolated. Contributing to the adequacy of the natural history of the acute infections has been their clear-cut definition and their self-limiting course in many instances. The knowledge of exposure and the routes and portals of entry of the etiological agents has been quite comprehensive. The ability to establish incubation periods, prodromes, symptoms and signs of the fastigium, and the manner of defervescence to convalescence for the acute infectious diseases has lent great impetus to this effort. In most instances, the laboratory has afforded material support to the completion of the individual picture. Great hiatuses still exist in the knowledge of susceptibility and immunity. Actually, the advent of the antimicrobial agents, while a great beneficence to humanity, has delayed the attack on some unsolved problems in this area. In the first place, the opportunity to study the natural history of a given bacterial infection is limited by the almost universal administration of antimicrobial agents at the earliest moment. Not infrequently, the broad-spectrum antimicrobial agents have been given on suspicion before the etiology has been established. The vis medicatrix naturae is overlooked in the medical thought of many contemporary physicians. Certainly, Gairdner's admonition[9] is completely outmoded in modern medicine: "There is one stipulation that I must make with those who desire to follow out this inquiry with the view of testing the normal mode of the crisis in typhus fever. It is, that *as many cases as possible should be left to their normal course, unaffected by either drugs or stimulants.*" Assuredly, the effectiveness of the antimicrobial agents in the treatment of lobar pneumonia, typhoid, and a host of other bacterial diseases seriously delimits any prospect of extending the knowledge of their natural history. A further deterrent to advances in this area has been the shifting emphasis in interest and study. This circumstance is doubly unfortunate in the unexplored fringes of this broad field.

Constitutional Disorders

The case of the constitutional disorders is much more involved. Many of the factors formerly attributed to heredity are now viewed as environmental and even infectious in origin. The area is wide open for a frontal attack. The degenerative and neoplastic diseases afford a fallow field for this approach. Mackenzie forsook a lucrative practice and an assured future in Harley Street to pursue this angle in St. Andrews, Scotland. He had two objects: "(1) understanding of the mechanism of symptoms, and (2) understanding of their prognostic significance."[5] In his biographer's phrase he urged his contemporaries "to forsake the study of death for that of life."[10] The way is not easy, but the future growth of clinical medicine is inextricably bound with a refinement and a discriminating use of the proved methods of clinical observation. The pathogenesis of atherosclerosis, for example, will be more clearly understood when all contributing factors in its initiation are brought into focus and their relative importance fixed. The familial occurrence of vascular degeneration is a commonplace observation, yet heredity has been discredited in some studies and dietary factors have been given increasing responsibility. The exact part of faulty cholesterol metabolism in the ultimate atherosclerotic process is still uncertain. The pendulum is apparently swinging toward a secondary relationship. In developing the natural history of this degenerative disorder, increasing attention must be devoted to the detailed history, with especial reference to the occurrence and the complications of past illnesses, social history, including habits and exposures, family history, and the evolution of the referable complaints. Since physicians have a conspicuous predisposition to atherosclerosis, they might render a conspicuous service by affording clinical autobiographies in this direction. Added to this approach would be the invaluable laboratory studies that anticipate and measure gross changes in pathological physiology. Billings[11] wrote, "Medicine today is applied science. If we utilize the knowledge of today in an attempt to cure and prevent disease, it must also be an experimental science. . . . Experimental medicine must be the means of removing the ignorance which still embraces so many of the maladies which afflict manhood."

Neoplasia arises from so many causes as to render a generic factor difficult of definition. Yet there may prove to be a single basic etiology with a number of variants responsible for the development of specific new growths. Painstaking studies of patients with neoplasms may add materially to our knowledge of their inception and course. Furthermore, especial attention to departures from the rule in apparent susceptibility and resistance to given tumors in certain strains may afford leading clues to the fundamental origin of neoplasia. While great progress has been made in this direction, the clinician is woefully deficient in the tools for the early recognition of a majority of visceral tumors. Surface or accessible neoplasms will receive early and appropriate attention in most instances, but carcinoma of the pancreas, for example, has usually reached an inoperable stage when surgery is proposed. Deep-seated upper abdominal pain radiating to the back, painless progressive jaundice, sudden diabetes mellitus in individuals past 45 years of age, and unexplained phlebothrombosis are late manifestations of carcinoma of the pancreas. Yet they may be the first symptoms or signs that bring the patient to the physician. Frequently, cachexia has already become manifest. In a few patients, vague upper abdominal discomfort, coupled with marked introspection and nervousness, has anticipated frank symptoms and signs of carcinoma of the pancreas by months in our experience. In carcinomatous involvement of the head of the pancreas, melena, occult or overt, may be a guidepost. In such instances, roentgenologic confirmation may be anticipated. The chemical studies directed toward the quantitation of the digestive ferments of the external secretion of the pancreas afford little support to the early diagnosis of carcinoma. Here, then, lies one of the unsolved mysteries of medicine whose solution may be expedited by an "exact Diary of the Disease." Its parallels are innumerable.

If Hippocrates[12] be forgiven his sententious vein, the following quotation affords an excellent argument for a profound knowledge of the natural history of disease:

> And he will manage the cure best who has foreseen what is to happen from the present state of matters. For it is impossible to make all the sick well; and this, indeed, would have been better than to be able to foretell what is going to happen; but since men die, some even before calling the physician, from the violence of the disease, and some die immediately after calling him, having lived, perhaps, only a day or a little longer, and before the physician could bring his art to counteract the disease; it therefore becomes necessary to know the nature of such affections, how far they are above the power of the constitution; and, moreover, if there be anything divine in the diseases, and to learn a foreknowledge of this also. Thus a man will be the more esteemed to be a good physician, for he will be better able to treat those aright who can be saved, from having long anticipated everything; and by seeing and announcing beforehand those who will live and those who will die, he will thus escape censure.

Obviously, prognosis is a vital element in the practice of medicine. Its cultivation and acquisition are avidly pursued by all clinicians worthy of the name. Recently, Bloomfield[13] wrote a cogent editorial on the subject, in which he evaluated the factors in deriving such conclusions. With experience, he stated, "the analytical process may become lightning fast and indeed may be largely carried on subconsciously. The young doctor, however, may well profit by deliberately taking into account the various factors in prognosis . . . and by making a conscious analysis of the situation in case of his patients. Such a running of mental scales will help develop later virtuosity." With incisive insight, Ryle[14] remarked, "Prognostic ability is born largely of pathology and patiently gathered clinical experience. It evolves even more slowly than diagnostic ability. Minute and careful clinical observation, a good visual memory, and that necessary inquisitiveness about the subsequent course of cases which is nowadays systematized in the follow-up inquiry may all be numbered among the handmaidens of prognosis."

Conclusions

In a word, there is no royal road to success in the prognosis of human disease. Feeble though the reed may appear when tested by strict scientific standards, the patient or the family may properly expect general information as to the probable course of a given illness from the physician. Fortified by extended experience and careful study of the problems presented by the patient, the true natural historian, supported by discriminating laboratory studies, will become increasingly proficient and accurate in assembling the evidence for the diagnosis and prognosis. Furthermore, with a sound basic knowledge of the natural history of disease, he will not fall into the uncritical habit of therapeutic sophistry, but, with a broad perspective, his therapy will have direction and his conclusions of its effectiveness will reflect measured judgment.

"Sit down before fact as a little child, be prepared to give up every preconceived notion, follow humbly wherever and to whatsoever abysses nature leads, or you shall learn nothing" (Huxley).

This paper is being published simultaneously in the A. M. A. *Archives of Internal Medicine.*

References

1. Laycock, T.: Physiognomical Diagnosis of Disease, M. Times & Gaz. 1:101, 1862.
2. Sydenham, T.: Works of Thomas Sydenham, translated by R. G. Latham, London, Sydenham Society, 1850.
3. Lewis, T.: Observation on Research in Medicine: Its Position and Its Needs, Brit. M. J. 1:479-483 (March 15) 1930.
4. Trotter, W.: Observation and Experiment and Their Use in Medical Sciences, Brit. M. J. 2:129-134 (July 26) 1930.
5. Mackenzie, J., quoted in Wilson, R. M.: Beloved Physician: Sir James Mackenzie, London, J. Murray, 1926.
6. Brown, J.: Horae Subsecivae, Edinburgh, T. Constable Co., 1858.
7. Willis, T., quoted by Symonds, C.: Circle of Willis (Harveian Oration), Brit. M. J. 1:119-124 (Jan. 15) 1955.
8. Heberden, W.: Commentaries on History and Cure of Diseases, London, T. Payne, 1802.
9. Gairdner, W. T.: Physician as Naturalist: Addresses and Memoirs Bearing on History and Progress of Medicine Chiefly During Last Hundred Years, Glasgow, Scotland, J. Maclehose & Sons, 1889.
10. Wilson, R. M.: Beloved Physician: Sir James Mackenzie, London, J. Murray, 1926.
11. Billings, F.: Medical Education in United States, J. A. M. A. 40:1271-1276 (May 9) 1903.
12. Hippocrates: Genuine Works of Hippocrates, translated by Francis Adams, New York, W. Wood & Co., 1886.
13. Bloomfield, A. L.: Prognosis, editorial, A. M. A. Arch. Int. Med. 97:267-268 (March) 1956.
14. Ryle, J.: Natural History of Disease, ed. 2, London Oxford University Press, 1948.

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The Council has authorized publication of the following comments concerning "The Use of Chemical Additives in Food Processing," a report of the Food Protection Committee, Food and Nutrition Board of the National Research Council.

Eugene H. Stevenson, M. S.
Acting Secretary.

CHEMICAL ADDITIVES

Paul E. Johnson, Ph.D., Washington, D.C.

In an industrial, largely urban society such as that of the United States, it is necessary that food be provided for large numbers of people distantly removed from the site of production. The provision of an abundant, wholesome, and economical food supply requires that the foodstuffs be produced efficiently; be processed, preserved, and stored so as to minimize wastage and loss of nutritive value; and be distributed to the consumer in a sanitary condition. That the foods be diversified, esthetically appealing, and convenient to use is perhaps of only slightly less importance.

Many technological developments have been applied to the task of furnishing our food supply; important among them is the use of chemicals. There has been some public concern about the number and kinds of chemicals that enter the food supply during its production, processing, and storage. In 1950, this led to an investigation of the use of chemicals in foods by the Delaney committee of the U. S. House of Representatives. The report of this committee[1] stated that the U. S. Food and Drug Administration had estimated that 704 chemicals were used in foods. A list of the chemicals was not published, but the number cited included both the chemicals that are intentionally added to foods by the processor and those that may incidentally get into the food during its production, processing, and storage, such as insecticides, other pesticides, and detergents.

Recently the Food Protection Committee of the National Research Council undertook a study of the use of chemicals in foods for the purpose of evaluating the benefits arising from such use and appraising the significance of associated public health problems. One phase of this study involved a survey to determine the extent of use and the technological benefits of chemicals in food processing. A report of this survey is now available.[2]

The report is concerned only with intentional chemical additives—chemicals introduced into foods for the purpose of imparting some desired quality to, or of serving a functional purpose in, the foods. It describes briefly the technological reasons for using chemical ad-

---

Executive Secretary, Food Protection Committee, Food and Nutrition Board, National Academy of Sciences–National Research Council.

ditives in the processing of each of six major classes of foods: cereal products, fruits and vegetables, beverages, dairy products, confections and other sweets, and meat products and fats. This is an informative account of the use of additives to facilitate processing and formulation, inhibit deterioration in storage, enhance and maintain nutritive value, and improve the appeal and acceptability of foods. These benefits to the consumer from the use of additives are so seldom recognized that a discussion of them deserves wide attention.

The major part of the report is devoted to a compilation of intentional chemical additives. In it are listed all the additives for use in meats and fats, those for which the committee was given authentic evidence of use, and those permitted by regulation in standardized foods. Approximately 550 additives, grouped according to function, are listed in the compilation. The foods in which the additives are used are given along with levels of use, whenever that information was available to the committee. The regulations concerning the additives promulgated by the Food and Drug Administration and the meat inspection branch of the U. S. Department of Agriculture are cited.

A small number of preservatives are used in processed foods. Familiar members of this group of additives are benzoic acid and sodium benzoate. The mold and rope inhibitors used in breads, sodium diacetate and the propionates, are also well known. Chlortetracycline, used on uncooked poultry to retard spoilage, and sorbic acid, a fungistat, are more recent additions to the list of preservatives.

Antioxidants, which are widely used in fats and in foods containing fats to retard oxidation and the resulting deterioration of flavor, include the sulfites and bisulfites as well as a group of organic chemicals. Among the latter are ascorbic acid and its salts, lecithin, and the tocopherols. Derivatives of hydroxytoluene, hydroquinone, and guaiaretic acid are also widely used. A few oxidizing additives, including chlorine, chlorine dioxide, peroxides, iodates, and bromates, are also employed, primarily as bleaching and maturing agents.

A wide variety and substantial number of additives are used to influence or stabilize the texture of processed foods. These act in many ways. In one group are the sequestrants, a class of salts that function by inhibiting the action of ions and that aid in emulsification through their effect on the proteins present in the food. A second group includes the surface active agents, among which are the monoglycerides and diglycerides and their derivatives and the polyoxyethylene and sorbitan esters of fatty acids. A third group consists of stabilizers and thickeners, which include the natural and synthetic gums, pectin, agar-agar and Irish moss derivatives, and alginic acid and its compounds.

A number of acids, alkalis, and buffers are used by food processors to adjust or stabilize the pH of their products. Many common organic and inorganic acids, bases, and salts are employed. Acids and bases have long been used in baking, in such a manner that their reaction will provide gas for leavening.

Two groups of chemicals are added to processed foods entirely or primarily for the purpose of increasing their esthetic appeal—the food colors and the flavoring agents. The food colors include both a number of natural dyes and the 16 FDC (food, drug, and cosmetic) certified colors. The flavoring agents form a large and diverse group, comprising some 300 essential oils, extracts, synthetic aromatic chemicals, and other materials. The greater part of the group are the synthetic flavors, which are employed very widely in many processed foods.

The nutrient supplements, vitamins and minerals, are classified as additives by the committee; the nonnutritive sweeteners, saccharin and the cyclamates, form a separate group. A final miscellaneous group contains additives of such diverse functions as candy polishes and glazes and yeast foods.

Safety of the additives for use in foods was not a matter of concern in the survey, and no discussion of safety is included in the report. The Food Protection Committee has previously stated that, as a basis for evaluating the safety of additives for use in foods, "information must be obtained on: (A) the chemical and physical properties of the additive . . .; (B) the biologic effects . . .; and (C) the anticipated levels and patterns of consumption."[3] The present report is the most complete source of information available for estimating levels of consumption of the additives. It contains quantitative data about usage of most, but by no means all, of the additives listed. Thus, an approximation of the quantity of an additive that might be ingested by a consumer with a given food habit can be formed.

There are limitations in the compilation for use in this way, however, which the committee points out. The list includes additives permitted by regulations but which may not actually be used. A particular additive may be used only seasonally or by only a part of the industry. Quantitative data given may represent the maximum rather than the actual or mean level of usage. Most of the classes of additives contain groups of alternative materials from which a selection may be made for use in a particular food product. These limitations do not detract from the value of the report as a reference; they do indicate caution in using it as a precise quantitative guide.

This report presents a realistic and unbiased view of the use of chemicals in food processing in this country. It should alleviate some of the fear about use of these agents that has existed in some quarters. On the other hand, it should aid materially in providing an understanding of the nature and extent of the problems associated with their use.

References

1. *Investigation of Use of Chemicals in Foods and Cosmetics;* Report and Minority Report from Select Committee to Investigate Use of Chemicals in Foods and Cosmetics, Pursuant to *H. Res. 74, House Reports,* 82nd Congress, no. 2356, pt. 1, June 30, 1952.

2. *Use of Chemical Additives in Food Processing,* a Report by the Food Protection Committee of the Food and Nutrition Board, Publication 398, National Academy of Sciences—National Research Council, February, 1956.

3. *Principles and Procedures for Evaluating Safety of Intentional Chemical Additives in Foods,* a Statement by the Food Protection Committee of the Food and Nutrition Board, National Academy of Sciences—National Research Council, November, 1954.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . "Medic, Chicago"

MEDICAL RESEARCH IN THE DEPARTMENT OF DEFENSE

GUEST EDITORIAL

Lowell T. Coggeshall, M.D.

Paralleling the technological development of modern weapons systems, less publicized but very important medical research is being conducted within the Department of Defense. Without effective manpower the developments in modern weapons systems could not be effectively utilized.

In the armed services man must be prepared to take his place quickly in environments where there are wide ranges of temperature, pressure, and humidity; visual problems; noise and vibration; positive and negative g-forces; noxious gases; and ionizing radiation. In addition man must be prepared to make his temporary abode among populations in foreign lands where exotic diseases are commonplace and many better known diseases, as we know them, are endemic. Man must be prepared to become acclimated and function as part of the defense team from the polar regions to the tropics and from pressures beneath the seas to the rare atmospheres of extreme altitudes, where wide latitudes of temperature, from the cold of altitude to the heat of supersonic aircraft, and where increases in cosmic radiation are encountered. Thus the modern fighting man must be prepared either to adapt himself or to have created for him an environment in which he may cope with these stresses and still function efficiently to operate modern weapons.

Well men must be aided to survive the stresses of
ronment in addition, the sick and wounded
d in order to conserve fighting
forces medical services have al-
ve medicine in reducing the
seases and mental illness in-
y, in assisting in cutting
rtatior ts, and in
d rodent
of
adiation
nt of
from
. The
Assis-

challenge of these problems is being met by medical research investigators of the Department of Defense in programs of wide coverage conducted in 29 laboratories of the armed services together with contract work in universities and civilian institutions. In addition, clinical investigation is conducted in many of the armed forces hospitals not directly associated with the medical research laboratories.

These medical research laboratories of the Department of Defense vary in size, composition, and orientation in their research programs; and they have no civilian counterparts covering such a magnitude of special investigations. They are operated by the medical personnel of the Army, Navy, and Air Force, with military and civilian scientists working side by side. Five of these laboratories are located in areas outside the United States—in Egypt, Japan, Formosa, Alaska, and Puerto Rico. In addition there is a research unit in Malaya working on infectious diseases in close cooperation with the Institute for Medical Research of the Federation of Malaya, Kuala Lumpur, Malaya. Some carry on basic and applied research in special areas such as the nutrition of military personnel under stress; others limit their investigations to aviation medicine or flying equipment and clothing, or physiological and psychological problems peculiar to underwater operations. The one tri-service laboratory is devoted to development of special items of medical equipment pertinent to military medical field operations. While some of the work is of necessity classified, the majority of the research results are reported in the open literature.

Many of the units are located near university centers from which consultation may be obtained. Some have university affiliations, such as the Johnsville Acceleration Laboratory, wherein military officers are associated with and provide teaching services for the University of Pennsylvania Graduate Medical School, while selected graduate students utilize the excellent facilities of the human centrifuge to study effects of g-forces on primates, including man. Coordination of programs and projects is accomplished through a medical sciences coordinating committee in the office of Clifford C. Furnas, Assistant Secretary of Defense (Research and Development), who maintains close liaison with the office of Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical). Civilian consultation on the programs and projects is sought through the medical division of the National Research Council, the Armed Forces Epidemiological Board, and the Advisory Panel on Medical Sciences to the Assistant Secretary of Defense (Research and Development). The present chairman of the Advisory Panel on Medical Sciences is Dr. Richard A. Kern of Philadelphia.

Of the 29 medical research laboratories in the Department of Defense, the 3 major ones—Army Medical Research Institute, Walter Reed Army Medical Center, Washington, D. C.; Naval Medical Research Institute, Bethesda, Md.; and the Aeromedical Research Laboratory, Wright Patterson Air Force Base, Dayton, Ohio—are well known to the medical profession. However, the 26 other laboratories may not be so well known, and, since one cannot outline the mission of each, in general it may be stated that the medical laboratories of the Defense Department conducting research are closely allied to hospital centers or have clinical material readily available. An example is the surgical research unit at Brooke Army Hospital near San Antonio, Texas, which specializes in research on the care and treatment of burns. Severely burned persons are flown to this unit by special evacuation teams from points throughout the United States. At the Navy Medical Research Laboratory at the Submarine Base, New London, Conn., research is devoted exclusively to submarine medicine. All prospective submarine crews are trained there, and they afford the laboratory a continuous flow of subjects for research. At the Air Force School of Aviation Medicine, Randolph Air Force Base, Texas, about 75% of the effort of the personnel of the school is in research primarily in aviation medicine. Here investigation is carried on in the physiological effects of high-speed, high-altitude acceleration and noise; neuropsychiatric factors affecting selection and classification; and air-crew effectiveness and air-crew evacuation, as well as other areas.

It is encouraging to know that this wide spectrum of research in the medical sciences is being intelligently and vigorously conducted. Opportunities for research experience in the Department of Defense laboratories are available to qualified reserve military personnel as well as to career military and civilian scientists.

FAR-REACHING STUDY AT MIDPOINT

Some 7,000 hospitals across the nation now have received questionnaires that may influence the course of medicine in the United States. Hospital construction, medical education, health insurance rates, public regard for doctors and health—all these are subject to beneficial revision when this massive five-year study is completed. The study is now at midpoint. It began late in 1953 when the A. M. A. undertook the gigantic task of measuring the total of medical service rendered to the American people by their physicians. This had never been done before. For once, there would emerge a national picture of what the patient gets for what he spends—and not the cold, misleading stroke of a statistician's pen sketching only a dollar sign.

In phase 1 of the three-point study, the A. M. A. Bureau of Medical Economic Research determined the age and sex of all hospital patients on a given day. It was a simple pair of questions, but, thanks to the earnest cooperation of hospital administrators, the answers were a series of startling revelations. They disclosed, for example, that males are the more hospitalized sex, although one-sixth of admissions were pregnant women. And the study revealed that 28% of hospital patients under 15 were in hospitals for patients with nervous or mental diseases.

Last month, the more important phase 2 of the survey began. Questionnaires were sent out to learn the age, sex, length of stay, and diagnoses for every hospitalized person discharged during the third week of this month, October, 1956. The import of this quiz sheet alone is tremendous. It will help answer such questions as: Which ailments or conditions are sending most Americans to hospitals? Which are keeping them there the longest? How many hospital beds are taken up by accident casualties, by pregnant women, by patients undergoing elective surgery (such as cosmetic)? (The survey will not accurately show the number of patients admitted to a hospital for "a rest" or for general observation.) What operative procedures seem to be predominant for specific diagnoses, and how will this knowledge contribute to medical education? How many patients are helped through diagnoses of other ailments that were hidden or unsuspected when they were admitted to the hospital—and how might this help in the training of a physician? How can the patterns thus disclosed help in the design and location of new hospitals? The figures, as if from a projector, will be able to spring into view like composite pictures of the 20 million people admitted to U. S. hospitals each year.

Next spring the huge survey is expected to be completed, with similar information asked of physicians on their patients seen in the office and in the home. When all the data are collected, correlated, and evaluated for publication late in 1958, the A. M. A. will have spent about $100,000 on this project, according to Frank G. Dickinson, Director of the Bureau of Medical Economic Research. The consequent value to U. S. physicians and the general public might be inestimable.

Again, hospital administrators are playing a key role. They are asked now to supply more data than they did in 1953, but, as the Bureau's director says, "For the well-run hospital this should be a routine copying job." The result to which they are contributing is anything but routine.

ENDOMETRIOSIS AND INFERTILITY

Endometriosis decreases the fertility of an individual, although many women conceive in spite of this complication. Fertility in normal women declines rapidly after 35 years of age. Pregnancy does not have a deleterious effect on endometriosis, for it is likely to remain quiescent or even undergo some regression. The progress of endometriosis is dependent on ovarian function, so that any measure that suppresses gonadal activity will affect the endometriosis favorably. Thus, the steroid hormones, estrogens and androgens, inhibit the function of the anterior lobe of the pituitary and suppress ovarian function. A diagnosis of endometriosis is usually made on pelvic examination, which will reveal an enlarged adherent ovary on one or both sides and thickening and fixation in the cul-de-sac and rectovaginal septum. In classic cases bluish cysts can often be visualized in the posterior vaginal cul-de-sac with the aid of a speculum. A curettage provides no information concerning endometriosis, but it will rule out pathology of the endometrium such as carcinoma. A positive diagnosis of endometriosis in some cases cannot be made prior to laparotomy. However, the history of progressive dysmenorrhea and typical pelvic findings leave little doubt in most cases. If the patient does become pregnant and a repeat cesarean section is carried out, the adnexa and cul-de-sac may be inspected for the presence of endometriosis, and if it is extensive cesarean hysterectomy may be considered. If surgery is indicated in progressive endometriosis in young women, the present tendency is to be as conservative as possible, particularly in the individual who wishes more children.

ORGANIZATION SECTION

ANNUAL A. M. A. MEETING IN NEW YORK, JUNE 3-7, 1957

The Annual Meeting of the American Medical Association will be held in New York, June 3-7, 1957. The Scientific Exhibit and several meeting halls will be housed in the new, air-conditioned Coliseum, along with Registration and the Technical Exposition. Other meeting halls will be held in hotel ballrooms in the adjacent vicinity of the Coliseum.

Persons desiring to read papers before one of the sections should communicate with the secretary of that section. Similarly, persons desiring space in the Scientific Exhibit should obtain an application for space from the exhibit representative or from the Secretary of the Council on Scientific Assembly. The Scientific Program is well under way, and Dec. 17, 1956, has been set for the deadline for the receipt of requests to read papers and applications to present scientific exhibits.

Additional information may be obtained from the Secretary of the Council on Scientific Assembly, American Medical Association, 535 N. Dearborn, Chicago, 10.

Following are the secretaries and representatives to the Scientific Exhibit from the various sections:

Anesthesiology

Secretary—Daniel C. Moore, M.D., 1118 Ninth Ave., Seattle 1.

Exhibit Representative—Edwin L. Rushia, M.D., University Hospital, Augusta, Ga.

Dermatology

Secretary—Clarence S. Livingood, M.D., Henry Ford Hospital, Detroit 2.

Exhibit Representative—Stanley E. Huff, M.D., 636 Church St., Evanston, Ill.

Diseases of the Chest

Secretary—Burgess L. Gordon, M.D., Woman's Medical College of Pennsylvania, Philadelphia 29.

Exhibit Representative—Edwin R. Levine, M.D., 109 N. Wabash Ave., Chicago 2.

Experimental Medicine and Therapeutics

Secretary—Elliot V. Newman, M.D., Vanderbilt University Hospital, Nashville 5, Tenn.

Exhibit Representative—Joseph F. Ross, M.D., University of California Medical Center, Los Angeles 24.

Gastroenterology and Proctology

Secretary—William H. Dearing, M.D., 200 First St. S.W., Rochester, Minn.

Exhibit Representatives—Willard H. Bernhoft, M.D., 537 Delaware Ave., Buffalo 2, and George Gordon McHardy, M.D., 3636 St. Charles Ave., New Orleans 15.

General Practice

Secretary—E. I. Baumgartner, M.D., 25 Alder St., Oakland, Md.

Exhibit Representative—I. Phillips Frohman, M.D., 2924 Nichols Ave S.E., Washington 20, D. C.

Internal Medicine

Secretary—Rudolph H. Kampmeier, M.D., Vanderbilt University School of Medicine, Nashville 5, Tenn.

Exhibit Representative—Henry T. Ricketts, M.D., 950 E. 59th St., Chicago 37.

Laryngology, Otology and Rhinology

Secretary—Hugh A. Kuhn, M.D., 112 Rimbach St., Hammond, Ind.

Exhibit Representative—Walter E. Heck, M.D., Stanford University Hospitals, San Francisco 15.

Military Medicine

Secretary—Capt. Cecil L. Andrews, M. C., U. S. N., Bureau of Medicine and Surgery, Department of the Navy, Washington 25, D. C.

Exhibit Representative—Col. Frank M. Townsend, M. C., U. S. A. F., Armed Forces Institute of Pathology, Washington 25, D. C.

Nervous and Mental Diseases

Secretary—Adolph L. Sahs, M.D., University Hospitals, Iowa City.

Exhibit Representative—Benjamin Boshes, M.D., Northwestern University Medical School, 303 E. Chicago Ave., Chicago 11.

Obstetrics and Gynecology

Secretary—Keith P. Russell, M.D., 511 S. Bonnie Brae St., Los Angeles 57.

Exhibit Representative—Frederick H. Falls, M.D., P. O. Box 47, River Forest, Ill.

Ophthalmology

Secretary—Harold G. Scheie, M.D., 313 S. 17th St., Philadelphia 3.

Exhibit Representative—Frank W. Newell, M.D., 950 E. 59th St., Chicago 37.

Orthopedic Surgery

Secretary—H. Herman Young, M.D., 200 First St. S.W., Rochester, Minn.

Exhibit Representative—James I. Kendrick, M.D., 2020 E. 93rd St., Cleveland 6.

Pathology and Physiology

Secretary—Hugh A. Edmondson, M.D., 1200 N. State St., Los Angeles 33.

Exhibit Representative—Samuel A. Levinson, M.D., 808 S. Wood St., Chicago 12.

Pediatrics

Secretary—Wyman C. C. Cole Sr., M.D., 3011 W. Grant Blvd., Detroit 2.

Exhibit Representative—F. Thomas Mitchell, M.D., Le Bonheur Children's Hospital, Memphis 5, Tenn.

Physical Medicine

Secretary—Walter J. Zeiter, M.D., 2020 E. 93rd St., Cleveland 6.

Exhibit Representative—Donald A. Covalt, M.D., 400 E. 34th St., New York 16.

Preventive Medicine
Secretary—Frank Princi, M.D., Kettering Laboratory, University of Cincinnati College of Medicine, Cincinnati 19.
Exhibit Representative—Paul A. Davis, M.D., 633 E. Market St., Akron 4, Ohio.

Radiology
Secretary—Gustaf E. Lindskog, M.D., 333 Cedar St., New Haven 11, Conn.
Exhibit Representative—Richard H. Chamberlain, M.D., 3400 Spruce St., Philadelphia 4.

Urology
Secretary—Thomas A. Morrissey, M.D., 40 E. 61st St., New York 21.
Exhibit Representative—Milton M. Coplan, M.D., 550 Brickell Ave., Miami 32, Fla.

PROGRESS ON A. M. A. SESSION IN SEATTLE

Plans are progressing for the A. M. A. Clinical Session in Seattle on Nov. 27-30. It is the first time the A. M. A. has met in Seattle. Under the general chairmanship of M. Shelby Jared of Seattle, several committees have formulated the program, after conferences with the A. M. A.'s Council on Scientific Assembly. Hale Haven's Scientific Program Committee reports a tremendous response to the call for volunteers to present scientific papers. Over 140 abstracts have been submitted, and only 40 papers can be presented. The program was planned for the general practitioner, and his everyday problems. Panel discussions also are being developed.

F. A. Tucker's Television Program Committee has drafted a series of "wet and dry" clinics on a closed television circuit to point up such diverse subjects as cesarian section, vein stripping, "the G. I. Bleeder," and chest emergencies. A panel discussion on the aging population is to be shown to the public on an open television channel. Sydney Hawley's Entertainment Committee is planning menus, decorations, favors, and a sparkling program for the House of Delegates dinner. Mrs. Roger Anderson and Mrs. Lester Henderson are planning events for the Auxiliary. Boat trips, luncheons, shopping tours, and symphony concerts are on the agenda.

A series of films on medicolegal problems will be produced by the pharmaceutical firm of William S. Merrell Company of Cincinnati in cooperation with the A. M. A. Law Department. The first film, dealing with the doctor as a medical expert witness, will be previewed at the A. M. A. Clinical Session in Seattle, Nov. 27-30. This film will be available for showings at state and county medical society meetings after Dec. 15.

Wilbur Watson, in charge of housing and transportation, and his committee are checking accommodations. Seattle's hotels have assured him there are plenty of first-class rooms to accommodate all visitors. (Get your reservations in early.) The Washington State Medical Association Office is handling all the details. Staff members are being aided by Mr. James Borgen, Executive Secretary, Kitsap County Medical Society, and Mr. William Ramsey, Executive Secretary, King County Medical Society. The usual high caliber of commercial and scientific exhibits is expected. Plan to be in Seattle Nov. 27-30. It will be well worth your while. For hotel reservations, write Dr. Wilbur Watson, Chairman, A. M. A. Housing Bureau, 315 Seneca St., Seattle.

UNIVERSITY OF WASHINGTON MEDICAL SCHOOL AT SEATTLE

The territorial legislature authorized the establishment of schools of medicine and law at the University of Washington in 1885, and the minutes of the Board of Regents of the University for October, 1885, include a report of a special committee on the organization of the proposed medical school. It includes the names of proposed faculty personnel, the departments to be developed, the general outline of the curriculum, and the tuition to be charged. What happened to these plans is not clear.

About the time of the first World War, interest in the development of a medical school at the university increased, and, while during that period instruction was established in anatomy, physiology, bacteriology, pathology, biochemistry, and pharmacology, it was not formally organized into a two-year basic medical science course equivalent to the first two years of medicine. During the next two and a half decades, no energetic efforts were made to establish either a two-year basic medical science or four-year medical school program.

In 1944-1945 there was sudden greatly increased interest spearheaded by the medical profession, with the support of the university authorities. The dental profession joined hands with the medical profession and the university authorities, and, during the 1945 session of the legislature, authorization was given for the establishment of medical and dental schools at the University of Washington in Seattle. Administrative officers were selected for the new schools late in 1945, and progress was rapid enough to permit admission of 50 students to the entering class of each school in the fall of 1946. Instruction during the first three years was conducted in temporary quarters, while the current physical facilities were being developed. The basic medical science facilities were developed so as to meet not only the needs of the new professional schools but also other university disciplines where such instruction is needed.

Although the teaching hospital facilities at the university are still in the developmental stage, the medical school, in cooperation with such institutions as the King County Hospital, the Veterans Administration Hospital, the U. S. Public Health Service Hospital, the Children's Orthopedic Hospital, the Firland Sanatorium, certain private hospitals, state institutions, and local as well as state agencies, has been able in the 10 years of its existence to develop an institution that has won high national recognition in both teaching and research. Physicians attending the midwinter session of the American Medical Association in Seattle will find a visit to the new medical school an interesting and worthwhile experience.

PROCEEDINGS OF THE CHICAGO MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN CHICAGO, ILL., JUNE 11-15, 1956

(Continued from page 505)

Introduction of Resolutions

The Speaker called for the introduction of resolutions as numbered.

No. 1, Resolution on Service Membership for Reserve Officers

Dr. Charles L. Leedham, for the Section on Military Medicine, introduced the following resolution, which was referred to the Reference Committee on Medical Military Affairs:

WHEREAS, The American Medical Association Constitution and Bylaws make no provision for any type of American Medical Association membership for the military reservist who is on temporary active duty with the Armed Forces, the Public Health Service or the Veterans Administration unless the physician had previously held membership through a local county and state medical society, and

WHEREAS, A limited number of state and county medical societies have provided some type of local membership to qualify the physician absent in military service for American Medical Association membership, and other state and county societies have refused to take such action; and

WHEREAS, It is extremely desirable to afford all physicians in the military services, whether permanent or temporary, the opportunity to become members of the American Medical Association, therefore be it

Resolved, That the House of Delegates amend the provisions of the Bylaws *so that membership can be made available for the reserve officers of the military services* on short term duty by changing Section 2, Chapter I of the Bylaws of the American Medical Association as follows. That the subclassification "(A)" be inserted after the title words "Service Members" and before the word "Regular" making the present Section 2, as written, the first of two parts, and that the following be added as the second part "(B) Commissioned medical officers of the reserve components of the organizations listed in Section 2(A) above are accorded the same rights and privileges as regular officers, insofar as membership is concerned, during their term of active duty plus one year or until they become members of a constituent association of the American Medical Association whichever is sooner."

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. William C. Chaney, Chairman, Tennessee, submitted the following report, which was adopted:

Your reference committee supports the principle expressed in Resolution No. 1 by the Section on Military Medicine and agrees that it is extremely desirable to afford all physicians in the military services, whether permanent or temporary, the opportunity to become members of the American Medical Association. However, the resolution as proposed presents difficult administrative problems. Further, the committee is cognizant of the prerogative of county medical societies in *selecting their own* members. Therefore, your committee recommends that the resolution not be adopted at this time.

Your committee does recommend that the Secretary and General Manager of the Association be authorized to meet with representatives designated by the Surgeons General of the Army, Navy, and Air Force to study *and make* recommendations on this subject to the House of Delegates at the 1956 Clinical Meeting.

Resolutions No. 2 to 5

Dr. Truman C. Terrell, for the Texas delegation, introduced the following Resolutions Nos. 2 to 5, each of which was referred to the Reference Committee on Legislation and Public Relations:

No. 2. Resolution on the Narcotic Traffic

PREAMBLE

Senate Resolution 67, adopted March 18, 1955, authorized the first [illegible] investigation of the narcotics traffic with the aim to find "ways and means of improving the Federal Criminal Code and other laws and enforcement procedures dealing with possession, sale, and transportation of narcotics, marihuana, and similar drugs." This task was assigned to the Senate Subcommittee on Improvements in the Federal Criminal Code, the Hon. Price Daniel, junior Senator from Texas, Chairman. This subcommittee has found that, among other things, the United States has more narcotic addicts, both in total numbers and population-wise, than any other country in the western world that the illicit drug traffic has tripled in the United States since World War II; and that drug addiction is responsible for approximately 50 per cent of all crimes committed in the larger metropolitan areas. *This subcommittee* now is drafting specific legislation concerning improvement of narcotic control.

Resolved, That the House of Delegates of the American Medical Association recommend to Congress that appropriate legislation be enacted to improve narcotic control, and that copies of this resolution be sent to the President of the United States, members of his Cabinet, and all members of Congress.

No. 3. Resolutions on Opposition to S. 1323 Which Would Subsidize Medical Schools

PREAMBLE

A Supreme Court decision has stated that "It is hardly lack of due process for the Government to regulate that which it subsidizes." The American Medical Association consistently has held the opinion that federal aid is a "dangerous device" and so testified before the Health Subcommittee of the Senate Labor and Public Welfare Committee on May 6, 1955. More doctors of medicine now are being graduated from the 80 medical schools of this country than at any time since these schools were approved, and the quality of medical training has consistently improved until now it is the finest offered anywhere in the world. This high level of medical training and this large number of graduates from medical schools have been attained with little or no federal subsidy. *Incidentally*, it is recognized that the federal government is already burdened with many billions of dollars of public debt, yet S. 1323 carries an appropriation of 250 million dollars, which would further increase this debt. *The federal government*, under the provisions of S. 1323, would have the legal right to subsidize the cost of maintenance of the new *facilities* built under its provisions by allowing the applicant *to set aside 20 per cent* of the federal grant for "permanent endowment." Past experience has shown that the stipulations of a "temporary *emergency*" and "*single grant*" offer no protection against perpetuation, since the same philosophy was incorporated in the Hill-Burton laws which have recently been extended to 1960.

Resolved, That the House of Delegates of the American Medical Association hereby expresses strong opposition to S. 1323 notwithstanding *former positions or interpretations* of the bill by the American Medical Association, because it is apparent that S 1323 represents a major step toward *the complete socialization* of medical education and practice in this country, and be it further

Resolved, That copies of this resolution be sent to the President of the United States, members of his Cabinet, and all members of Congress

No. 4. Resolutions on Opposition to H. R. 483 Authorizing Armed Forces to Commission Osteopaths

PREAMBLE

It is apparent that the commissioning of *osteopaths* in the armed forces would force servicemen of this country to submit to general medical and surgical care of osteopaths. Standards of osteopathic care are not regarded as equal to those of care by regular *medical* practitioners Those who practice osteopathy do so without the educational background and clinical instruction received by graduates of accredited schools of medicine. It is our belief that the appointment of osteopaths as medical officers would endanger the *health and welfare* of our military personnel. It is also our belief that the appointment of osteopaths would contribute to the demoralization of career officers in the military medical service and great harm would be *done* to the fine military civilian consultant program, since an ethical doctor of medicine cannot *voluntarily consult* with osteopaths. This development would doubtless result in widespread resignations of medical officers. *It also* should be recognized that the appointment of osteopaths would endanger the accreditation of residency and intern training programs in military hospitals

Resolved, That the House of Delegates of the American Medical Association does hereby go on record as opposing most vigorously H. R. 483, which would authorize the Armed Forces to commission osteopaths, and be it further

Resolved, That copies of *this resolution* be sent to the President of the United States, members of his Cabinet, and all members of Congress

No. 5. Resolution on Accelerated Tax Write-Off for Private Hospital Expansion and Construction

PREAMBLE

National surveys made by such eminent authorities as Dr. John W. Cronin, Chief of the Division of Hospital Facilities of the Public Health Service, have shown that there is a rapidly increasing deficit of hospital facilities throughout the United States in spite of millions of dollars expended through the Hill-Burton Act and by various municipalities, churches, and private or individual enterprise. The Public Health Service budget for 1956 includes $125,000,000 of available funds for grants for hospital construction. Even if this full amount should be utilized, however, there would still be a deficit of over 800,000 hospital beds now needed in this country.

It is recalled that during the recent Korean conflict the Office of Defense Mobilization was set up, among other purposes, to stimulate private industry to build or to expand facilities for supplying material needed for mobilization and for the general safety, security, and well-being of our country. To accomplish this purpose, an accelerated tax write-off was allowed for such construction in many fields of industry. The need for more hospital beds in the United States is likewise a definite factor in the general safety, security, and well-being of our country. Private physicians or groups of physicians would much prefer to expand their hospital facilities at their own expense rather than to depend upon federal grants. If hospital construction can be financed by private enterprise, there will be effected a tremendous saving to the federal government. If provision were to be made for an accelerated tax write-off program to apply in the construction of private hospitals, owners of such hospitals would be greatly encouraged and stimulated to make needed expansions or to construct entirely new hospital facilities.

Resolved, That the House of Delegates of the American Medical Association recommend to Congress the enactment of proper legislation to provide for the above-described procedure of accelerated tax write-off for the costs of new construction or expansion of private hospitals, and that copies of this resolution be sent to the President of the United States, members of his Cabinet, and all members of Congress.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, presented the following report, which, after discussion and after a motion to substitute the original Resolution No. 3 for the committee report thereon was lost, was adopted:

Resolution No. 2 on the Narcotic Traffic.—Your reference committee has studied this resolution, and although it approves the specific principle involved, it fears that because of the many problems and possible complications, this resolution should be referred to the Committee on Legislation for further study.

Resolution No. 3 on Opposition to S. 1323.—Your committee appreciates the intent with which this resolution was introduced, but at the same time feels that there are many economic and geographical factors involved which might not make this resolution practical on a national level. Inasmuch as no evidence was offered to this committee to justify a change in the previously declared policy of the House of Delegates, your committee recommends that the previous action of this House be reaffirmed and this resolution be not adopted.

Resolution No. 4 on Opposition to H. R. 483 Authorizing Armed Forces to Commission Osteopaths.—Since the Committee on Legislation and our Washington Office have been very active in their efforts to oppose this legislation, your committee feels that continued efforts will be made without the need of this specific reference. It feels that the purpose of this resolution has already been carried out, and that this resolution is unnecessary at the present time. Your committee recommends that this resolution be not adopted.

Resolution No. 5 on Accelerated Tax Write-Off for Private Hospital Expansion and Construction.—Your reference committee agrees with the intent and principle contained in this resolution, and recommends its referral to the Committee on Legislation. Your reference committee is now cognizant of what may be a well-known fact in Texas, that the 27 per cent depletion cannot be applied to accelerated tax write-offs for private hospitals.

No. 6. Resolution on Medical Care for Civil Service Employees

Dr. Truman C. Terrell, for the Texas delegation, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

PREAMBLE

Civilian employees, under Civil Service, of various federal military installations are required to undergo yearly physical examinations (including eye examination, chest x-ray, EKG, routine laboratory procedures) by government employees at taxpayers expense. This represents another intrusion into the private practice of medicine and conceivably justifies some usage of physicians drafted into the military service; now therefore be it

Resolved, That the House of Delegates of the American Medical Association strongly oppose this practice and that copies of this resolution be sent to the President of the United States and to all members of Armed Services Committees of the United States Senate and House of Representatives.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, read the following report, which was adopted:

Your reference committee received considerable discussion on Resolution No. 6 on Medical Care for Civil Service Employees, introduced by the Texas delegation. It was felt by the reference committee that since the examination of Civil Service employees by government military medical personnel at taxpayers' expense is a *fait accompli* under Public Law 658 of the 79th Congress, 1946, and under Presidential directives of 1950, it would little avail the House of Delegates to "strongly oppose" the practice. However, because such a practice might conceivably justify some use of physicians drafted into military service, your committee recommends that this matter be referred to the Council on Medical Service that its Committee on Federal Medical Services might investigate this matter and report back to the House at the 1956 Interim Meeting.

No. 7. Resolution on Amendment to Principles of Medical Ethics, Chapter I, Section 12

Dr. Ezra A. Wolff, for the Medical Society of the State of New York, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws:

WHEREAS, The Principles of Medical Ethics of the American Medical Association are stated in more general terms than the Principles of Professional Conduct (or Ethics) of the constituent state medical societies and/or associations; and

WHEREAS, Difference in local custom and practice often makes it necessary for the Principles of Professional Conduct (or Ethics) of the constituent state society or association to be more specific and stringent than the Principles of Medical Ethics of the American Medical Association; and

WHEREAS, The enforcement of the constituent state society's Principles of Professional Conduct (or Ethics) is a function of the state medical society; and

WHEREAS, Appeals by members against decisions of the constituent state society are only subject to review by the Judicial Council of the American Medical Association when questions of law or procedure are involved; now therefore be it hereby

Resolved, That the Principles of Medical Ethics of the American Medical Association be amended so as to add to Chapter I, which deals with general principles, a Section 12 which should read as follows:

"Sec. 12.—When the Principles of Professional Conduct (or Ethics) of a constituent state medical society or association are more specific or stringent concerning a matter of ethics than are the Principles of *Medical Ethics* of the American Medical Association, then the Principles of Professional Conduct (or Ethics) of the constituent state medical society or association shall be binding on all of its members if it is not inconsistent or in conflict with the Constitution and Bylaws of the American Medical Association."

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, read the following report, which was not adopted, and the Speaker ruled that in accordance with the provisions of the Bylaws regarding amendment of the Principles of Medical Ethics—adopted at this session of the House—the proposed amendment presented in Resolution No. 7 would be referred to the Council on Constitution and Bylaws.

Resolution No. 7.—Your committee also received Resolution No. 7 from the Medical Society of the State of New York recommending an amendment to the Principles of Medical Ethics in which it was recommended that a new Section 12 be added to

Chapter I of the Principles of Medical Ethics. Since there is a complete revision of the Principles of Medical Ethics under present consideration, your committee recommends that Resolution No. 7 be not approved.

No. 8. Resolutions on Opposition to Increase in American Medical Association Dues

Dr. John F. Burton, for the Oklahoma delegation, introduced the following resolutions, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Whereas, It has come to the attention of the Oklahoma State Medical Association that the House of Delegates of the American Medical Association may discuss an increase in American Medical Association dues at its meeting in June, 1956, at Chicago; and

Whereas, It is understood that only 18 of the 53 constituent state and territorial medical associations have compulsory payment of the annual membership dues of the American Medical Association; and

Whereas, It is understood that approximately 30 per cent or more of American doctors who are members of county and state medical associations do not pay American Medical Association dues; now therefore be it

Resolved, That the House of Delegates of the Oklahoma State Medical Association firmly opposes any increase in the annual membership dues of the American Medical Association, in 1956 or any future time, so long as the payment of American Medical Association dues continues to remain optional with the great majority of the members of constituent state and territorial medical associations, and has instructed its delegates to so vote on all questions calling for an increase of American Medical Association dues; and be it further

Resolved, That this situation is inequitable, and that any necessary increase in American Medical Association dues income be derived from those doctors who are not meeting their obligation in this respect by refusing to pay such dues.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, presented the following report, which was adopted:

Opposition to Increase in AMA Membership Dues (Resolution No. 8).—This resolution, introduced by the Oklahoma delegation, was considered by your committee. Inasmuch as no increase in dues is contemplated at this time, your reference committee recommends that no action be taken on this resolution.

No. 9. Resolutions on Veterans Affairs

Dr. John F. Burton, for the Oklahoma delegation, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

Whereas, in many Veterans Administration hospitals the fulltime medical staff employees are rendering bills to patients treated in the veterans hospitals who are covered by Workmen's Compensation insurance and also by private medical and hospital insurance; and

Whereas, These fees collected are placed in various funds for the benefit of the staff; and

Whereas, These benefits could well be supplied by the individual employee from his salary as his brother physicians in private practice are compelled to do; and

Whereas, According to Veterans Administration Regulation 6047-D 1, only veterans who are financially unable to pay are eligible for treatment of non-service-connected disability in veterans hospitals; now therefore be it

Resolved, That the Oklahoma State Medical Association considers these procedures unlawful and in direct violation of Veterans Administration Regulation 6047-D 1; and be it further

Resolved, That the Oklahoma State Medical Association request the Board of Trustees of the American Medical Association to appoint immediately a committee to confer with the Veterans Administration to stop this vicious procedure and report back to the House of Delegates at its next meeting.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, submitted the following report, which, after discussion, and after a substitute motion that the Speaker appoint a committee to confer with the Veterans Administration to stop the procedures described in Resolution No. 9 was lost, was adopted:

Resolution No. 9 on Veterans Affairs.—Your reference committee listened to much discussion of this resolution. It learned again that, under the present laws of the United States, no statement that a veteran is able to pay for his medical care and/or hospitalization can supersede his own statement that he cannot pay.

Resolution No. 9 is so worded that the resolves do not actually apply to the House of Delegates. In spite of this the reference committee did not quibble about the wording of the resolution, but it did feel that if the Oklahoma delegation has valid evidence of unlawful acts on the part of directors or of employees of veterans hospitals, such evidence should be presented to the proper state or federal authorities in Oklahoma. This is so particularly because this House of Delegates does not have such evidence. Your committee recommends that Resolution No. 9 be not approved.

No. 10. Resolution on Proposed Amendment to Bylaws Concerning Composition of Board of Trustees

Dr. Millard D. Hill, North Carolina, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws:

Resolved, That Chapter XVI, Section 1, of the Bylaws be amended by the addition of the following sentence: "The Vice President, Treasurer, Speaker and Vice Speaker of the House of Delegates shall be ex officio members of the Board with all the rights and duties of the Board without the right to vote."

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, read the following report, which was adopted:

Resolution No. 10.—Your committee received a resolution submitted by Dr. Millard D. Hill, delegate from North Carolina, on the subject, "Proposed Amendment to Bylaws Concerning Composition of Board of Trustees," resolving that Chapter XVI, Section 1, of the Bylaws be amended.

Your reference committee recommends the adoption of this proposed amendment to the Bylaws.

No. 11. Resolutions on Straight Internships

Dr. Ralph E. Campbell, Section on Obstetrics and Gynecology, introduced the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

Whereas, Obstetrics and gynecology has traditionally been considered as one of the four major branches of internship training; and

Whereas, The American Medical Association and its Council on Medical Education and Hospitals disapproved all straight internships except those in medicine, surgery, pathology, and pediatrics; and

Whereas, This discriminatory policy will, in many hospitals, eliminate all interns in obstetrics and gynecology, result in deterioration of patient care, and discourage the usual flow of recent graduates from internship through residency training; therefore be it

Resolved, That the American Medical Association through its Council on Medical Education and Hospitals review and reconsider the present policy in the matter of straight internships; and be it further

Resolved, That the American Medical Association and its Council on Medical Education and Hospitals abolish all straight internships in all hospitals and in all medical specialties and for all graduated medical students; and be it further

Resolved, That straight internships in obstetrics and gynecology be continued until such time as all straight internships in all medical specialties are simultaneously abolished.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, presented the following report, which was adopted after discussion:

Resolutions Nos. 11 and 38.—These resolutions were considered together at the hearing because both deal with the type of internship that may provide the better preparation for medical practice, rotating or straight. There was a surprising unanimity of opinion that a rotating internship was preferred. Your committee also reviewed a portion of the Annual Report on Internships and Residencies and the Medical Licensure Statistics for 1955. Fourteen boards now require a rotating internship for licensure.

Your reference committee believes that there is a growing body of opinion within the profession in favor of a rotating internship. It also recognizes the difficulties involved and the dangers to some established educational programs were action taken precipitously to disapprove straight internship, which are about 10% of the total number now approved. Your committee recommends the following substitute resolution for resolutions 11 and 38.

Resolved, (1) That the Council on Medical Education and Hospitals be requested to increase its efforts to encourage rotating internships rather than straight internships in all hospitals approved for the latter, and (2) that a report of the results of this effort be submitted annually.

No. 12. Resolution on Establishment of Inhalation Therapy Schools

Dr. W. P. Anderton, for the Medical Society of the State of New York, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

Whereas, There are insufficient numbers of physicians and technicians who have been well-trained in the techniques of inhalation therapy in many parts of the United States of America, and

Whereas, The effective use of inhalation therapy may be the determining factor between life and death in such conditions as heart failure, coronary artery disease, asthma, atelectasis of the lungs in newborn infants, postoperative atelectasis, pneumonia, pulmonary edema, emphysema, cerebral thrombosis, and others, and

Whereas, "Standards of Effective Administration of Inhalation Therapy" were published in The Journal of the American Medical Association of Sept 2, 1950, Vol 144, pp 25-34, and

Whereas, "Essentials of an Acceptable School for Inhalation Therapy Technicians" were published in the New York State Journal of Medicine of April 15, 1956, Vol. 56, No 8, p 1319, therefore be it

Resolved, That the Council on Medical Education and Hospitals is hereby requested to endorse such or similar "Essentials" and to stimulate the creation of schools of inhalation therapy in various parts of these United States of America.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr George S. Klump, Chairman, Pennsylvania, submitted the following report, which was adopted.

Resolution No. 12.—Your reference committee approves this resolution in principle and recommends that it be referred to the Council on Medical Education and Hospitals.

No. 13. Resolution on Reimbursement for Collecting American Medical Association Dues

Dr. Charles H. Loughran, for the Medical Society of the State of New York, introduced the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Whereas, The House of Delegates of the Medical Society of the State of New York on May 9, 1956, adopted the report of its Reference Committee on Report of Council Part XII, which stated in part "We are concerned to note that the collection of A.M.A dues continues to be an expense to the Society and strongly urge our Delegates to the A.M.A. to take proper steps to rectify this, either by full reimbursement by the A.M.A. to the Society, or by direct collection by the A.M.A. of its own dues", and

Whereas, The collection of American Medical Association dues in 1955 cost the Medical Society of the State of New York $8,165.37, and

Whereas, The Medical Society of the State of New York received for expenses one half of one percent of the dues collected from the American Medical Association, to wit $2,255.96, and

Whereas, This causes a loss for the year 1955 of $5,909.41 to the Medical Society of the State of New York, therefore be it

Resolved, That the Board of Trustees of the American Medical Association be requested by this House of Delegates to have a study made by certified public accountants which will encompass the collection of American Medical Association dues by state and county societies and associations, with the hope that an equitable method of reimbursement of expenses will be recommended

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, submitted the following report, which was adopted:

Reimbursement for Collecting American Medical Association Dues (Resolution No. 13).—This resolution introduced for the Medical Society of the State of New York was carefully considered. Dr. Charles Loughran of the New York delegation and others appeared before the committee in support of this resolution and submitted a statement of collection expenses of that state society.

Your reference committee believes this whole question of expenses of collecting American Medical Association dues requires further study, inasmuch as serious dissatisfaction exists in certain areas. We therefore, support the intent of this resolution and recommend that this House of Delegates authorize the Board of Trustees to institute a study which will result in a fair and equitable reimbursement to all medical societies and associations for expenses incurred in collection of American Medical Association dues.

No. 14. Resolutions on Health Check-Up Week for Physicians

Dr. Joseph D. McCarthy, Nebraska, introduced the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, The conservation of the health and the logevity of physicians have been materially imperiled because of the lack of a concerted effort on their part to be informed of their individual emotional and physical shortcomings by confreres on a professional basis, and

Whereas, Longevity is comparatively greater among a considerable number of other groups of people than among those of the medical profession, and

Whereas, The health of physicians is a precious resource of communities because of their ability to conserve the health of the people, but by neglect of their own health in too many instances their ministrations have been lost, and

Whereas, Physicians urge all laymen to have periodic examinations for the purpose of detecting disease in its incipiency, and

Whereas, Urging citizens to follow through on such a program and not adopting a similar program for themselves is not an exemplification of good preventive medicine, therefore be it

Resolved, That the House of Delegates of the American Medical Association designate a "Physicians' Health Check-Up Week" for its members, they to present themselves during that week for a history, physical examination, and clinical laboratory and radiologic procedures as well as any necessary consultations, and be it further

Resolved, That hospitals having facilities necessary to complete such studies be selected as examination centers, and that details incident to this program be outlined by the appropriate committees of the respective state medical associations for the guidance of all concerned, and be it further

Resolved, That the American Medical Association urge the accomplishment of this project through its constituent associations during a week to be designated by the House of Delegates of the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, read the following report, which was adopted.

Resolution No. 14.—Pertaining to Establishment of a National Health Check-Up Week for Physicians.—Your committee is in agreement with the intent of this proposal, but is of the opinion that it could be more successfully carried out on a county or district level rather than by a "National Week".

No. 15. Resolutions on Undesirable Activities of Pharmaceutical Manufacturers

Dr. James Z. Appel, for the Pennsylvania delegation, introduced the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and Bylaws:

Whereas, A high ethical code has for many centuries afforded patients and the community a high standard of medical practice, and

Whereas, It is part of our medical code to exert some control over the ethical standards of all persons and organizations contributing to the care of the ill, and

Whereas, Some undesirable activities by groups related to the welfare of such persons are occurring; and

Whereas, Medicine in its efforts to protect the public condemns the over-enthusiastic and premature reports of medical treatments; and

Whereas, There is an increasing trend for publicizing prematurely in nonmedical publications the discovery of new drugs before they have been fully tested or even are generally available for use by physicians; and

Whereas, There is a growing tendency for pharmaceutical oragnizations to spend large sums of money entertaining members of medical societies; and

Whereas, There is also a growing tendency for these firms to offer funds for the training of residents and fellows in teaching hospitals in return for which research projects of new drugs and their ultimate publicity is implied; and

Whereas, Many faculty members of schools of medicine are in the employment of manufacturing pharmaceutical firms; therefore be it

Resolved, That these developments offer inherent dangers to advancement in medicine and lower the prestige of the practice of medicine; and be it further

Resolved, That the Board of Trustees of the American Medical Association should consider the formulation of a policy concerning relations between pharmaceutical firms and the medical profession, as well as the public, in respect to premature publicity concerning drugs, the granting of subsidies to medical meetings, and other allied matters.

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, presented the following report, which was adopted:

Resolution No. 15.—Resolution No. 15, relating to undesirable activities of pharmaceutical manufacturers was referred to this reference committee. Your committee feels that Resolution No. 15 should be not approved, and in lieu thereof recommends adoption of the following substitute resolution:

Whereas, In recent years events have indicated the necessity for a closer liaison between the pharmaceutical manufacturer and the American Medical Association; and

Whereas, In view of the tremendous number of new drugs being developed and the expanding research programs in medical colleges, clinics, and hospitals being financed by the drug industry, it is imperative that the manufacturer and the medical profession develop cooperatively guiding principles which will protect the American people from being subjected to the premature release of information pertaining to new products or techniques; and

Whereas, Competition within the pharmaceutical industry has become extremely keen so that in the advertising of their products drug manufacturing firms have been forced into the expenditure of larger and larger sums of money and in increasingly broader fields of advertising; therefore be it

Resolved, That the Board of Trustees of the American Medical Association appoint a liaison committee to meet with representatives of the pharmaceutical manufacturers to accomplish this objective.

No. 16. Resolutions on American Medical Association Regional Meeting

Dr. Eustace A. Allen, for the Medical Association of Georgia, introduced the following resolutions, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Whereas, The American Medical Association offers to physicians an excellent scientific, ethical, legal, and public relations program twice each year; and

Whereas, Many physicians for various reasons cannot avail themselves of these programs; and

Whereas, All physicians need to know the many problems facing medicine today; and

Whereas, A closer relationship among physicians, medical societies, and allied organizations is essential to preserve our high medical standards; and

Whereas, The best way to accomplish this is through education, open forums, and personal contact; therefore be it

Resolved, That the American Medical Association through its Board of Trustees be asked to institute a series of small regional two-day meetings to supplement these semi-annual meetings. If these regional meetings meet with initial success, it is possible that the interim session, at the discretion of the Board of Trustees or the House of Delegates, could then be eliminated; and be it further

Resolved, That a trial meeting be held for the Southeastern Region in Atlanta, Ga., at a time deemed suitable by the Board of Trustees and the headquarters staff in cooperatoin with the Medical Association of Georgia.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, read the following report, which was adopted:

American Medical Association Regional Meetings (Resolution No. 16).—This resolution introduced for the Medical Association of Georgia requests the institution of a series of small regional two-day meetings to supplement the interim meetings. The Trustees, the Law Department, the Public Relations Department, and others confirm the fact that the American Medical Association is eager to offer assistance in furnishing speakers, material, and other support for any county, state, or regional meeting, if asked.

Your reference committee favors meetings of this type, but recommends that no action be taken for the reasons detailed.

No. 17. Resolution on Sears-Roebuck Foundation

Dr. Charles H. Richardson Sr., for the Medical Association of Georgia, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

Whereas, The Sears-Roebuck Foundation, through a generous grant, in conjunction with the American Medical Association served the medical profession and the public at large with research and development in health activities; and

Whereas, The Sears-Roebuck Foundation has specifically established a broad program in a "Plan of Assistance to Physicians Establishing Medical Practice Units"; and

Whereas, The Sears-Roebuck Foundation prepared and distributed "A Planning Guide for Establishing Medical Practice Units" to augment its plan of assistance; and

Whereas, The Sears-Roebuck Foundation has rendered a sizeable amount of financial assistance to medical practitioners throughout the United States under this plan during 1955 and will continue its assistance; therefore be it

Resolved, That the House of Delegates of the American Medical Association commend the Sears-Roebuck Foundation for this aid to medical practitioners and the people of this country.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, submitted the following report, which was adopted:

Resolution No. 17 commends the Sears-Roebuck Foundation for its aid to medical practitioners and the people of this country. Your committee favors the adoption of this resolution and suggests that a summary of a year's accomplishment be reported in a suitable issue of The Journal.

No. 18. Resolutions on American Medical Education Foundation and American Medical Association Dues

Dr. Spencer A. Kirkland, for the Medical Association of Georgia, introduced the following resolutions, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary:

Whereas, It has been previously approved and recommended by the Council of the Medical Association of Georgia that individual association members be strongly urged to contribute *voluntarily* to the American Medical Education Foundation; and

Whereas, The financial support of AMEF has been left to the individual discretion of each physician on a voluntary basis; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record in favor of this financial support of AMEF on a voluntary basis by individual physicians; and be it further

Resolved, That the House of Delegates of the American Medical Association opposes any compulsory assessment for this purpose and as such also opposes any raise in American Medical Association dues for allocation to the AMEF Funds.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, submitted the following report, which was adopted:

American Medical Association Dues and American Medical Education Foundation Support (Resolution No. 18).—This resolution introduced for the Medical Association of Georgia was considered. Your reference committee feels that the individual state medical associations should decide how their members will support the American Medical Education Foundation, and therefore recommends no action be taken on this resolution

No. 19. Resolutions on Automobile Safety

Dr. Charles H. Richardson Sr., for the Medical Association of Georgia, introduced the following resolutions, which were referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

WHEREAS, The medical profession has and must continue to fulfill its pledged responsibility to maintain and improve the health of the general public, and

WHEREAS, The medical profession has made outstanding advances in the art and science of medicine to the extent that the public in these United States enjoys the highest standards of health ever attained; and

WHEREAS, There is yet a medical problem of major proportion facing the profession which has been neglected, and

WHEREAS, This medical problem, the killing and maiming of people on our highways, effects more persons than does all illness known today, therefore be it

Resolved, That the House of Delegates of the Medical Association of Georgia requests the American Medical Association to lend every effort, morally and financially, to combat this problem through its Board of Trustees, councils and committees, and its constituent state medical associations, and be it further

Resolved, That the American Medical Association conceive and endorse a comprehensive program of automobile safety during 1956-57, and report to the House of Delegates at the 1957 session in New York City, and be it further

Resolved, That the American Medical Association request each constituent state medical association to set up a committee on automobile saftey for similar purposes during 1956-57.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. Martyn A. Vickers, Chairman, Maine, presented the following report, which was adopted.

Automobile Safety.—Your reference committee recommends this resolution with the following changes involving the "resolves:"

Resolved, That the traffic safety committee of the American Medical Association contact the various state societies suggesting the establishment of traffic safety committees on a state and local level and that it offer whatever help the various state and local societies need in establishment of these committees, and be it further

Resolved, That the American Medical Association suggest that a cooperative effort be suggested with the various local committees established by the White House Conference on Safety, and be it further

Resolved, That if and when feasible a national meeting of the American Medical Association committee on traffic safety be held to implement the responsibilities of the medical profession in automobile safety

No. 20.

The Speaker announced that Resolution No. 20 had been withdrawn.

No. 21. Resolutions on Department of Civil Defense Disaster Control

Dr. William F. Costello, for the Medical Society of New Jersey, introduced the following resolutions, which were referred to the Reference Committee on Medical Military Affairs:

WHEREAS, We are informed by the military that the next war in this "atomic age" will be directed against the civilian population as well as against military objectives, and

WHEREAS, The government of the United States through the Civil Defense Administration has not made proper and adquate provision for the medical needs of the civilian population in the event of an attack of such magnitude, and

WHEREAS, The personnel, facilities, and equipment already provided or contemplated can be used as readily in civil disaster caused by acts of God in our country as for catastrophy caused by enemy action, and

WHEREAS, The over-all direction of rescue and relief efforts extending over many states is a matter for federal direction and transects state boundaries, and

WHEREAS, There is no federal agency at present directly charged with the protection or relief of the civilian population affected by such natural disaster, now therefore be it

Resolved, That the establishment of a Department of Civil Defense Disaster Control in the Department of Defense of the United States be recommended, that the director of this department be given status equal to the status of the directors of the Army, the Navy, or the Air Force, and that this Department of Civil Defense Disaster Control be directly charged with the protection, rescue, and relief of the civilian population of this country from the effects of natural disaster as well as the effects of disaster resulting from enemy action, and be it further

Resolved, That the American Medical Association make its voice heard to the Congress of the United States as a proponent of this plan.

REPORT OF REFERENCE COMMITTEE ON MEDICAL MILITARY AFFAIRS

Dr. William C. Chaney, Chairman, Tennessee, submitted the following report, which was adopted:

Your reference committee has carefully reviewed Resolution No. 21 introduced by the New Jersey delegation. That resolution seeks to establish a separate Department of Civil Defense Disaster Control within the Department of Defense, having coequal status with the Departments of the Army, Navy, and Air Force.

Your committee favors the broad objective of strengthening the federal civil defense program. However, your committee notes that legislation is currently pending in the Congress which, if enacted, would increase the status and strengthen the program. Moreover, a subcommittee of the House Government Operations Committee is and has been conducting extensive hearings on all aspects of civil defense. Your committee believes it would be more appropriate to concentrate the efforts of the Association on the medical aspects of disaster preparedness as outlined in supplementary report I of the Board of Trustees. Your committee recommends that Resolution No. 21 not be adopted.

No. 22. Resolution on Electoral Reform

Dr. George D. Johnson, for the South Carolina delegation, introduced the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The foundation of American freedom and liberty is dependent in large measure upon the right of citizens in their respective states to select the executive heads of government, and

WHEREAS, Under the present system of selecting the President and Vice President of the United States the entire electoral vote of each state is given to the candidate receiving a plurality of the votes in such state, thereby disenfranchising all voters supporting the losing candidate in each state, and

WHEREAS, Under such a system the votes of citizens do not have equal weight and value and as a result many are effectively deprived of an equal and just voice in the selection of the President and Vice President, and

WHEREAS, Bloc-voting minority groups in big city states which can throw the entire electoral vote of their respective states to one candidate or another are wielding an influence disproportionate to their numbers on the selection of candidates and party platforms and on the policies and programs of officials responsible to the entire nation, and

WHEREAS, The influence of minority bloc-voting groups is growing as populations shift from the smaller and rural states to the big city states and threatens established constitutional freedoms, individual liberty, and the capitalistic free enterprise system, and

WHEREAS, The need for a change has been recognized in a sample poll of the people by a two to one majority and by expressions by more than two-thirds of the Senate during the debate on this subject during the past year, and

WHEREAS, Of the numerous methods proposed, the so-called district plan calls for only a slight change in the Constitution and is a great improvement over the present system and would serve the purpose of improving the climate for the preservation of the Republic and the freedom and liberty of its people, and

WHEREAS, This method would encourage candidates from all sections of the nation to seek the high offices in the land, and encourage the nominees of both political parties to make every section of the country an area of contest, now therefore be it

Resolved, That the House of Delegates of the American Medical Association approve in principle the district method of electoral reform and encourage the members of Congress who are struggling with this complex subject to proceed as rapidly as practicable.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, presented the following report, which was adopted:

Resolutions Nos. 22 and 29.—Your committee considered these resolutions jointly and feels that because of the magnitude of the problem involved, they should be referred to the Board of Trustees for clarification and disposition.

No. 23. Resolution on Governmental Purchase of Salk Vaccine

Dr. Kenneth C. Sawyer, for the Colorado State Medical Society, introduced the following resolution, which was referred to the Reference Committee on Hygiene, Public Health, and Industrial Health:

WHEREAS, Distribution of free Salk vaccine has been extended to include many more than the indigent group, thus constituting unnecessary government spending; and

WHEREAS, Distribution by government agencies has resulted in a bizarre, unscientific, and inequitable administration of vaccine, thereby casting disrepute on the private doctors of medicine and consternation, concern, and confusion on the public; and

WHEREAS, Those pharmaceutical houses which cooperated in the plan at great expense and trouble are being denied a reasonable recovery of their investment by the almost total purchase of the vaccine supply by the government; and

WHEREAS, A much wider and more adequate protection of the public would be attained through regular chanels of distribution; now therefore be it

Resolved, That the American Medical Association requests the United States Government to return the general wholesale and retail purchase of Salk anti-poliomyelitis vaccine to normal, free enterprise, commercial channels and to cease governmental purchase of the vaccine in other than those amounts needed by the Public Health Service for essential public health needs and for distribution to the indigent population of the nation.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. Martyn A. Vickers, Chairman, Maine, read the following report, which was adopted:

Governmental Purchase of Salk Vaccine.—This Resolution No. 23 brings again to the fore governmental interference in medical practice which is contrary to the principles of the American Medical Association, and your committee therefore recommends the passage of the resolution with the deletion of the third "whereas." This is being deleted as your committee does not feel that it is the business of the American Medical Association to interfere in the financial and commercial aspects of pharmaceutical houses. Your committee further believes that the words "free enterprise" in the "resolve" should be deleted, so that the "resolve" will read as follows:

Resolved, That the American Medical Association requests the United States Government to return the general wholesale and retail purchase of Salk anti-poliomyelitis vaccine to normal, commercial channels and to cease governmental purchase of the vaccine in other than those amounts needed by the Public Health Service for essential public health needs and for dis- ·bution to the indigent population of the nation.

No. 24. Resolution on Guiding Principles for Evaluating Management and Union Health Centers

Dr. Kenneth C. Sawyer, for the Colorado State Medical Society, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, The free choice of physician by the the patient has long been fundamental in the Principles of Medical Ethics of the American Medical Association; and

WHEREAS, The Principles of Medical Ethics permit the interjection of a third party between physician and patient as having a valid interest *only* in relation to occupational disabilities; and

WHEREAS, The language of the "Guiding Principles for Evaluating Management and Union Health Centers," published in December, 1955, over the *signature* of the American Medical Association, contains wording that can be *construed* as an abandonment by our Association of this principle of free choice of physician, since these Guides are for health centers which will care for nonoccupational illnesses and for *workers'* dependents as well as for occupational disabilities; and

WHEREAS, This constitutes a conflict between the *Principles of Medical* Ethics and the recently published Guides which must be resolved in favor of the *Principles of Medical Ethics*; now therefore be it

Resolved, That the Council on Medical Service and the Council on In- Health are jointly directed *to reconsider* the aforesaid manual their joint Committee on Medical Care for Industrial Workers, to the said Guides that they conform completely to the *Principles* of ies, and to report to the House of Delegates.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, submitted the following report, which was adopted:

Resolution No. 24 on Guiding Principles for Evaluating Management and Union Health Centers.—Your committee is cognizant of the fact that the Principles of Medical Ethics is being revised but, even so, can see no reason why this resolution should not receive your approval, and recommends it.

No. 25. Resolution on Disapproval of Internship "One-Quarter Rule"

Dr. Gerald D. Dorman, for the Medical Society of the State of New York, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The House of Delegates of the American Medical Association in June, 1955, approved a report of its Reference Committee on Medical Education and Hospitals to the effect that the "one-quarter rule" be established in hospitals approved for internships, and that if a hospital does not obtain one-quarter of its quota of interns for two years in succession that the internship approval be withdrawn; and

WHEREAS, Such a rule is not necessarily related to the quality of the internship program; and

WHEREAS, Such a rule could give undue advantage to the larger training hospitals; now therefore be it hereby

Resolved, That the aforesaid approval be rescinded.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, read the following report, which was adopted:

Resolution No. 25.—This resolution was supported by only two members at the hearing. Your committee reviewed the theoretical application of the "one-quarter rule" for the successive years 1953-1954, 1954-1955, and 1955-1956. Any requirement of this nature must be under constant review and subject to prompt revision as experience with its operation may dictate. Since its effect cannot be measured until it has been in operation, your reference committee recommends that Resolution No. 25 be not adopted.

No. 26. Resolution on Use of Radium or Radioactive Isotopes

Dr. Carl A. Lincke, Ohio, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The House of Delegates of the American Medical Association in June, 1951, adopted a resolution supporting a recommendation that the use of radium and radioactive isotopes be under the supervision of one certified in radiology or therapeutic radiology; and

WHEREAS, The states license physicians to use all drugs and agents useful in the diagnosis and treatment of diseases; and

WHEREAS, The boards of certification are private organizations without legal status to regulate the practice of medicine; and

WHEREAS, No drug or agent that is useful or may become useful in the diagnosis or treatment of diseases should be limited in its use to physicians with special interests or in limited fields of practice; and

WHEREAS, Radioactive *isotopes* have already been proved and are continuing to be proved by physicians of widely diverse *interests to* have extraordinarily wide and unique applications as clinical biochemical tools and drugs that are useful *in the diagnosis* or treatment of diseases; and

WHEREAS, Physicians will not wish to engage in any practices that remove incentive or stifle *initiative to discover new* applications or to improve existing applications of radioactive isotopes in the diagnosis or treatment of diseases; and

WHEREAS, The history of medicine is replete with examples of advances in the art and science of medicine made by *individual physicians* regardless of their special interests and training; and

WHEREAS, The *new* thoughts and discoveries that originate in the minds of men are often *revealed* in the nature of acts of God and as manifestations of divine inspiration; and

WHEREAS, The House of Delegates of the Ohio State *Medical* Association is on record recommending that the *action* of the American Medical Association House of Delegates in June, 1951, *should* be rescinded; now therefore be it

Resolved, That the action taken by the *House* of Delegates of the American Medical Association in June, 1951, is *hereby rescinded* to remove any barrier which may now exist to the use of radium or radioactive isotopes by any physician consonant with the practices established among his fellow physicians of his community.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, presented a report regarding Resolution No. 26. After discussion and amendment, the House of Delegates adopted the following: "That the Speaker of the House of Delegates appoint a committee to study the use of radioactive isotopes and other materials and to report to the Board of Trustees prior to the next clinical meeting at Seattle."

No. 27. Resolution on Joint Commission on Hospital Accreditation

Dr. L. Howard Schriver, Ohio, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The objective of the Joint Commission on Accreditation of Hospitals is to enable physicians and hospitals to aid each other in the delivery of the best possible medical care to patients; and

WHEREAS, Certain regulations enacted by the Joint Commission on Accreditation of Hospitals and their interpretation by representatives of the Joint Commission make it unnecessarily difficult to achieve the above objective; and

WHEREAS, There is reason to believe that certain unnecessary requirements are leading to an increase in hospital costs without a commensurate increase in the quality of professional and hospital care of patients; now therefore be it

Resolved, That the House of Delegates of the American Medical Association recommends:

(1). That the Joint Commission on Accreditation of Hospitals revise its standards in order to provide more discretion locally for medical staffs and hospital authorities to make appropriate adjustment of their organization activities to fit the hospital's particular needs and those of the community;

(2). That hospital staffs be permitted to determine for themselves how often they need to hold staff meetings and what kind of meeting is best suited to solve the problems of the individual hospital;

(3). That accreditation never be withdrawn by the Joint Commission from a hospital in which questionable standards prevail until after a period of three to six months has expired and an opportunity has been given to the hospital to raise its standards within the period specified;

(4). That the Joint Commission of Accreditation of Hospitals and the Council on Medical Education and Hospitals of the American Medical Association shall maintain close liaison to assure that hospitals with teaching programs for interns and residents shall be continuouly advised as to the rules and regulations of both agencies in order to avoid a situation whereby a hospital with a satisfactory training program might lose its accreditation;

(5). That the American Medical Association, other interested national groups, and state and county medical societies be urged to publicize more adequately the activities of the Joint Commission on Accreditation of Hospitals so that the medical profession and hospital authorities will have a better understanding of the Commission's purposes, policies, regulations, and their interpretation.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, submitted the following report, which was adopted:

Resolution No. 27.—The introducer of this resolution discussed it in connection with the Stover report and agreed that the latter covered the issues emphasized in Resolution No. 27. Dr. Kenneth B. Babcock, Chairman, Joint Commission on Accreditation of Hospitals, stated that he is recommending to the Commission that the "accredited" and "provisionally accredited" categories be abolished in favor of only one "accredited." Hospitals formerly provisionally accredited will be listed as accredited and will have a one year probationary period.

Your reference committee believes that no action is indicated on Resolution No. 27, and it so recommends.

No. 28.

Resolution No. 28 was withdrawn at the request of Dr. Charles L. Leedham, Section on Military Medicine.

No. 29. Resolutions on Improving Electoral College System

Dr. John K. Glen, for the Texas delegation, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

PREAMBLE

The present so-called Electoral College System of electing the President and Vice President of the United States was started decades ago under conditions greatly different from those existing in the United States today. The original conception was to provide a group of leading citizens of the country who would then impartially select the most capable men available for the offices. In practice it has now come to where theoretically it is possible for comparatively small groups in one or more states to exert a disproportionate influence in the selection of the chief executives of our country. Certainly the existing system does not give a true measure of the opinions of the majority of the voters. Several sincere attempts have been made in Congress to improve the Electoral College System, but so far no actual bills have passed the Congress.

Resolved, That the House of Delegates of the American Medical Association again urges the Congress of the United States to consider and make provision for some more equitable plan of electing the President and Vice President of the United States; and be it further

Resolved, That a copy of this resolution be sent to the President of the United States, to the members of his Cabinet, and to all members of Congress.

NOTE: The report of the Reference Committee on Legislation and Public Relations on Resolution No. 29 will be found following Resolution No. 22.

No. 30. Resolutions on Nationwide Commission to Study Social Security System

Dr. John K. Glen, for the Texas delegation, introduced the following resolutions, which, together with Resolution No. 31, immediately following, also introduced by Dr. Glen for the Texas delegation, were referred to the Reference Committee on Legislation and Public Relations:

PREAMBLE

The House of Delegates of the American Medical Association at its Boston meeting last November urged the Senate of the United States not only to reject H.R. 7225, but also to provide for a special Commission to Study the Social Security System, to be made up of citizens from all walks of life, as businessmen, professional groups, educators, social welfare leaders, financiers, and legislators. This special Commision would then be comparable to the so-called "Hoover Commission" that made a comprehensive study of governmental functions in recent years. The majority of individuals of groups who testified before the Finance Committee of the Senate in the hearings on H.R. 7225, urged the appointment of such a wide-based commission, but apparently such a recommendation has not been made to the Senate. There is still ample time for the Senate to take action, however.

Resolved, That the House of Delegates of the American Medical Association recommends and urges to the Congress of the United States the appointment of a nationwide Commission to Study Social Security with ample time to be allotted for the study and with provision for a full report of the findings and recommendations of the Commission to the entire country; and be it further

Resolved, That a copy of this resolution be sent to the President of the United States, to the Members of his Cabinet, and to all members of the Congress.

No. 31. Resolutions on Participation in Local Committees to Study the Social Security System

PREAMBLE

In recent months there has been a tremendous upsurge of interest among the general public in the Social Security System, largely because of the widely-publicized hearings before the Finance Committee of the Senate in regard to H.R. 7225. It has been pointed out from many angles that there has never been adequate study or proper publicity to the expanded philosophy and ultimate liabilities of the Social Security System. Inasmuch as the System is now involving personally a large majority of United States citizens, it is highly in order that intelligent citizens learn more about the philosophy and ultimate extent of the System. Physicians are citizens who can urge noonday service clubs, women's clubs, and similar citizens' discussion groups all over the country to make a special study of the Social Security System, even to the point of forming coordinated committees to study the social security system in every community.

Resolved, That the House of Delegates of the American Medical Association suggest and urge public-spirited citizens in all localities to make special study of the Social Security System, preferably through citizens' groups organized in each locality as may seem best; and be it further

Resolved, That a copy of this resolution be furnished to the press of this country, and that a copy be sent to each constituent state and territorial medical association with the suggestion that it be widely publicized within its area.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, read the following report, which was adopted:

Resolutions Nos. 30, 31, and 39 on Social Security.—Inasmuch as these resolutions reaffirm the position of this House of Delegates taken at the Interim Session in Boston in December, 1955, your committee recommends their approval.

No. 32. Resolutions on Possible Variation of Standards of Accreditation for Hospitals According to Size

Dr. John K. Glen, for the Texas delegation, introduced the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

PREAMBLE

Definite hardships continue to be incurred by small hospitals in their sincere attempts to qualify for accreditation by the Joint Commission on Accreditation of Hospitals. This is due primarily to the fact that the smaller hospitals do not have access to the facilities available to large, and particularly to primarily teaching, hospitals. The purpose of standardization is to insure competent medical care of patients in hospitals, and smaller hospitals with conscientious, capable men on their staffs can render high-standard medical care without necessarily meeting all the present detailed requirements for accreditation. It should be possible for the Joint Commission to divide hospitals into classes according to size or other factors, as Class A, Class AA, Class AAA, etc., where without any unfavorable comparison, but purely on a matter of size, hospitals would be expected to meet proper standards to insure adequate medical care for patients.

Resolved, That the House of Delegates of the American Medical Association recommend to the representatives of medical organizations on the Joint Commission on Accreditation of Hospitals, the institution of such a classification of hospitals according to size or other fair factors, in the way of setting standards of requirements for accreditation; and be it further

Resolved, That a copy of this resolution be sent to all members of the Joint Commission on Accreditation of Hospitals and to all state and territorial medical associations.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, presented the following report, which was adopted:

Resolution No. 32.—The intent of Resolution No. 32 appears in the Stover Report, Section F (6): "... it is recommended that the Commission give serious consideration to establishing standards which may vary depending upon the size of the hospital. Each hospital should be judged on its own merits and efficiency, regardless of size."

Your reference committee recommends that no action be taken on Resolution No. 32, but wishes to emphasize the importance of flexibility and judgment in the application of any set of standards to a particular local situation.

No. 33. Resolution on the Guide to Grievance Committees

Dr. Arthur A. Lampert, South Dakota, introduced for the South Dakota State Medical Association, the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Grievance committee activity has become such an integral part in the medical profession's public relations, and will continue to represent one of the more important points of contact between physicians and patients; and

WHEREAS, The Guide to Grievance Committees as published by the Department of Public Relations has been a great help to all the state associations' grievance committees, but falls short of providing actual interchange of ideas and methods of mediation of grievances; and

WHEREAS, Such interchange of ideas and methods of mediation of grievances would serve to aid in establishing uniformity of investigating and mediating procedures, thereby providing both patients and physicians uniform rights of expectancy of consideration; therefore be it

Resolved, That the American Medical Association consider regional or national conferences of state grievance committees and state executive secretaries to permit active interchange of investigative and mediating procedures, such interchange serving to promote a uniform right of expectancy of treatment of grievances to both patients and physicians.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, submitted the following report, which was adopted:

Resolution No. 33, proposes that regional and national conferences of state grievance committees and executive secretaries be set up to interchange ideas as to medical procedures. Your committee is informed that Dr. Culpepper's committee, which has published the Guide to Grievance Committees is actively preparing an appendix which will contain a wealth of material to serve the purpose of this resolution. Your committee does not recommend its adoption.

No. 34. Resolution on Lectures on Medical Ethics

Dr. C. J. Attwood, for the California delegation, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, In these times of increasing pressure, close scrutiny, and greater demands, it is of paramount importance that relations between physicians as well as patient-physician relationships reflect the highest credit on the physician and on the medical profession; now therefore be it

Resolved, That the American Medical Association be urged to request each medical school to assign a member of the clinical faculty to give at least three hours of formal lectures on medical ethics, professional conduct, and manners each year to members of the senior class.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, submitted the following report, which was adopted:

Resolution No. 34.—Lectures on medical ethics and related matters are now given in all but six of the four year schools and three of the schools of basic medical sciences as announced in the fifty-fifth Annual Report on Medical Education in the United States and Canada by the Council on Medical Education and Hospitals. Nevertheless, this resolution is most timely and there was considerable discussion at the hearing including that by a delegate from the Student American Medical Association which was greatly appreciated.

Your reference committee wishes to call the attention of the House to the important role that component county medical societies should assume in indoctrinating both the student and the young graduate in these matters. It recommends the adoption of this resolution.

No. 35. Resolution on Advertising Standards

Dr. C. J. Attwood, for the California delegation, introduced the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

WHEREAS, A year ago the American Medical Association discontinued the awarding of Council seals and advertising emblems to products and advertising copy which met acceptance requirements; and

WHEREAS, Increased pressure is sometimes being brought in the placing of advertising copy by the advertisers; and

WHEREAS, It is the duty and the prerogative of each medical society to maintain high standards for the acceptance of advertising copy in its official publications; and

WHEREAS, Some journals have established rules governing the acceptance of advertising copy; now therefore be it

Resolved, That the American Medical Association urge county and state medical societies independently to adopt advertising rules which are based on high standards of quality of product and proven accuracy of the advertising.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, read the following report, which was adopted:

Advertising Standards (Resolution No. 35).—This resolution on advertising standards for medical publications was considered favorably with these editorial changes:

Resolved, That the American Medical Association recommends that county and state medical societies adopt advertising rules which are based on high standards of quality of product and proven accuracy of the advertiser.

(To be continued)

MEDICAL NEWS

ARKANSAS

Society Election.—At a recent meeting of the Arkansas Radiological Society, Dr. Edwin F. Gray, Little Rock, was elected president, Dr. Joseph A. Norton, Little Rock, vice-president, and Dr. Ernest A. Mendelsohn, Fort Smith, secretary-treasurer.

CALIFORNIA

General Practice Meeting in Los Angeles.—The eighth annual scientific assembly of the California Academy of General Practice will convene at the Hotel Statler, Los Angeles, Oct. 14-17. Dr. Manuel E. Lichtenstein, associate professor of surgery, Northwestern University Medical School, Chicago, will present "Gall Bladder Disease and Its Surgical Treatment" and "Nonpenetrating Injuries of the Abdomen." Dr. Clarence S. Livingood, chief, dermatology division of Henry Ford Hospital, Detroit, will speak on "Diagnosis and Management of Dermatitis." "When Should Parents Leave Home?" will be the topic of Dr. Edward J. Stieglitz, consultant in geriatrics to the Veterans Administration, Washington, D. C. Dr. Sidney Farber, professor of pathology, Harvard Medical School, Boston, will discuss "Advances in the Chemotherapy of Cancer." "Emergency and Aftercare of Burns" will be discussed by Lieut. Col. Curtis P. Artz, formerly director of the surgical research unit, Brooke Army Medical Center, Fort Sam Houston, Texas The Ivan C. Heron Lecture will be presented by Dr. Christopher J. Duncan of Brookline, Mass., on "Reducing Complications in Total Abdominal Hysterectomy." Dr. Richard W. TeLinde, Baltimore, will give the Stanley R. Truman Lecture on "The Problem of Endometriosis."

COLORADO

Alpha Omega Alpha Lecture.—The annual Alpha Omega Alpha Lecture of the University of Colorado School of Medicine, Denver, will be presented in the Sabin Amphitheater, Oct. 12, 8 p. m. on "Newer Concepts in the Healing of Wounds" by Dr. J. Englebert Dunphy, professor of surgery, Harvard Medical School, Boston. Physicians are invited to attend

DISTRICT OF COLUMBIA

Personal.—Dr. Henry L. Darner, clinical professor of obstetrics and gynecology, George Washington University School of Medicine, Washington, D. C, was awarded the honorary degree of doctor of science by Western Maryland College, Westminster, Md, at commencement exercises June 4. Dr. Darner is chief gynecologist at the Central Dispensary and Emergency Hospital, and senior attending gynecologist at Garfield Memorial Hospital

FLORIDA

General Practice Meeting in Jacksonville.—The seventh annual scientific assembly of the Florida Academy of General Practice will convene Oct. 20-21 at the Hotel Roosevelt, Jacksonville, under the presidency of Dr. Leo M. Wachtel, Jacksonville. The following program will be presented Saturday morning.

Modern Drug Treatment of Tuberculosis, Howard M Dubose, Lakeland, representing the Florida Trudeau Society
Emotional Problems of the Young Adult, H. Keith Fischer, Philadelphia
Prevention and Treatment of Traumatic Injury in Athletes, A Lee Lichtman, New York
Cutaneous Manifestations of Internal Disease, E Richard Harrell, Ann Arbor, Mich
Management of Ulcerations of Stomach and Duodenum, Alton Ochsner, New Orleans

The morning speakers will participate in the afternoon session, which will consist of questions and answers and a roundtable discussion on "Emotional Problems in General Practice," moderated by Dr. Fischer. At the banquet, 8.30 p. m, Dr. Ochsner will consider "The Influence of Serendipity on Medicine." The following symposium on automobile safety is scheduled for Sunday morning.

Law Enforcement and Its Bearing on Accidents (film) and The Perfect Crime, Trooper D R Jansen, Florida Highway Patrol
Total Treatment of Crash Injury Victim, Preston A. Wade, New York
Psychiatric Aspects of the "Accident-Prone" Driver, Lieut Frederick L. McGuire, head of psychology department, U. S. Naval Hospital, Philadelphia.
Safety Features of the Modern Automobile, Fletcher N. Platt, Ford Motor Company, Dearborn, Mich

After luncheon a recapitulation by Mr. John O. Moore, director of automobile crash injury research, Cornell University Medical College, New York, will be followed by panel discussion, with Mr. Moore as moderator.

GEORGIA

Postgraduate Medical Sessions.—The Emory University School of Medicine, Emory University, will sponsor a postgraduate session on "Cardiac Arrhythmias," Oct. 19-20, in the physiology building. Two-day meetings will be held also in December, March, and May for the discussion, respectively, of liver diseases, electrolytes, and common diseases of the blood. Programs will be given by visiting and local specialists and will include lectures, round-table discussions, and presentation of patients. Dr. J. Willis Hurst, associate in medicine at Emory, is program director. Guest lecturers at the October session include Dr. Herman K. Hellerstein, Western Reserve University School of Medicine, and assistant physician, University Hospitals of Cleveland; Dr. Robert P. Grant, formerly of Emory, now of the National Heart Institute, Bethesda, Md.; and Dr. W. Proctor Harvey, Georgetown University Medical Center, Washington, D. C. Drs. R. Bruce Logue and Noble O. Fowler of Emory University and Atlanta will be among others participating. The first lecture on normal and abnormal heartbeat will be given at 8:40 a. m. Friday by Dr. Hellerstein, who will also deliver a lecture on cardiac arrest in the operating room, Saturday at 11 a m Sessions will meet all day Friday and Saturday morning. Registration is limited. The registration fee is $20, but interns and residents will be admitted without charge.

ILLINOIS

Society News.—The Illinois Society of Pathologists recently elected Dr. Dennis B. Dorsey, Danville, president; Dr. James W. Henry, Evanston, vice-president, Dr. Herbert P. Friedman, Urbana, second vice-president, and Dr. Frederick C. Bauer Jr., Chicago, secretary-treasurer.

Chicago

Orthopedic Society Meeting.—The Chicago Orthopaedic Society will meet at the Palmer House, Oct. 12. Dinner at 6·45 p m will precede the following program:

Contrast Arthrography of the Shoulder, Graham Kernwein, Rockford
Fractures of the Elbow in Children, Donald J Maylahn, Chicago
Discography in Diagnosis of Disorders of Intervertebral Discs, John J Davies, Moline

All physicians are invited to attend the scientific program.

Personal.—Dr. Joseph B. Kirsner, professor of medicine, University of Chicago School of Medicine, participated in the fifth International Congress of Gastroenterology, London, England, July 18-21, where he discussed "Exfoliative Cytology of the Colon in Ulcerative Colitis" and the use of adrenal steroids in the treatment of ulcerative colitis —Dr. Tibor Benedek, assistant clinical professor of dermatology, Stritch School of Medicine of Loyola University, has been promoted to associate clinical professor in the department of dermatology.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting

Society News.—Newly elected officers of the Chicago Society of Industrial Medicine and Surgery include Dr. Cornelius M. Annan, president; Dr. Kenneth F. Stotz, vice-president; Dr. Bille B. Hennan, secretary; and Dr. Charles M. Drueck, treasurer.

Larger Plans for Presbyterian-St. Luke's Hospitals.—The Presbyterian-St. Luke's Hospital of Chicago was recently formed by merger of the two long-established hospitals. Each institution will continue to operate in its present location for about three years, when an 11-million-dollar expansion program will have been completed at Presbyterian Hospital in the West Side Medical Center, where the new, integrated hospital will be located. Ground-breaking ceremonies for an addition to Presbyterian were held March 20; but with announcement of the merger, plans were enlarged to include a 14-story wing, a doctors' building with private offices, a 160-unit apartment for professional personnel, and an annex for diagnostic self-service beds for patients not requiring complete nursing service. The school of nursing will be expanded also to accommodate 350 students. The new wing will include an enlarged x-ray department with a cobalt beam apparatus for cancer treatment, a floor for care of neuropsychiatric patients, an enlarged central supply, a 225-seat lecture room, and a chapel. It is anticipated that the merged hospitals will ultimately have a capacity of over 1,000 beds. At present St. Luke's has 553 beds and Presbyterian, 418. Dr. Karl S. Klicka, director of Presbyterian Hospital for two years has been appointed director of Presbyterian-St. Luke's. He is a member of the executive committee of the health division of the Chicago Welfare Council; member of the advisory committee, Chicago Hospital Council; and chairman of the Illinois Joint Commission for Improvement of Patient Care.

INDIANA

State Medical Meeting in Indianapolis.—The 107th annual meeting of the Indiana State Medical Association will be held in Indianapolis, Oct. 15-18 under the presidency of Dr. Walter U. Kennedy, New Castle. On Tuesday there will be reference committee meetings, the opening of the technical and scientific exhibits, the golf tournament and the trap-skeet shoot. The stag party and general entertainment will be held that evening. On Wednesday panel discussions and symposiums are scheduled on Radioisotopes in Diagnosis and Treatment of Thyroid Diseases, Parent Counseling for the Oversolicitous Parent and Caring for the Normal and Abnormal Infant, Backache, Industrial Dermatoses and Poisonings, Acute Renal Failure, Conservation of Vision, Alcoholism, Diabetes, Obstetrics, and Hypnosis. Wednesday night will be President's Night, with the president's address and entertainment in the Murat Theater. Thursday a symposium on "Carcinoma of the Breast" is scheduled for 10:30 a. m. Thursday afternoon the section on general practice will have as guest speaker Dr. Walter C. Alvarez, Chicago, who will talk on "The Minor Variances of Epilepsy." The annual banquet will be held Thursday night.

KANSAS

Personal.—Dr. Ralph I. Canuteson, director of student health services at the University of Kansas, Lawrence, since 1928, has been given a Fulbright research award. He plans to do research in the field of college health at the University of Oslo, Norway, in 1957.

MICHIGAN

Dr. Miller to Direct Institute of Industrial Health.—Dr. Seward E. Miller has been granted a leave of absence from the U. S. Public Health Service to accept, effective Sept. 1, the directorship of the University of Michigan's Institute of Industrial Health. Dr. Miller has been an officer of the Public Health Service since 1933, his first 12 years having been spent in clinical pathology in service hospitals in various parts of the country, and the next five years in the service's Communicable Disease Center, Atlanta, Ga., where he developed training programs for physicians and technicians in laboratory diagnostic medicine. For the last two years he has been chief of the division of special health services, which includes activities in the fields of occupational health, chronic diseases, tuberculosis, heart disease, and venereal disease control. Dr. Miller will also receive teaching appointments in industrial health in the University of Michigan's schools of Medicine and Public Health. He is the editor of "The Textbook of Clinical Pathology," now in its fifth edition.

Symposium on Endocrines and Nutrition.—A Symposium on Endocrines and Nutrition will be held in the amphitheatre of the Horace H. Rackham School of Graduate Studies, Ann Arbor, Oct. 11-12. Dr. Frank H. Bethell, Ann Arbor, will serve as chairman for the morning session, and Halvor N. Christensen, Ph.D., Boston, for the afternoon session Thursday. Presentations will include the following:

Effects of Dietary Factors on Production of Adrenal Steroids, Albert B. Eisenstein, St. Louis.
Effect of Liver Disease on Adrenal Cortical Function, Frank H. Tyler, Salt Lake City.
Primary and Secondary Aldosteronism, Jerome W. Conn, Ann Arbor.
Effect of Endocrines on Vitamin Requirements, Joseph Meites, Ph.D., East Lansing.
Newer Concepts on the Action of Insulin, William C. Stadie, Philadelphia.
Effects of Growth Hormone on Protein and Carbohydrate Metabolism, Jane A. Russell, Ph.D., Atlanta, Ga.
Effects of Endocrine Glands and Stress on Fatty Acid and Ketone Metabolism, Frank L. Engel, Durham, N. C.
Relationship of Vitamin B12 to Carbohydrate Metabolism and Diabetes, Bacon F. Chow, Ph.D., Baltimore.
Metabolic Effects of Aryl Sulfonylurea Compounds in Normal and Diabetic Subjects, Stefan S. Fajans, Ann Arbor.

Dr. William D. Robinson will serve as chairman for the Friday session, which will include the following presentations:

Goitrogens in Food as a Cause of Goiter, Monte A. Greer, Portland, Ore.
Influence of the Pituitary and Adrenals on Digestive Functions, Burton L. Baker, Ph.D., Ann Arbor.
Influence of the Pituitary on Hemopoiesis, Roger C. Crafts, Ph.D., Cincinnati.
Control of Erythropoiesis by Humoral Factors, Albert S. Gordon, Ph.D., New York.

All persons attending the symposium are requested to register (no fee). Information may be obtained from The Thomas Henry Simpson Memorial Institute for Medical Research, University of Michigan, Ann Arbor, or the National Vitamin Foundation, Inc., 15 E. 58th St., New York 22.

Health Conference in Detroit.—A Regional Health Conference for the Wayne County area will be held Oct. 10 at the Garden City High School, Detroit, with the co-sponsorship of the Michigan Health Council of Lansing. The keynote speaker will be Dr. John S. DeTar, Milan, president of the American Academy of General Practice.

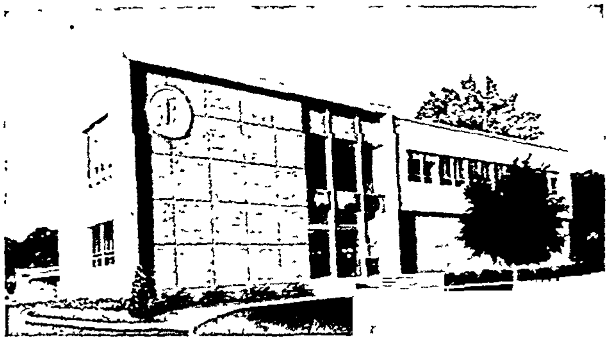
MINNESOTA

Personal.—Dr. Theodore A. Clifton, Chatfield, recently retired after 46 years in the practice of medicine. Dr. and Mrs. Clifton will now make their home in Hollywood, Fla.

MISSOURI

Hospital News.—Dr. Raymond O. Muether, associate professor of internal medicine at St. Louis University School of Medicine, has been elected president of the staff of the St. Mary's Group of Hospitals of St. Louis University. The other newly elected officers are Dr. Grey Jones, assistant professor of clinical gynecology and obstetrics, vice-president; and Dr. Paul Murphy, associate professor of clinical medicine and chief of the section of chest diseases, secretary. These new offices were planned "to increase the participation of staff in the professional policies of the hospital."

New Headquarters for Academy of General Practice.—The new national headquarters building of the American Academy of General Practice in Kansas City was dedicated on Sept. 1. The principal speaker was Dr. Dwight H. Murray, Napa, Calif., President of the American Medical Association. In the $600,000, four-story reinforced concrete building, at the corner of Volker and Brookside boulevards, will be offices of the staff of the academy and the editorial and business offices of its monthly publication, GP magazine. It contains 30,000 square feet of floor space and plans permit vertical or horizontal expansion. The first-floor lobby of the T-shaped building is of terrazzo and Lido marble, imported from French Morocco. Tempered glass stairway panels and a custom-designed brass candelabra complete the lobby decor. The main conference room has African cherry wood paneling, electrically operated draperies, a custom-built fruitwood conference table, and a portrait of the late Sir Alexander Fleming, discoverer of penicillin and an honorary member of the academy. The original culture from which penicillin is derived is on display in the conference room. The second floor lobby will overlook the new Milnes fountain and the planned esplanade leading from Volker Boulevard to the steps of the Nelson Gallery of Art. The basement floor includes a kitchen, an employees' dining room, a second conference room that can accommodate 200 people, and automatic addressing equipment. The subbasement will be used for inactive files and storage. Landscaping plans include a fountain, a courtyard, and a patio.



New American Academy of General Practice headquarters.

NEW JERSEY

Orthopedic Society Meeting.—The fall meeting of the New Jersey Orthopedic Society will be held at the Hunterdon Medical Center, Flemington, Oct. 13, 10 a. m.-4 p. m., and will be open to all physicians. Included in the program will be a paper by Dr. Edward Schlesinger on "The Problem of Leverage Above Spinal Fusions." Dr. Joseph W. Fielding will present "Cinefluorography of the Cervical Spine," and Dr. A. Hudacek will speak on "Production of Pigmented Villonodular Synovitis in Laboratory Animals." The remainder of the day will be devoted to business and social activities of the society, and will be open only to members.

NEW YORK

Personal.—Dr. Harry C. Storrs, director of Letchworth Village, Thiells, for the past 19 years, retired June 30 after 44 years of service in the department of mental hygiene.

Course on Fluid and Electrolyte Therapy.—The University of Buffalo School of Medicine will present a postgraduate course on Fluid and Electrolyte Therapy in Medicine, Surgery, and Pediatrics, Oct. 18 at Meyer Memorial Hospital (K Building Conference Room). Drs. Charles U. Lowe, George E. Miller, Worthington G. Schenk Jr., and Robert Tarail, all of the school of medicine, will participate in "Typical Problems in Fluid Therapy: Case Presentations" at 9 a. m. Dr. Miller will present "Units of Measurement" at 10 a. m., followed by "Common Pitfalls" by Dr. Tarail, "General Principles of Fluid and Electrolyte Therapy" by Drs. Lowe and Tarail, and "Materials and Methods" by Dr. Schenk. A panel discussion and question period on "Clinical Management of Fluid and Electrolyte Problems" will be held at 2:30 p. m. in Room G7, Capen Hall, University of Buffalo. All registrants for the course are invited to attend the Harrington Lecture, "Thirst—The Acquisition of Water: Its Significance in Relation to the Volume and Composition of the Body Fluids," by Dr. Maurice B. Strauss, professor of clinical medicine, Boston University School of Medicine, at 4:30 p. m. in Room G22 of Capen Hall. Fee for the course is $15. Checks should be made payable to the University of Buffalo, and registration forms sent to Dr. Milton Terris, Assistant Dean for Postgraduate Education, University of Buffalo School of Medicine, 3435 Main St., Buffalo 14.

New York City

Harvey Lecture.—The second Harvey Lecture in the 1956-1957 series will be delivered Oct. 11, 8:30 p. m. at the New York Academy of Medicine, 103rd Street and Fifth Avenue by Dr. David Bodian, Johns Hopkins University School of Medicine, Baltimore, on "Physiologic Aspects of Infectious Processes in Poliomyelitis."

Graduate Program in Obstetrics and Gynecology.—Columbia University College of Physicians and Surgeons has established a program in its department of obstetrics and gynecology directed toward the training of academic personnel for full-time work in departments of obstetrics and gynecology. The program, supported by the Josiah Macy Foundation, provides for the financial support of a few individuals with scientific orientation over a five-year period following their internships. The student will spend the first two years in one of Columbia's basic medical science departments learning more about scientific thinking and techniques, and will devote the subsequent three years to residency training in the department. Individuals in this program will receive approximately $4,000 annually during the first two years and augmentation of the usual hospital residency stipend to maintain this income level during the last three years. This program aims to attract individuals with definite interest in full-time teaching and investigation in this field.

Symposium Day on Diabetes.—"Insulin, Glucagon and the Oral Hypoglycemic Sulfonylureas" will be the topic for the fourth annual symposium day, Oct. 12 (Auditorium, Hunter College, 695 Park Ave.) sponsored by the New York Diabetes Association (270 Park Ave.). Dr. James F. Hart is president of the association. The following program will be presented:

Cell Types in the Islets of Langerhans and the Hormones They Produce, Arnold Lazarow, Minneapolis.
Locus of Action of Insulin, DeWitt Stetten Jr., Bethesda, Md.
Chemical Structure of Glucagon, William W. Bromer, Ph.D., Indianapolis.
Physiologic Role of Glucagon, George E. Anderson, Brooklyn.
Pathologic Effects of Large Amounts of Glucagon, J. M. Salter, Ph.D., I. W. F. Davison, B.Sc., and Charles H. Best, Toronto, Canada.
A Sequential Appraisal of Glucagon, Herbert M. Evans, Berkeley, Calif.

The afternoon session will include the following presentations:

Historical Review of Oral Substitutes for Insulin, Martin G. Goldner, Brooklyn.
Mechanism of Action of the Sulfonylureas, Rachmiel Levine, Chicago.
Studies on the Action of the Sulfonylureas, Robert W. Cox and Robert H. Williams, Seattle.
Clinical Effects of the Sulfonylureas, Max Miller, Cleveland.

The closing discussion will be led by Dr. Best. Drs. Harold Brandaleone and Irving P. Graef will preside over the morning and the afternoon session, respectively. The symposium is supported by a grant-in-aid from Eli Lilly and Company. The evening program will be held at the New York University Club, 123 W. 43rd St., where cocktails (6:45-7:15 p. m.) will precede dinner ($8 per person; informal dress). The after-dinner speaker, Dr. Herbert M. Evans, director emeritus, Institute of Experimental Biology, University of California Medical School, Berkeley-San Francisco, will have as his topic "What Doctors Have Written."

PENNSYLVANIA

Leaflets on Sight Saving.—The Pennsylvania Association for the Blind has published two new leaflets: (1) "Take Time to See," which discusses correct lighting, reading and other close work, and aids to vision, and presents TV hints; and (2) "Cross-Eyes," which gives signs, causes, and correction. Samples of these folders are available on request to the Philadelphia Foundation for the Blind, 100 E. Price St., Philadelphia 44.

Philadelphia

Symposium on Air Pollution.—A public symposium, "Cleaner Air for Urban Areas," will be held at the Franklin Institute Oct. 15. The symposium, coordinated with Philadelphia's "Cleaner Air Week" (Oct. 21-27), will feature exhibits of equipment used in air pollution research and control and a tour of the institute's air pollution research laboratory. The fee for symposium registration will be $15, payable to the Franklin Institute. Mail should be addressed to Cleaner Air Symposium, The Franklin Institute, 20th and Parkway, Philadelphia 3.

Symposium on Faith and Healing.—The Section on Medical History, College of Physicians of Philadelphia, will present a symposium, "Faith and Healing: Origins of Psychosomatic Medicine," at the College Hall, 19 S. 22nd St., Oct. 9, 8:30 p. m. Dr. Lewis C. Scheffey, president of the college, will preside. Speakers will include Dr. Nicholas Padis, chairman, section on medical history, College of Physicians of Philadelphia; Dr. Kenneth E. Appel, professor of psychiatry, University of Pennsylvania School of Medicine; Dr. Edward Weiss, professor of clinical medicine, Temple University School of Medicine; and the Rev. Ernest Gordon, dean of The Chapel, Princeton (N. J.) University. All interested are welcome to attend.

Temple Establishes Psychiatric Institute.—Temple University Medical Center has announced plans to establish an institute of direct analysis to employ, for the first time on a large scale, a specialized approach to the treatment of schizophrenia. Dr. John N. Rosen, New York, who developed the direct analysis treatment method, based on a program of sustained psychotherapy in a controlled environment, and who was recently appointed associate professor of psychiatry at the medical center, will direct the training program. The Rockefeller Brothers Fund has pledged a total of $150,000 over a three-year period to establish the institute, under the direction of Dr. O. Spurgeon English, head of the department of psychiatry. The institute will consist of treatment units or dwellings decorated and arranged in the manner of private homes. Each unit will house about two patients and sufficient staff to offer round-the-clock treatment and companionship. Assistant therapists will live in the institute, and all members will eat at the "family" dining table. Each year the institute will offer a six-month training program to 30 psychiatrists and 30 talented nonmedical personnel as assistant therapists in the direct analysis technique. Patients will be accepted from the receiving station established by the mental health board at Philadelphia General Hospital, Temple University Medical Center, other institutions, and private sources. The program will begin, probably this fall, with the establishment of one unit. A second unit will be in operation six months later. Discharged patients will be followed for several months for treatment purposes and for at least 10 years for research purposes.

TEXAS

Assistant Director of Anderson Hospital.—Dr. David E. Liston has been appointed assistant director of the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, to succeed Dr. Roy C. Hellebower, who retired but will remain at the hospital as consultant on grants and special projects. During World War II, Dr. Liston was deputy chief surgeon of the European theater of operations. He has received the Legion of Merit and the Bronze Star with an Oak Leaf Cluster.

WISCONSIN

Dr. Banyai Awarded Medal.—Dr. Andrew L. Banyai, associate clinical professor of medicine, Marquette University School of Medicine, Milwaukee, was recently awarded the Carlo Forlanini gold medal of the Italian Federation Against Tuberculosis for the introduction of artificial pneumoperitoneum in the treatment of pulmonary tuberculosis. The medal was presented at the Fourth International Congress on Diseases of the Chest in Cologne, Germany, Aug. 19-23.

Dr. Simenstad Honored.—Dr. Lien O. Simenstad, president, State Medical Society of Wisconsin, was recently honored at a testimonial dinner by the community of Osceola, in which he has practiced for 32 years and which he has served as mayor since 1946. Dr. Simenstad is a member of the Wisconsin State Aeronautics Commission and chief of staff of the Ladd Memorial Hospital. Principal speakers at the dinner were Dr. Valentine C. Kremser of Amery, representing the Polk County Medical Society; Dr. Rolland H. Wilson, Winona, president of the Minnesota State Medical Association; Dr. William H. Hengstler, St. Paul; Mr. C. H. Crownhart, Madison, secretary, State Medical Society of Wisconsin; and Mr. Robert Paulson, president, Osceola Civic and Commerce Association.

GENERAL

Hospital Directors of Medical Education.—The Association of Hospital Directors of Medical Education was formally organized April 28 at Atlantic City, N. J., "to nurture the growth and development of sound programs of medical education in community hospitals." Inquiries about membership will be welcomed and should be directed to Dr. Henry S. M. Uhl, Director of Medical Education, Worcester City Hospital, Worcester, Mass.

Fiske Essay on Infertility.—The Caleb Fiske prize of the Rhode Island Medical Society ($350) is offered for a dissertation on "The Present Day Treatment of Infertility." It must be typewritten, double spaced, and should not exceed 10,000 words. Essays must be submitted by Jan. 10, 1957. For information write the Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis St., Providence 3, R. I.

Meetings on Plastic Surgery.—The American Otorhinologic Society for Plastic Surgery announces (1) a seminar on reconstruction and plastic surgical procedures of the ear at the Morrison Hotel, Chicago, Oct. 14, and (2) a course in plastic surgery of the head and neck at the Louisiana State University, New Orleans, Feb. 17-22, 1957, to include cadaver, didactic, and wet and dry clinics. Early registration is recommended because of the limited facilities. Information may be obtained from the secretary, Dr. Louis J. Feit, 66 Park Ave., New York 16.

St. Vincent Prize.—The Medical Academy of Turin, Italy, announces a competition for the second St. Vincent Prize for medical sciences. The prize (10 million lire—about $16,000), offered for papers published since 1950, is available to candidates proposed by at least 10 ordinary members of the academy, by the winner of the first St. Vincent Prize, by medical faculties of Italian universities, or by presidents of the most important foreign medical academies and faculties, invited by the president of the Medical Academy of Turin. Information may be obtained from the General Secretary, Prof. Angelo Allodi.

Facts on Tuberculosis.—According to a release from the National Tuberculosis Association, one-third of the people in the United States are infected with live tubercle bacilli. Nevertheless, the death rate has been reduced 95% since 1900, so that there are 10 deaths per 100,000 population today. However, tuberculosis kills 45 persons a day. The tuberculosis association finds that nearly 400,000 Americans are suffering from active tuberculosis, that about 100,000 new cases are being reported annually; that 50-60 million people in this country are tuberculin reactors, and that tuberculosis costs the United States 600 million dollars a year, largely in tax dollars.

Brochure on Industrial Safety.—A new volume of "Five-Minute Safety Talks for Foremen," published by the National Safety Council, contains 52 talks designed to build sound attitudes on accident prevention. Especially useful to foremen and supervisors, the talks provide outline and text for informal safety talks or scheduled training sessions. The talks include material on general topics, such as attitudes, lifting, and first aid, as well as information on specific problems including the use of power-actuated hand tools, masonry chipping, caustic chemicals, explosive dusts, flammable liquids, drills, saws, and electricity. For information write the National Safety Council, 425 N. Michigan Ave., Chicago 11.

Congenital Amputee Conference.—The 12th semiannual Congenital Amputee Conference will be held Oct. 13, 10 a. m. at the Kessler Institute for Rehabilitation, West Orange, N. J. This free diagnostic service is available to congenital amputee children through medical referral. The morning program will include an educational and orientation session regarding congenital malformations and principles of rehabilitation of the congenital amputee as well as films and demonstrations. In the afternoon, clinical examination of the children will be held. Lunch may be purchased at the institute. The conference is open to doctors, nurses, limb makers, therapists, and other rehabilitation personnel without charge. Those who plan to attend should register in advance with Mrs. Lucile Gould, Kessler Institute for Rehabilitation, West Orange, N. J., Redwood 1-3600.

Vermont-New Hampshire Medical Meeting.—The combined annual meeting of the Vermont State Medical Society (Dr. W. Douglas Lindsay, Montpelier, president) and the New Hampshire Medical Society (Dr. Louis C. Theobald, Exeter, president) will be held at Wentworth-by-the-Sea, Portsmouth, N. H., Oct. 7-9. The general sessions speakers will include:

Jere W. Lord, New York, Surgical Aspects of the Abdominal Aorta and Iliac Arteries.
Joshua B. Burnett, Hanover, N. H., Difficult Cases of Gout.
John P. Merrill, Boston, Current Concepts of the Pathogenesis and Treatment of Hypertension.
Ralph Adams, Wolfboro, N. H., Subclinical Adrenal Insufficiency.

The banquet speaker on Monday night, Allen R. Foley, Dartmouth College, Hanover, N. H., will have as his subject "Vermont Humor."

Gastroenterology Meeting.—The third annual convention of the American College of Gastroenterology will be held at the Roosevelt Hotel, New York, Oct. 15-17, and will be followed by a course in postgraduate gastroenterology, Oct. 18-20. Attendance at the postgraduate course is limited to those who have paid the matriculation fee. Panel discussions to be presented during the scientific sessions will include:

Diseases of the Esophagus, Charles B. Ripstein, New York (moderator); Irwin M. Arias, Anthony L. Danza, Milton Elkin, and Alfred A. Angrist, New York, participants.
Diseases of the Stomach and Duodenum, Linn J. Boyd, New York (moderator); George B. Glass, Ralph Colp, Frank J. Borrelli, and Francis D. Speer, New York, participants.
Esophageal Varices—Portal Hypertension, Hirsch R. Liebowitz, New York (moderator); Carl H. Greene, Brooklyn, Louis M. Rousselot, and Francis F. Ruzicka Jr., New York, participants.
Diseases of the Colon, Perrin H. Long, Brooklyn (moderator); Sidney M. Fierst, Irving F. Enquist, Harry Z. Mellins, and Patrick J. Fitzgerald, Brooklyn, participants.
Diseases of the Small Intestine, Michael J. Lepore, New York (moderator); Thomas P. Almy, Milton R. Porter, Louis A. Rottenberg, and Raffaele Lattes, New York, participants.
Diseases of the Gallbladder and Pancreas, William A. Barnes, New York (moderator); Michael Lake, Mary A. Payne, William F. Nickel Jr., John A. Evans, and John M. Pearce, New York, participants.

A question-and-answer period will follow each panel discussion. The luncheon, 12:30 p. m. Monday, will be sponsored by Burton, Parsons & Company. The banquet will be at 7:30 p. m. Tuesday at the Palm Terrace Suite of the Roosevelt Hotel. Twelve scientific papers will be presented. A motion picture program Wednesday, 8:30 p. m., will be preceded by presentation of the winning paper in the 1956 Ames award contest. Scientific and technical exhibits will be on display.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 18-20. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery 4.

Arizona:* *Examination and Reciprocity.* Phoenix, Oct. 17-19. Ex. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

Arkansas:* *Examination and Reciprocity. Little Rock, Nov. 8-9. Sec.,* Dr. Joe Verser, Harrisburg.

California: *Written Examination.* Sacramento, Oct. 15-18. *Oral Examination for Reciprocity Applicants* Los Angeles, Nov. 17. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

Colorado:* *Reciprocity.* Denver, Oct. 9. Final date for filing application was Sept. 10. *Examination.* Denver, Dec. 4-5. Final date for filing application is Nov. 2. Sec., Dr. Samuel H. Brown, 831 Republic Bldg., Denver 2.

Connecticut:* *Examination.* Hartford, Nov. 13-15. Sec., Dr. Creighton Barker, 160 St. Roman St., New Haven.

Delaware: *Examination.* Dover, Jan. 8-10. *Reciprocity.* Dover, Jan. 17. Sec., Dr. Joseph S. McDaniel, 225 So. State St., Dover.

District of Columbia:* *Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

Florida:* *Examination.* Miami Beach, Nov. 25-27. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Georgia: *Examination and Reciprocity.* Atlanta, Oct. 9-11. Sec., Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

Idaho: *Examination and Reciprocity.* Boise, Jan. 7-9. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

Iowa:* *Examination.* Des Moines, Dec. 3-5. Ex. Sec., Mr. Ronald V. Saf, State Office Bldg., Des Moines.

Kansas: *Examination and Endorsement.* Topeka, Dec. 12-13. Sec., Dr. Lyle F. Schmaus, 872 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, Dec. 10-12. Sec., Dr. Russell Teague, 620 South Third St., Louisville 2.

Louisiana: *Examination and Reciprocity.* New Orleans, Dec. 6-8. Sec., Dr. Edwin H. Lawson, *930 Hibernia Bank Bldg., New Orleans 12.*

Maine: *Examination and Reciprocity.* Portland, Nov. 13-14. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

Maryland: *Examination.* Baltimore, Dec. 11-14. Sec., Dr. Lewis P. Gundry, 1211 Cathedral St., Baltimore 1.

Massachusetts: *Examination.* Boston, Jan. 15-18. Sec., Dr. Robert C. Cochrane, State Office Bldg., Boston.

Michigan:* *Examination.* Lansing, Oct. 10-12. Sec., Dr. E. C. Swanson, 118 Stevens T. Mason Bldg., West Michigan Ave., Lansing 8.

Minnesota:* *Examination and Reciprocity.* Minneapolis, Oct. 16-18. Sec., Dr. F. H. Magney, 230 Lowry Medical Arts Bldg., St. Paul 12.

Mississippi: *Reciprocity.* Jackson, December. *Examination.* Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Old Capitol, Jackson.

Missouri: *Examination and Reciprocity.* Kansas City, Oct. 25-27. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Nebraska:* *Examination.* Omaha, June 17-19. Director, Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

New Jersey: *Examination.* Trenton, Oct. 16-19. Sec., Dr. Patrick H. Corrigan, 28 West State St., Trenton.

New Mexico:* *Examination and Reciprocity.* Santa Fe, Nov. 19-20. Sec., Dr. R. C. Derbyshire, 227 East Palace Ave., Santa Fe.

New York: *Examination.* Albany, Buffalo, New York City and Syracuse, Oct. 16-19. Sec., Dr. Stiles D. Ezell, 23 S. Pearl St., Albany.

North Dakota: *Examination and Reciprocity.* Grand Forks, Jan. 2-5. Sec., Dr. C. J. Glaspel, Grafton.

Oregon:* *Reciprocity.* Portland, Oct. 19-20. *Examination.* Portland, January. Ex. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland 4.

South Dakota:* *Examination.* Sioux Falls, Jan. 21-22. Ex. Sec., Mr. John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas:* *Examination and Reciprocity.* Fort Worth, Dec. 6-8. Applications for reciprocity must be complete and on file at least thirty days prior to the December meeting, and applications for examination must be complete and on file at least ten days prior to the meeting date. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth 2.

Utah: *Reciprocity.* Salt Lake City, Nov. 20. *Examination.* Salt Lake City, July 11-13. Director, Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City 1.

Virginia: *Examination and Reciprocity.* Richmond, Dec. 5-7. Address: Secretary to the Board, 631 First St., S.W., Roanoke.

Washington:* *Examination and Reciprocity.* Seattle, Jan. 14-16 and Jan. 12. Sec., Mr. Edward C. Dohm, Olympia.

West Virginia: *Reciprocity.* Charleston, Oct. 8. *Examination.* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Building No. 3, Charleston 5.

Wisconsin:* *Reciprocity.* Madison, Oct. 19 and Jan. 9. *Examination.* Madison, Jan. 8-10. Sec., Dr. Thomas W. Tormey, Jr., 1140 State Office Bldg., 1 West Wilson St., Madison.

Alaska:* On application in Anchorage, Fairbanks, Juneau and other towns. Sec., Dr. W. M. Whitehead, 172 South Franklin St., Juneau.

Guam: *Subject to Call.* Act. Sec., Dr. S. F. Provencher, Agana.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Colorado. *Examination and Reciprocity.* Dec. 5-6, Lincoln and Denver. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver 18.

Connecticut. *Examination.* New Haven, Oct. 13. Exec. Asst., Miss Regina G. Brown, 258 Bradley St., New Haven 10.

District of Columbia. *Examination.* Washington, Oct. 22-23. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington.

Iowa. *Examination.* Des Moines, Oct. 9. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination and Reciprocity.* Ann Arbor and Detroit, Oct. 12-13. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg., Lansing.

New Mexico: *Examination. Santa Fe, Oct. 21. Sec., Mrs. Marguerite* Cantrell, Box 1522, Santa Fe.

Oregon: *Examination.* Portland, Dec. 1. Dr. Earl M. Palett, Sec., State Board of Higher Education, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 7-8. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: *Examination.* Austin and Houston, Oct. 19-20. Sec., Bro. Raphael Wilson, 407 Perry-Brooks Bldg., Austin.

Washington: *Examination.* Seattle, Jan. 9-10. Sec., Mr. Edward C. Dohm, Olympia.

Wisconsin: *Examination.* Milwaukee, Dec. 1. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

Alaska: *Examination and Reciprocity.* Anchorage and Juneau, first week of February, April, June, August and November. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

---

*Basic Science Certificate required.

Symposium on Faith and Healing.—The Section on Medical History, College of Physicians of Philadelphia, will present a symposium, "Faith and Healing: Origins of Psychosomatic Medicine," at the College Hall, 19 S. 22nd St., Oct. 9, 8:30 p. m. Dr. Lewis C. Scheffey, president of the college, will preside. Speakers will include Dr. Nicholas Padis, chairman, section on medical history, College of Physicians of Philadelphia; Dr. Kenneth E. Appel, professor of psychiatry, University of Pennsylvania School of Medicine; Dr. Edward Weiss, professor of clinical medicine, Temple University School of Medicine; and the Rev. Ernest Gordon, dean of The Chapel, Princeton (N. J.) University. All interested are welcome to attend.

Temple Establishes Psychiatric Institute.—Temple University Medical Center has announced plans to establish an institute of direct analysis to employ, for the first time on a large scale, a specialized approach to the treatment of schizophrenia. Dr. John N. Rosen, New York, who developed the direct analysis treatment method, based on a program of sustained psychotherapy in a controlled environment, and who was recently appointed associate professor of psychiatry at the medical center, will direct the training program. The Rockefeller Brothers Fund has pledged a total of $150,000 over a three-year period to establish the institute, under the direction of Dr. O. Spurgeon English, head of the department of psychiatry. The institute will consist of treatment units or dwellings decorated and arranged in the manner of private homes. Each unit will house about two patients and sufficient staff to offer round-the-clock treatment and companionship. Assistant therapists will live in the institute, and all members will eat at the "family" dining table. Each year the institute will offer a six-month training program to 30 psychiatrists and 30 talented nonmedical personnel as assistant therapists in the direct analysis technique. Patients will be accepted from the receiving station established by the mental health board at Philadelphia General Hospital, Temple University Medical Center, other institutions, and private sources. The program will begin, probably this fall, with the establishment of one unit. A second unit will be in operation six months later. Discharged patients will be followed for several months for treatment purposes and for at least 10 years for research purposes.

TEXAS

Assistant Director of Anderson Hospital.—Dr. David E. Liston has been appointed assistant director of the University of Texas M. D. Anderson Hospital and Tumor Institute, Houston, to succeed Dr. Roy C. Hellebower, who retired but will remain at the hospital as consultant on grants and special projects. During World War II, Dr. Liston was deputy chief surgeon of the European theater of operations. He has received the Legion of Merit and the Bronze Star with an Oak Leaf Cluster.

WISCONSIN

Dr. Banyai Awarded Medal.—Dr. Andrew L. Banyai, associate clinical professor of medicine, Marquette University School of Medicine, Milwaukee, was recently awarded the Carlo Forlanini gold medal of the Italian Federation Against Tuberculosis for the introduction of artificial pneumoperitoneum in the treatment of pulmonary tuberculosis. The medal was presented at the Fourth International Congress on Diseases of the Chest in Cologne, Germany, Aug. 19-23.

Dr. Simenstad Honored.—Dr. Lien O. Simenstad, president, State Medical Society of Wisconsin, was recently honored at a testimonial dinner by the community of Osceola, in which he has practiced for 32 years and which he has served as mayor since 1946. Dr. Simenstad is a member of the Wisconsin State Aeronautics Commission and chief of staff of the Ladd Memorial Hospital. Principal speakers at the dinner were Dr. Valentine C. Kremser of Amery, representing the Polk County Medical Society; Dr. Rolland H. Wilson, Winona, president of the Minnesota State Medical Association; Dr. William H. Hengstler, St. Paul; Mr. C. H. Crownhart, Madison, secretary, State Medical Society of Wisconsin; and Mr. Robert Paulson, president, Osceola Civic and Commerce Association.

GENERAL

Hospital Directors of Medical Education.—The Association of Hospital Directors of Medical Education was formally organized April 28 at Atlantic City, N. J., "to nurture the growth and development of sound programs of medical education in community hospitals." Inquiries about membership will be welcomed and should be directed to Dr. Henry S. M. Uhl, Director of Medical Education, Worcester City Hospital, Worcester, Mass.

Fiske Essay on Infertility.—The Caleb Fiske prize of the Rhode Island Medical Society ($350) is offered for a dissertation on "The Present Day Treatment of Infertility." It must be typewritten, double spaced, and should not exceed 10,000 words. Essays must be submitted by Jan. 10, 1957. For information write the Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis St., Providence 3, R. I.

Meetings on Plastic Surgery.—The American Otorhinologic Society for Plastic Surgery announces (1) a seminar on reconstruction and plastic surgical procedures of the ear at the Morrison Hotel, Chicago, Oct. 14, and (2) a course in plastic surgery of the head and neck at the Louisiana State University, New Orleans, Feb. 17-22, 1957, to include cadaver, didactic, and wet and dry clinics. Early registration is recommended because of the limited facilities. Information may be obtained from the secretary, Dr. Louis J. Feit, 66 Park Ave., New York 16.

St. Vincent Prize.—The Medical Academy of Turin, Italy, announces a competition for the second St. Vincent Prize for medical sciences. The prize (10 million lire—about $16,000), offered for papers published since 1950, is available to candidates proposed by at least 10 ordinary members of the academy, by the winner of the first St. Vincent Prize, by medical faculties of Italian universities, or by presidents of the most important foreign medical academies and faculties, invited by the president of the Medical Academy of Turin. Information may be obtained from the General Secretary, Prof. Angelo Allodi.

Facts on Tuberculosis.—According to a release from the National Tuberculosis Association, one-third of the people in the United States are infected with live tubercle bacilli. Nevertheless, the death rate has been reduced 95% since 1900, so that there are 10 deaths per 100,000 population today. However, tuberculosis kills 45 persons a day. The tuberculosis association finds that nearly 400,000 Americans are suffering from active tuberculosis, that about 100,000 new cases are being reported annually; that 50-60 million people in this country are tuberculin reactors, and that tuberculosis costs the United States 600 million dollars a year, largely in tax dollars.

Brochure on Industrial Safety.—A new volume of "Five-Minute Safety Talks for Foremen," published by the National Safety Council, contains 52 talks designed to build sound attitudes on accident prevention. Especially useful to foremen and supervisors, the talks provide outline and text for informal safety talks or scheduled training sessions. The talks include material on general topics, such as attitudes, lifting, and first aid, as well as information on specific problems including the use of power-actuated hand tools, masonry chipping, caustic chemicals, explosive dusts, flammable liquids, drills, saws, and electricity. For information write the National Safety Council, 425 N. Michigan Ave., Chicago 11.

Congenital Amputee Conference.—The 12th semiannual Congenital Amputee Conference will be held Oct. 13, 10 a. m. at the Kessler Institute for Rehabilitation, West Orange, N. J. This free diagnostic service is available to congenital amputee children through medical referral. The morning program will include an educational and orientation session regarding congenital malformations and principles of rehabilitation of the congenital amputee as well as films and demonstrations. In the afternoon, clinical examination of the children will be held. Lunch may be purchased at the institute. The conference is open to doctors, nurses, limb makers, therapists, and other rehabilitation person-

Darling, Charles Gilchrist, Evanston, Ill.; National Medical University, Chicago, 1899; Northwestern University Medical School, Chicago, 1903; clinical professor of ophthalmology emeritus (Rush), University of Illinois College of Medicine; specialist certified by the American Board of Ophthalmology; past-president and secretary of the Chicago Ophthalmological Society; served on the staffs of the Cook County and Presbyterian hospitals in Chicago; died Aug. 8, aged 78.

Doyle, William Joseph, Bear Creek, Pa.; Jefferson Medical College of Philadelphia, 1912; past-president of the Luzerne County Medical Society; an associate member of the American Medical Association; fellow of the American College of Surgeons; served overseas during World War I; on the staff of the Mercy Hospital, Wilkes-Barre, where he died June 28, aged 70.

Epstein, Harry Jay ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1931; on the faculty of the Hahnemann Medical College and Hospital; specialist certified by the American Board of Internal Medicine; on the staff of the Albert Einstein Medical Center–Southern Division, where he died July 9, aged 54, of coronary heart disease.

Eshoo, Samuel O., Turlock, Calif.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1902; died June 4, aged 80, of heart disease.

Fisher, Harold Lionel, Brawley, Calif.; University of Oregon Medical School, Portland, 1942; served during World War II; interned at San Diego County General Hospital in San Diego; formerly a resident in pathology at the Veterans Administration Center in Los Angeles; died in the Veterans Administration Hospital in San Fernando June 27, aged 43, of cor pulmonale and tuberculosis.

Fitzgerald, Edmond William ⊕ Port Huron, Mich.; St. Louis University School of Medicine, St. Louis, 1925; veteran of World War II; on the staff of the Port Huron Hospital; died July 8, aged 55, of heart disease.

Fix, Carroll Clinton, Bedford, Ky.; Hospital College of Medicine, Louisville, 1906; formerly practiced in Louisville, where he was on the staffs of the Jewish Hospital and the SS. Mary and Elizabeth Hospital; died in the Kentucky Baptist Hospital in Louisville June 7, aged 73, of a popliteal aneurysm and coronary occlusion.

Fox, Ann Margaret, Los Angeles; New York Medical College, Flower and Fifth Avenue Hospitals, New York City, 1943; certified by the National Board of Medical Examiners; an associate member of the American Medical Association; interned at the New York University Post-Graduate Medical School and Hospital in New York City, where she served a residency; formerly a resident in pediatrics and contagious diseases at the Children's Hospital in San Francisco; died July 22, aged 40.

Gannon, Francis James ⊕ Cleveland; St. Louis University School of Medicine, St. Louis, 1935; member of the Cleveland Academy of Medicine; on the staffs of St. John's, St. Alexis, and Marymount hospitals; died July 9, aged 47, of carcinoma of the right lung.

Garlock, Arthur Varney ⊕ Bemidji, Minn.; Northwestern University Medical School, Chicago, 1910; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; served as mayor of Bemidji; on the staff of the Lutheran Hospital; for five years president of the Bemidji Park Board; died June 25, aged 71.

Gordner, Jesse Walter ⊕ Jerseytown, Pa.; Jefferson Medical College of Philadelphia, 1909; on the courtesy staff of the Bloomsburg (Pa.) Hospital; died July 3, aged 72, of carcinoma of the lung.

Gosztonyi, William ⊕ Pittsburgh; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1914; during World War II held a rank in the Hungarian Army; on the staffs of the St. Margaret Memorial Hospital, where he served an internship, and the Montefiore Hospital, where he died June 28, aged 69, of acute myocardial infarction and cerebral hemorrhage.

Gray, Edmund Coleman, Rochester, N. Y.; Bennett Medical College, Chicago, 1914; associated with the MacFadden Center in Dansville; died July 6, aged 72, of cancer.

Haagen, Louis C., St. Louis; Barnes Medical College, St. Louis, 1899; retired pharmacist; died in St. Luke's Hospital June 17, aged 91, of arteriosclerosis.

Hales, Jesse Collins ⊕ Gardner, Mass.; Tufts College Medical School, Boston, 1924; interned at the Cambridge (Mass.) City Hospital; past-president of the Worcester North District Medical Society; for many years school physician; served during World Wars I and II; on the staff of the Henry Heywood Memorial Hospital; died in the Veterans Administration Hospital, Brockton, June 17, aged 58, of cardiovascular-renal disease and tuberculosis.

Halverson, Henry Ludwig, Minot, N. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, Chicago, 1904; past-president of the North Dakota Health Officers Association; served as county health officer; died June 6, aged 76.

Hammack, John A., Kennedale, Texas (licensed in Texas under the Act of 1907); died July 3, aged 92, of cerebral vascular accident.

Hartigan, Francis Xavier ⊕ St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1910; in 1939 president of the Buchanan County Medical Society; formerly vice-president of the St. Joseph Clinical Society; fellow of the American College of Surgeons; president of the St. Joseph Health Board from 1938 to 1946; served in France during World War I; on the staffs of the Missouri Methodist Hospital, State Hospital no. 2, and St. Joseph's Hospital, where he died June 9, aged 67, of acute necrotizing tracheobronchitis.

Hawthorne, Grace Maude, Nevada, Iowa; University of Illinois College of Medicine, Chicago, 1916; died June 17, aged 75.

Hayes, Julius Poe ⊕ Clanton, Ala.; Memphis (Tenn.) Hospital Medical College, 1896; died June 30, aged 86, of arteriosclerosis.

Herbert, Alpha Nathan, Miami, Fla.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; city physician; died in Ellicott City, Md., June 22, aged 55, of abdominal aneurysm.

Heyer, Harold Hankinson ⊕ New London, Conn.; University of the City of New York Medical Department, New York City, 1887; for many years member of the school board; died June 13, aged 92, of arteriosclerotic cardiovascular disease.

Hickman, Clarence Clyde, Lincoln, Neb.; Rush Medical College, Chicago, 1910; veteran of World War I; served on the staff of the Lincoln General Hospital; died June 13, aged 72.

Hill, Charles Byron, Guthrie, Okla.; University Medical College of Kansas City, Mo., 1899; an associate member of the American Medical Association; veteran of Spanish American War; served as a member of the school board; died June 26, aged 84, of cerebral hemorrhage.

Hills, Louis Lenville ⊕ Westbrook, Maine; Medical School of Maine, Portland, 1903; died June 9, aged 79, of arteriosclerosis.

Hoffman, Charles Earle, San Mateo, Calif.; John A. Creighton Medical College, Omaha, 1914; died July 10, aged 67, of uremia and heart disease.

Hoffses, Granville Ernest ⊕ Manchester, N. H.; Boston University School of Medicine, Boston, 1898; veteran of World War I; served on the staff of the Elliot Hospital; at one time practiced in Dedham, Mass., where he was on the school committee; died June 27, aged 83.

Hogeboom, George Hall, Bethesda, Md.; Johns Hopkins University School of Medicine, Baltimore, 1939; conducted fundamental research in cell chemistry at the National Institutes of Health, where he was chief of the cellular biology section of the National Cancer Institute; for many years associated with the Rockefeller Institute for Research in New York City; died in the Central Dispensary and Emergency Hospital, Washington, D. C., July 5, aged 43.

Hubbard, Clinton De Witt, Manhattan Beach, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; an associate member of the American Medical Association; formerly practiced in Huntington Park, where he was city councilman; died June 28, aged 90, of carcinoma of the lower end of esophagus.

Humphrey, David W., Los Angeles; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1905; died in the Glendale (Calif.) Sanitarium and Hospital June 21, aged 78, of coronary thrombosis.

Hustead, Edwin L. ⊕ Los Angeles; John A. Creighton Medical College, Omaha, 1912; on the staffs of the Santa Monica and St. John's hospitals in Santa Monica; died June 11, aged 70.

Inman, Bruce B., Keota, Okla.; University of Arkansas School of Medicine, Little Rock, 1913; died June 12, aged 71, of coronary occlusion.

Keim, Albert L., Pittsburgh; Baltimore Medical College, Baltimore, 1913; died July 28, aged 71.

Latimer, Thomas Edwin, Hyattsville, Md.; University of Maryland School of Medicine, Baltimore, 1907; served on the staff of the Sibley Memorial Hospital, Washington, D. C.; died in the Prince George's General Hospital in Cheverly, July 20, aged 82, of carcinoma of the stomach.

Lease, Henry Joseph ⊕ North Bergen, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1926; served as assistant police surgeon; on the staff of the North Hudson Hospital in Weehawken; died in the Christ Hospital, Jersey City, June 29, aged 56, of cirrhosis of the liver.

Loomis, DeWitt, Boonville, Ind.; Chicago College of Medicine and Surgery, 1912; served overseas in France during World War I; died June 24, aged 70, of cerebral hemorrhage.

MacDonald, William Campbell ⊕ Malden, Mass.; Colorado School of Medicine, Boulder, 1895; served on the staff of the Malden Hospital, where he was chairman emeritus of the medical board; died in the Melrose (Mass.) Hospital June 24, aged 90, of jaundice.

Mackey, John Frederick ⊕ La Jolla, Calif.; University Medical College of Kansas City, Mo., 1904; member of the Colorado State Medical Society; veteran of World War I; formerly practiced in Denver, where he was on the staffs of the Porter Sanitarium and Hospital and the General Rose Memorial Hospital; died June 19, aged 80, of myocardial infarction.

Mantle, William B. ⊕ Albion, Iowa; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1902; died May 17, aged 83, of chronic myocarditis.

Marchant, J. Henry, Baltimore; University of Maryland School of Medicine, Baltimore, 1891; also a dentist; died July 2, aged 86.

Marczak, Clement Stanislaw, Lockport, Ill.; Chicago Medical School, 1930; died in Chicago May 29, aged 67.

Marra, Rocco Salvatore ⊕ Orange, N. J.; George Washington University School of Medicine, Washington, D. C., 1925; served as examining physician for the New Jersey National Guard; chief anesthetist at the Doctors Hospital and on the staffs of St. Michael's and Columbus hospitals in Newark, and St. Mary's Hospital; died July 4, aged 57, of Paget's disease and sarcoma.

Marshall, William Hill, Milwaukee; Meharry Medical College, Nashville, Tenn., 1903; died in the Milwaukee County Hospital June 12, aged 80, of bronchopneumonia and arteriosclerosis.

Mathews, Paul Girard ⊕ Walsenburg, Colo.; University of Colorado School of Medicine, Denver, 1908; past-president of the Huerfano County Medical Society; died in Colorado Springs June 21, aged 70, of pneumonia and lung cancer.

McClellan, Frederick Coe ⊕ Canandaigua, N. Y.; University of Buffalo School of Medicine, Buffalo, 1917; fellow of the American College of Surgeons; health officer; veteran of World War I; on the staff of the Frederick Ferris Thompson Hospital; died in the Genesee Hospital, Rochester, July 4, aged 62, of acute myocardial infarction.

McGary, Joseph Richard, Evansville, Ind.; Kentucky School of Medicine, Louisville, 1902; veteran of World War I; member of the staff of the Owensboro-Daviess County Hospital in Owensboro, Ky.; died June 23, aged 79, of arteriosclerosis.

McKinstray, Homer R. ⊕ Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; taught orthopedics at the Indiana University School of Medicine; served on the staffs of the Methodist and Indianapolis General hospitals; died June 21, aged 76, of arteriosclerosis.

Meadows, Matthew Warnack ⊕ Fullerton, Ky.; Eclectic Medical Institute, Cincinnati, 1904; died June 4, aged 87.

Myers, Robert Douglas ⊕ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1926; member of the American Society of Anesthesiologists; veteran of World War II; an anesthetist at Mount Carmel Hospital; died June 19, aged 55, of coronary occlusion.

Neher, Charles Kendal ⊕ Cleveland; University of Chicago, the School of Medicine, 1934; interned at Miami Valley Hospital in Dayton, Ohio; formerly a resident at the Barnes Hospital in St. Louis; on the staffs of the Grace and Fairview Park hospitals; died in Sandusky, Ohio, June 24, aged 51, in a plane crash.

Neill, William, Jr., Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1912; an associate member of the American Medical Association; fellow of the American College of Surgeons; served in the British and American armies during World War I; instructor in surgery at his alma mater; on the staffs of the Church Home and Hospital, Hospital for Women, Union Memorial Hospital, Maryland General Hospital, and St. Joseph's Hospital; consultant, Cambridge-Maryland Hospital in Cambridge; died in the Johns Hopkins Hospital June 24, aged 68, of cerebrovascular accident.

Nunn, Joshua Hugh ⊕ Dyersburg, Tenn.; University of Tennessee College of Medicine, Memphis, 1929; veteran of World War II; died in the Baptist Memorial Hospital in Memphis June 26, aged 51.

Nye, Luther A., Okemah, Okla.; University of Tennessee Medical Department, Nashville, 1896; past-president of the Okfuskee County Medical Society; served on the city council; died June 19, aged 81.

Palmer, King Paige, Holdrege, Neb.; Eclectic Medical College, Cincinnati, 1918; died in the Hastings State Hospital in Ingleside May 28, aged 64, of bronchopneumonia.

Park, George, Blacksville, W. Va.; Jefferson Medical College of Philadelphia, 1928; died July 7, aged 55.

Parker, William Henry ⊕ Richmond, Va.; University College of Medicine, Richmond, 1895; named Virginia commissioner for the Amateur Athletic Union in 1923; served as president of the Richmond Baseball team, and one of Richmond's athletic fields was named in his honor; a member and chairman of the city electoral board and had been medical director of the Mutual Life Insurance Company of Virginia since 1925; died June 13, aged 82, of parkinsonian disease.

Portz, Wade Russell ⊕ Hartville, Ohio; Ohio State University College of Medicine, Columbus, 1929; member of the American Academy of General Practice; accidentally drowned when he fell out of his boat while fishing June 23, aged 53.

FOREIGN LETTERS

INDIA

Health Insurance Scheme in Delhi.—The rapid increase in the attendance of patients at the dispensaries run under the contributary health service scheme bears testimony to the growing popularity and usefulness of this pilot experiment, according to the report on the scheme published by the Union Health Ministry. The report reveals that, while the daily average attendance at the dispensaries in Delhi and New Delhi in the first month of its operation (July, 1954) was 3,936, it rose to 8,292 in the last week of July, 1955. The number of beneficiaries, including government servants and their families and dependents, also increased from 223,000 to 273,844 in the same period. A significant feature of the scheme is that it has done away with the distinction between classes of government servants in the matter of free medical attendance and treatment. A compulsory monthly contribution on a graded scale is levied on all government employees registered under the scheme.

Treatment of Drug-Resistant Pulmonary Tuberculosis.—Takaro and Dey (*Indian Journal of Tuberculosis*, June, 1956) report that cyanacetic acid hydrazide resembles isoniazid except for substitution of the pyridine ring in the isoniazid for an aliphatic ring. It was thought that this alteration would reduce the toxicity while maintaining the antimicrobial activity. Seventeen patients who had far-advanced bilateral pulmonary tuberculosis with cavities in the lungs and sputum positive for acid-fast bacilli, in spite of previous specific antitubercular treatment, were selected for trial. The criteria by which the value of the drug was assessed were (1) changes in body weight, (2) acid-fast bacilli in the sputum, (3) number and size of cavities and clearing noncavitary infiltration, and (4) present status of disease (whether active, arrested, or inactive). The average duration of disease before start of treatment was 40 months. The age of the patients varied from 16 to 64. All had had pneumoperitoneum and some had had artificial pneumothorax or thoracoplasty. Three had had a course of viomycin combined with oxytetracycline and several had thiosemicarbazone, in addition to streptomycin, aminosalicylic acid, and isoniazid. The average dose of the new drug was 7.5 mg. per kilogram of body weight continued for an average period of six months. The authors concluded that there was no clear-cut evidence that the drug is effective in these patients. Paresthesia, with tingling, soreness, and burning of legs and feet, was the most common toxic symptom.

Training Center in Ayur-Veda.—The Union Health Minister, at the opening of the postgraduate training center in Jamnagar in July, said that this institution was a logical sequel to the establishment of the Central Institute of Research in Indigenous Systems of Medicine three years ago. In selecting Jamnagar for the location of this institute, the government was principally guided by the facilities already available there, including abundant accommodation, the presence of an excellent library relating to both indigenous and modern systems of medicine, a herbarium, a department of pharmacy, and the possibility of active collaboration with a modern medical college. A postgraduate training institution should work in close association with the center for the promotion of active research if the quality of teaching is to be sufficiently high. Moreover, the bringing together of a body of highly specialized exponents of Ayur-Veda and their active collaboration with those trained in modern medicine toward the formulation of an active research program is in itself an innovation. Research in Ayur-Veda should be carried out on two separate lines. The first is the study of the fundamental principles and practices of Ayur-Veda, and the second is investigation into the vast body of drugs that this system possesses. Fundamental research in Ayur-Veda is already in progress at the Jamnagar Research Institute. Here the diagnosis and treatment of a patient are carried out on strictly ayurvedic lines while a team of practitioners of modern medicine record the pathological and clinical tests necessary for the evaluation of results. The data thus collected will provide the basis for attempting a proper interpretation of the fundamental concepts of the ayurvedic system. Plans for the next five years provide for a wide expansion of drug research. Ayur-Veda has its own pharmacopeia based on a wide variety of herbal remedies. In the past 30 years many studies have been carried out to assess the pharmacological properties of the more widely used ayurvedic drugs.

Artificial Hibernation.—P. K. Sen and co-workers (*Indian J. Surg.* 18:114, 1956) stated that the chilled heart is especially likely to go into ventricular fibrillation and other arrhythmias. Hypoxia, carbon dioxide retention, and changes in the serum potassium level have been incriminated in turn. Observations by the authors indicate that hypoxia could not be a major factor. It has been shown by other workers that hyperventilation prevents ventricular fibrillation, while an excess of carbon dioxide in the blood makes the heart susceptible to this form of arrythmia. Lowering of the serum potassium level was observed in the chilled hyperventilated dogs. The authors used a standard method of production of ventricular fibrillation in hypothermia based on the delivering of a standard hormonal insult to a chilled heart at a definite temperature and in a standard state of anoxia. Healthy dogs were given 3 ml. of a 1:20,000 solution of epinephrine and the temperature, electrocardiogram, and the levels of serum proteins, sugar, carbon dioxide, sodium, and potassium were checked. The most significant change in these animals was observed in the potassium level, which consistently dropped. Hypersensitivity of the myocardium at low temperatures is in some way concerned with a rise in carbon dioxide and a fall in serum potassium levels. According to the authors, injecting epinephrine into a chilled anoxic heart provides a standard method of producing ventricular fibrillation. The best remedy for this condition proved to be rapid manual compression of the heart accompanied by maintenance of full oxygenation. Intracardiac injection of potassium is ineffective, and the use of electric shock was also disappointing.

Vascular Occlusions.—Ramamurthi in *Neurology* (April-June, 1956) stated that vascular occlusions in the posterior cranial fossa are not uncommon, although they are rare when compared to cerebral vascular lesions elsewhere. The neurological findings are not constant even if the same blood vessel is involved, due to variations in collateral circulation and the frequent occurrence of anomalies in the arterial supply of the hindbrain. The author reports 22 cases encountered in five years, as compared to 650 cerebral vascular accidents met with in the same period. The vessels involved were the posterior inferior cerebellar artery or its branches, the vertebral artery, the basilar artery, the anterior inferior cerebellar artery, the anterior spinal artery, and arteries supplying the midbrain, in that order. The predilection for involvement of the posterior inferior cerebellar artery, may be due to its large size or its long and tortuous course. The vascular occlusions may be caused by trauma, such infections as syphilis and tuberculosis, thromboangiitis, arteriosclerosis, or hypertension. The commonest cause is hypertension. The prognosis has been uniformly good. The almost complete recovery occurring in many patients is in contrast to the results of complete thrombosis. Spasm of the vessel is a plausible explanation, especially in patients with arteriosclerosis and hypertension. In younger patients such syndromes have occurred without any definite cause. In one young girl it followed an attack of coryza. Aneurysms of the vessels with leak or partial thrombosis may be responsible.

PERU

Tuberculosis.—In *Revista peruana de salud pública* (vol. 4, no. 7, 1955) Dr. Brouncle Carrión, in a survey of the death rates from tuberculosis in the principal Peruvian cities, classifies the cities with available records into three groups: those with increasing, those with stationary, and those with decreasing rates

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

of tuberculosis infection. He concluded that, epidemiologically, tuberculosis presents different characteristics from one city to another and that a massive infection of the population is likely to occur in the coming years unless appropriate measures are adopted promptly. The cities in the Andean region showed increasing death rates and trend curves similar to those observed in the cities near or on the coast 25 years ago that now show decreasing death rates and trend curves. The death rate of Arequipa, however, one of the highest in the country, showed a slow, steady decrease throughout the last 20 years. Another high-altitude city with an even greater drop in the death rate was Jauja. This can be explained by the fact that this city, although up to few years ago a traditional hotbed of tuberculosis, possessed the first tuberculosis sanatorium because of its excellent climate. On the other hand, Moyomamba and Iquitos, two large cities in the jungle, show an ascending death rate, unlike that of other cities of the same region.

SWITZERLAND

Cortisone and Prednisone.—At the Congress of Swiss Internists, Dr. Fabre said that, in treating patients with edema in whom resistance to usual treatments cannot be explained, and especially when a hyponatremia exists, he gives 40 mg. of prednisone daily. Sometimes the diuretic influence of prednisone is not felt, but the hormone reactivates diuretics that have lost their effect. Adrenal hormones should never be given to patients with edema if it is not possible to obtain a rigidly salt-poor diet. Even with prednisone, of which the action on salt is much more moderate than that of cortisone, the possibility of sodium retention cannot be excluded. The mode of action of these hormones is not yet understood, but it is probably different in different persons. Whatever the mode, the following properties of cortisone and prednisone are beneficial: 1. They stimulate aqueous diuresis by hemodilution; here cortisone acts as an antagonist of the antidiuretic posthypophyseal hormone. 2. They increase the glomerular filtrate, thus assisting spontaneous diuresis and the response to the diuretics acting on the tubules. 3. They limit the permeability of the membranes to the protein causing a reduction of the albuminuria evident in patients with nephrosis and of the protein transudation through capillary membranes. 4. They seem in certain patients to inhibit the secretion of the aldosterone, which is responsible for the tubular resorption of sodium.

Hypersplenism.—At the same meeting Gelin of Oran said that, if a patient's chief complaint is his abdominal enlargement, a hemogram should be obtained. This will indicate whether the splenomegaly is associated with a disturbance of the blood-forming organs. If the chief symptoms suggest a cytopenia, careful clinical examination will allow appraisal of the degree of responsibility of the spleen for this condition. Medical treatment consisting of blood transfusions, cortisone, and antibiotics should be tried for 10 days. If there is no improvement, the patient should be sent to a surgeon.

Carbutamide.—At the same meeting Bonhote and Constam of Zurich said that the blood sugar is maintained at a constant level through the hyperglycemic action of glucagon, epinephrine, the glucocorticoids, and somatotropin and the hypoglycemic action of insulin. The results show that the hypoglycemic action of such compounds as carbutamide is not exercised by inhibiting the adrenal cortex or the anterior lobe of the pituitary. Results also show that these compounds do not act on exogenous glucagon, nor do they inhibit the formation of glucose in the liver. The hypoglycemic effect of carbutamide appears to be due to an enzymatic inhibitory action on insulinase. Hofstetter and Ramel of Lausanne treated 84 diabetics with carbutamide for two to five months; 71 patients reacted favorably, but the conditions of 13 were resistant to this treatment. It was found that the percentage of successes increases with the age of the patients and the thin diabetic reacts less well to the drug than does the fat diabetic. Ten patients showed cutaneous allergic reactions. The change from insulin to carbuamide is possible on an ambulatory basis, provided the patient is frequently observed and the insulin doses are decreased gradually.

Symposium on the Spleen.—At a meeting of the Swiss Academy of Medical Sciences, K. Bernhard of Basel said that in a patient with lipid histiocytosis he observed a definite increase in the total lipids owing to an increase in cholesterol, while the neutral fats and the fatty acids remained unchanged. Experiments on spleens nourished with fatty acids not present in the daily diet showed by the recovery of these fatty acids in the spleen that this organ actively participates in the metabolism of nutritive fats. A. Vannotti of Lausanne, using radioactive iron (Fe^{59}), showed that altitude, anemia, hyperthyroidism, and acute infections diminish deposits of iron in the liver at the expense of the marrow, without notably modifying the rate of Fe^{59} circulating in the blood except in the course of acute infections; when it is moderately decreased. The concentration of iron in the spleen remains constant. Six or seven days after an intravenous injection of Fe^{59}, all of the Fe^{59} may be recovered from the erythrocytes, while its concentration, which was relatively high during the first five days, decreases progressively in the marrow, liver, and spleen. During the course of hemolytic anemias, after three days all the Fe^{59} may be recovered from the erythrocytes and in the following days the concentration of Fe^{59} in the spleen progressively increases, which is not normally the case. The author believes that, with intravenous use of Fe^{59}, the indications for splenectomy can be specified and, especially in patients with osteosclerosis myelofibrosis (when the marrow takes up practically no Fe^{59}), removal of a spleen that has just taken over the deficient hematopoietic function of the marrow should be avoided.

Hydrocortisone and Prednisone in Pulmonary Tuberculosis.—Favez and Aguet (*Schweiz. med. Wchnschr.* 86:843, 1956) have reported a study of 21 patients with recent pulmonary tuberculosis who were treated from the beginning with hydrocortisone and antibiotics. In each patient the radiological findings improved greatly during this treatment. Seven patients received hydrocortisone only after having been given antibiotics for 10 days to three months. In six of these the lesions became worse up till the time when treatment with cortisone was undertaken; then the pathological roentgenographic findings showed marked clearing. In two of eight patients who were treated from the beginning with hydrocortisone and antibiotics, improvement was moderate during the course of hormonal treatment, while in seven others there was no roentgenographic clearing. Four of these received cortisone only after having been treated with antibiotics for one or two months. The administration of cortisone in the patients suffering from progressive pulmonary tuberculosis where foci with a pneumonic aspect predominated brought almost total resorption of the pathological opacities in four to six weeks. After this, further improvement, including the closure of cavities, is brought about gradually with antibiotics.

Thyroid Function in Obstructive Jaundice.—B. R. Scazziga and co-workers (*Schweiz. med. Wchnschr.* 86:875, 1956) studied thyroid function in patients with jaundice. Those with obstructive jaundice showed an elevation of the protein-bound iodine level over and above that which might be expected in patients with parenchymatous jaundice. The authors believe that two different protein-bound iodine compounds are involved. They found the thyroid function to be normal in patients with obstructive jaundice. On the other hand, in patients with parenchymatous jaundice, hypofunction of the thyroid due to pituitary inhibition was observed. The difference between the behavior of thyroid function in obstructive and in parenchymatous jaundice suggests that the glucuronic acid conjugates, products of detoxication of thyroid hormone, would be stripped of all inhibitory action on the pituitary thyrotropic function.

Genetic Effects of Radiation.—An expert committee of the World Health Organization met in Copenhagen, Denmark, to discuss gaps in present knowledge of genetic effects of radiation and to advise WHO how it can most usefully assist in advancing and coordinating research on this subject. Although many investigations have been made on the genetic damage caused by radiation in the fruit fly and the mouse, it is not clear how the information obtained should be interpreted in terms of human heredity. Important information might be obtained by following up the offspring of parents who have received x-ray treatment of the pelvic region for nonmalignant diseases and comparisons might be made between the incidence of inherited sickness among populations in regions where there is a natural high level of background radiation and that occurring in areas of low background radiation.

UNITED KINGDOM

Lipids and Blood Coagulation.—O'Brien (*Lancet* 2:232, 1956) investigated the effect of ingestion of butter, margarine, vegetable fat, and eggs on clotting time, using Russell's viper venom as the clotting agent. The ingestion of 50 gm. of any one of these fats shortens clotting time, determined by the standard Stypven viper venom method, by about 23 seconds. Two eggs, which contain only 10 gm. of fat, produce an even greater shortening of clotting time. The effect in this case was attributed to the presence of phospholipid, particularly phosphatidyl ethanolamine, 0.18 mcg. per milliliter of which is sufficient to shorten the clotting time of blood in vitro. O'Brien has also shown that the active material in platelets influencing blood coagulation is phosphatidyl ethanolamine. It would thus seem that the phospholipid content of a fatty meal is as important as the absolute quantity of fat in influencing clotting time.

The work of O'Brien was confirmed by other observers. Barkhan and co-workers fractionated two phospholipids from human brain tissue (*Lancet* 2:234, 1956). One, an accelerator in blood coagulation systems, is phosphatidyl ethanolamine. The other, an inhibitor, is probably phosphatidyl serine. Maclagan and Billimoria studied the effect of a number of common fatty foods on blood coagulation (*Lancet* 2:235, 1956). The minimum amount of food required to produce the maximum shortening of clotting time when added to 0.2 ml. of normal plasma was determined. Strongly positive results were almost confined to milk products, which in order of potency were butter, cheese, cream, and milk. Further investigations showed that the coagulant activity of these foods was due not to the fatty acids present but to the phospholipid content, probably phosphatidyl ethanolamine galactoside. These investigations, if confirmed, suggest that eggs, milk, and lipid-rich foods should be withdrawn from the diet of patients with a history of thrombosis or atherosclerosis.

Infections in Hospitals.—Two cases of infection in hospitals, one attributed to parsimony in the National Health Service and the other to a shortage of nurses, have been reported. The first case concerned a Plymouth hospital patient whose leg was amputated and who died of infection of the wound by Clostridium organisms. At the inquest the surgeon attributed the infection to contamination of the air of the operating room, in which clostridia had been found two years earlier. Ever since 1948 the surgical staff had been requesting improvements in the operating rooms, but plans had been repeatedly rejected on the grounds of economy within the National Health Service. The other case concerned an infant who died of micrococcic (staphylococcic) toxemia after the insertion of a catheter into the umbilical vein for an exchange tranfusion. All aseptic precautions were taken, and, although a consultant pathologist was not prepared to say whether the infection of the umbilicus was primary or secondary, the coroner attributed death to infection of the operative wound. The area pathologist said that three months earlier 7 of the 11 members of the premature baby unit and 60% of the obstetric ward staff were found to be carriers of pyogenic organisms. Masks and gowns could not eliminate the danger. Highly trained nurses were difficult to obtain and keep, and they could not be replaced just because they were carriers. The pathologists thought that it was better to run the risk of infection than dispense with nurses skilled in the handling of premature and newborn babies.

College of Obstetricians and Gynecologists Libeled.—A libel action was brought by the Royal College of Obstetricians and Gynecologists against a newspaper. The plaintiffs claimed that an article entitled "Must Our Babies Be Born in Pain?" published in the *Daily Sketch* stated that the college had acted shamefully toward a certain obstetrician who had introduced a relaxation technique into obstetrics. This obstetrician aimed at producing a relatively painless childbirth without fear by giving the mother certain exercises during pregnancy and teaching her to relax during delivery. The article stated that the college had caused him to be harried and black-listed by the medical profession. The counsel for the plaintiffs said that this was a grave attack on the honor and propriety of the college and that it was entirely false and without foundation. The defendants apologized, published a note in the *Daily Sketch* expressing their regret at publication of the article, and agreed to pay substantial damages as well as costs of the proceedings.

Use of Fluoroscopes in Shoe Fitting.—Dr. E. D. Dyson, of the United Kingdom Atomic Energy Authority, has investigated the radiation hazards involved in the use of fluoroscopes in shoe fitting (*Brit. M. J.* 2:269, 1956). While it is impossible to calculate the exposure to radiation experienced by any one customer, rough calculations can be made on the basis of the time taken looking through the machine, the number of shoes bought annually, and, in the case of shop assistants, from the number of customers served in a year. The latest machines are fitted with a hand-set timer limiting exposure to 10 seconds. Exposure to radiation is most dangerous in children because they have new shoes frequently and because radiation may check bone growth. Dyson calculates that the dose rates around a typical machine are 4 mr per hour against the viewing hood, 4 to 30 mr per hour for the nearest shop assistant, and about 4 mr for customers near the machine. On the basis that each exposure lasts 10 seconds, that the average customer uses a pedoscope once a year, and that shop assistants sell 30 pairs of shoes a day, the average exposure of the individual can be worked out. Dyson estimates that it is only 1/1,000 of the natural background irradiation dosage. From the point of view of danger to the gonads it is negligible. Nevertheless, he thinks that control measures should be adopted. Machines should all be built to specification with efficient screening; viewing should be done by an assistant whose eyes are adapted to the dark to reduce the intensity of the fluorescence; screening of customer and assistant should be prescribed; and the foot opening should point toward a wall, not into the shop. Assistants should carry monitoring disks as radiographers do, and customers should be warned of radiation hazards.

Erythredema Polyneuropathy.—A severe case of erythredema polyneuropathy in a patient admitted to the Royal Edinburgh Hospital for Sick Children suggested so many features of a hyperactive sympathetic nervous system that the infant's urinary sympathin (epinephrine and levarterenol) excretion was determined by Farquhar and co-workers (*Brit. M. J.* 2:276, 1956). The results were of sufficient interest to justify the investigation of other cases and controls. Among signs of sympathetic hyperactivity in infants with erythredema polyneuropathy are arteriolar spasm in the extremities, hypertension, tachycardia, bowel and bladder relaxation, pupillary dilatation, and sweating. The urinary sympathin excretion in 24 hours in these infants varied from 17 to 74 mcg. (16 mcg. is normal). The response to ganglionic and adrenergic blocking agents is suggestive of a hyperactive sympathetic nervous system in these children. Farquhar states that erythredema polyneuropathy may represent the misdirected zeal of an inexperienced defense mechanism to a number of obnoxious stimuli in certain predisposed infants.

Liability Laws.—Physicians on the staffs of hospitals in England have *agreed to support Scottish physicians in a* campaign to change the law relating to legal liability in the hospital service. The *following resolution* was passed at a meeting of the central consultants and specialists' committee, which represents hospital medical staff throughout England: "It is not in the best *interest of British medicine* and the British people that the hospital doctors of this country should have the legal status of technical employees of the hospital authority." This is what the law at present makes them. This resolution resulted from a request by Dr. A. Smith of Lanarkshire, chairman of the Scottish consultants and specialists' committee, for support from English *physicians of the* Scottish physicians' campaign against the existing law. Before the health service began in 1948, doctor and patient had a definite personal relationship, which *the patient's interests* came first. Under existing
lations the physician's first legal responsi
Recent court judgments have altered
lationship, with the state as a third

now responsible to the patient through the state. This would lead to a situation, according to Dr. Smith, in which a doctor would become a technical expert to carry out the orders of the Minister of Health.

Food Poisoning.—Sir William Savage has called attention to the increased incidence of food poisoning (*Brit. M. J.* 2:317, 1956). After allowances are made for the improved facilities for bacteriological investigation and the increased awareness of the condition by general practitioners, there is clear evidence of a marked increase over the last 10 or 20 years. Savage further states that the evidence points to an extension of salmonellosis in animals. There has been a rise in the number of persons who, either having symptomless cases or being temporary carriers, are excreting Salmonella organisms in their feces. The increase in food poisoning is attributed to various causes. Many people now eat in places where defects in hygiene may result in the poisoning of a large number of customers. There has been an extension of the bulk preparation of packaged foods, which increases the risk of widespread contamination with Salmonella. The increased use of bulked eggs, imported frozen from abroad, for the preparation of confectionery has been responsible for outbreaks of food poisoning by Salmonella of hitherto unknown types. The association of liquid egg foods with food poisoning in Great Britain has been definitely established. Further, the increase in the number of human carriers of Salmonella organisms has supplied more opportunities for food to be infected by those handling it.

The annual number of sporadic cases of infection with Salmonella is large, and Savage urges that official steps be taken to define more precisely the cases to be reported as food poisoning. Prompt reporting and cooperation between the general practitioner and the health officer are essential for the investigation of outbreaks. Savage blames the public health authorities for not keeping up with the revolution in food habits. The preparation of more and more food is passing into the hands of commercial food handlers, whose practices often fall short of essential hygienic standards. The production of foods such as meat pies and prepared meat dishes is now an extensive industry, with many of the smaller concerns failing to observe adequate hygienic standards. The use of machinery for food processing increases the risk of food poisoning because of the difficulty of effective cleaning and sterilization. Dried or frozen egg mixtures are liable not only to bacterial infection in the mixing stages but to distribution of the bacteria through the mass, with extensive multiplication before usage. The author concludes that the dangers resulting from changes in food habits are not adequately guarded even by the latest food control orders.

Dangers of the Trendelenburg Position.—The Trendelenburg position for operations within the pelvis is claimed to be both obsolete and dangerous by Inglis and Brooke (*Brit. M. J.* 2:343, 1956). Originally devised to aid access to the pelvis in gynecologic, urologic, and proctologic operations, the introduction of muscle relaxants and balanced anesthesia has made this possible with the patient in the horizontal position. Far from giving better access to the pelvic cavity, the Trendelenburg position does the reverse, because the more the head is lowered the further does the symphysis pubis obscure the view, with the result that the surgeon must stand with his head at an angle. There are also decided disadvantages from the anesthetist's point of view. Respiration is impaired by the weight of the abdominal contents resting on the diaphragm and vasomotor tone is depressed, with the result that vasomotor collapse is masked, as no fall in blood pressure may be seen. The increased venous return from the lower limbs and abdomen may result in embarrassment of the heart if the action of its right side is impaired, and as the venous return from the head is slowed there is an increased tendency to cerebral thrombosis. In emergency cases there is a real danger of regurgitation of gastric contents, which can, however, be prevented by the use of a cuffed endotracheal tube with free drainage from the pharynx. Respiratory secretions may also gravitate down the endotracheal tube and repeated suction become necessary. In recent years many instances of tracheal plexus palsies after the use of arm boards, shoulder rests, and harnesses used in conjunction with the Trendelenburg position have been reported.

Russian Blood Substitutes.—During a recent visit of a delegation of Russian physicians, Dr. L. G. Bogomolova of the Blood Transfusion Institute, Leningrad, described some of the blood preparations and blood substitutes used in Russia. A process has been worked out for obtaining dried hemoglobin from blood without transformation to methemoglobin. It is used to increase the effectiveness of plasma. A preparation, unknown in the rest of Europe and in the United States, is obtained by repeated autoclaving of serum at 125 C. The albumin disintegrates and forms a transparent brown fluid, which is claimed to stimulate the healing of ulcers when given intramuscularly. Over 1,000 patients with peptic ulcer were treated with the preparation, with a reported improvement in 90% and complete healing in 40%. Another claim made for this sterilized serum is that it dissolves penicillin and that the resulting solution given intramuscularly serves as a long-acting antibiotic preparation. A hormonal preparation obtained from retroplacental blood is used intramuscularly in Russia for the treatment of ovarian insufficiency and climacteric neuroses and dermatoses.

A preparation known as hemostimulin, made from animal blood and such trace elements as copper, cobalt, and molybdenum, is used to treat hypochromic anemia. It is alleged to increase the hemoglobin level by 1 to 1.5% daily. Fibrin films are widely used in surgery. Since they are transparent, the condition of the wound beneath can be observed without repeated dressings or disturbing the area. As it is readily digested by micro-organisms, rapid dissolution of the film can be taken as evidence of infection. Fibrin films impregnated with antibacterial substances are used to prevent the infection of burned surfaces, decubitus ulcers, and skin injuries. Rapidly resolving "bioplastics" made from blood have been used as splints to facilitate gastrointestinal anastomosis. More slowly resolving types are used as intraosseous splints in the treatment of fractures.

As a blood substitute, hypertonic saline solution is preferred to an isotonic solution. Dextrose-saline solutions are often fortified with morphine or with alcohol and barbiturates for the treatment of shock. Ten per cent of stored blood is sometimes added. A preparation obtained by the hydrolysis of blood clot after the extraction of serum and known as aminokrovin is used as a blood substitute in patients with hemorrhage, shock, sepsis, cachexia, hypoproteinemia, and delayed healing. Solutions of the dextran type, known as polyglucin and syncol, are in use as blood substitutes. Russian claims have been made for the preparation of a high molecular weight colloidal carbohydrate suspension, known as AP, without the use of micro-organisms, which are used in the manufacture of dextran. Some progress has been made in the preparation of pectin as a blood substitute. Povidone is also used. A blood substitute made from albumin and comparatively free from anaphylactogenic properties is used under the name of VK-8. This is given in amounts of from 2 to 4 liters in patients with blood loss, shock, and hypoproteinemia. Solution L-103 is an incomplete hydrolysate of animal blood, prepared by the use of ion-exchange resins. Another protein hydrolysate, aminol, has been produced at the Leningrad institute by the enzymic hydrolysis of animal blood. Several combined solutions have been suggested, such as L-103 with 1% human plasma to increase the colloidal properties. UBP is a combination of the dextran syncol with a protein hydrolysate.

Physicians' Incomes.—In reply to a question asked in the House of Commons, Mr. Turton, the Minister of Health, quoted the average gross earnings of general practitioners in Great Britain working under the National Health Service. In 1952 they were $6,270; in 1954 they were $9,013; and in 1955 they were $8,740.

Secrecy in the National Health Service.—Service Committee and Tribunal Regulations provide that when complaints against physicians are heard the committee shall sit in private, unless the respondent physician requests otherwise. The desirability of such privacy has been questioned by the committee on administrative tribunals, sitting under the chairmanship of Sir Oliver Franks. The British Medical Association representatives said that the doctor-patient relationship was based on confidence in the physician and that it would be harmful to that confidence if the complaint received press publicity and was eventually not substantiated. Asked if the "poor patient can get his complaint fairly and impartially judged," Dr. E. A. Gregg, for the B.M.A., said that he was amazed at such a question. All patients have the right to claim for damages in the courts if they are aggrieved, and they may get free legal aid if necessary. The chairman of the National Health Service tribunal said that he saw no reason why the proceedings should not be public. The suggestion that unreasonable or frivolous complaints might damage a physician's reputation was not a sufficient reason for secrecy. Since 1948, 73 cases have been investigated and in no case did the respondent physician ask that the inquiry be made public. Secrecy in the meetings of regional hospital boards, hospital management committees, and local medical executive councils, all of which operate with the National Health Service, may be no longer possible if a bill before Parliament becomes law. This would give the press and the public the right of admission to meetings of various public bodies, including those mentioned. The bill would also apply to committees or subcommittees appointed by these bodies, including those investigating complaints against physicians, but according to the bill each public body would have the power to exclude the press temporarily. The press would have the right to obtain copies of the proceedings later.

Duodenal Ulcer.—Brown and Wood have described a treatment for chronic duodenal ulcer based on the surgical removal of the ulcer, with conservative gastroduodenal resection (antroduodenectomy) followed by irradiation of the remaining portion of the stomach to reduce the secretion of acid and pepsin, thus reducing the risk of recurrence (*Lancet* 2:169, 1956). This procedure was adopted because the results of treatment of duodenal ulcer by subtotal gastrectomy with gastrojejunostomy were far from satisfactory, with many patients suffering from recurrent dyspepsia, biliary regurgitation, and loss of weight and strength. The antroduodenectomy is a conservative Billroth 1 operation that allows a liberal portion of stomach to remain and maintains the natural channel for food through the duodenum. Removal of the antrum also lessens the tendency to recurrence. Fine absorbable surgical suture (catgut) is used for the mucosal layer because interrupted nonabsorbable (silk thread) sutures were found by gastroscopy to remain in situ for a year or more, and it was believed that they might have predisposed to recurrence. The irradiation, which consists of a total gastric tissue dose of 2,000 r, is given two months after the operation over a period of three weeks. Antacids are given between the operation and the end of the irradiation to control gastric secretion. Over a four-year period 142 patients with duodenal ulcer have been selected for treatment, which was based on the usual criteria for surgical intervention in duodenal ulcer. Fifty-two were subjected to antroduodenectomy followed by irradiation, and a control series of 48 had antroduodenectomy without irradiation. A prolonged follow-up showed, however, that irradiation has no significant effect in reducing the recurrence rate, which was 12%. Brown and Wood think that the recurrence rate is too high, but they feel encouraged to continue with a modification of the operation because the results in 83% were excellent.

Addiction to Barbiturates.—The Society for the Study of Addiction held a symposium in July on the abuse of barbiturates. Dr. R. A. Hunter (London Hospital) said that barbiturates are drugs of addiction and that they are used more than any others by addicts in Britain. This is because they are too freely prescribed, the reasons for this being that certain patients clamor for them and that in mild psychiatric or psychosomatic disorders they are being used as a short cut to psychotherapy. Simple psychotherapy, which is all that many patients require, takes too long or requires training not possessed by the average practitioner. Barbiturates have now come to be regarded as a placebo for those who are not seriously ill, either mentally or physically. Most barbiturate addicts can be divided into those with benign addiction, whose habituation is mild and interferes little with social function, and those with malignant addiction, who suffer from severe loss of social function. The too-lavish prescription of barbiturates has produced many persons with benign addiction in whom barbiturate abstinence combined with symptoms of intoxication may transform a mild psychiatric disturbance into a more serious one. These patients are true addicts, although the condition might not be recognized until the drug is withheld or the dose increased, to obtain the desired effect, until barbiturate intoxication occurs. Persons with malignant addiction are often patients with severe mental illness who have been sidetracked into drug addiction by barbiturates. Barbiturate addiction is as dangerous as that due to morphine. The speaker deprecated the use of a stimulant such as amphetamine with a barbiturate, because one masks the effects of the other and the patient becomes intoxicated by both. Referring to the use of tranquilizing drugs in mental hospitals, he said that many drugs had been introduced to treat patients but had finished up as drugs to keep the patient quiet.

Dr. Sidney Locket (Oldchurch Hospital, Romford) said that the abuse of barbiturates is deplorable, because they are still the standby in the treatment of epilepsy. He found it hard to believe that the vast quantities used, an average of one tablet daily throughout the year by 4% of the population of Great Britain, are essential for the treatment of disease. In his hospital alone he saw hundreds of patients with barbiturate poisoning every year, many of them suicides or attempted suicides. The total number of patients with barbiturate poisoning treated in British hospitals is about 7,000 a year. They account for 1.21 per 1,000 general hospital admissions in the course of a year, varying from 1.65 in Scotland to 0.69 in Wales. There were no recorded admissions for barbiturate poisoning in Eire. Barbiturates are essential for the treatment of many diseases, and the public should be educated to their limitations and dangers. In 80% of the patients with intoxication admitted to Oldchurch Hospital, the sole or major reason for prescribing barbiturates was insomnia. Many patients had a stock of these drugs at home. Suicides from taking barbiturates have increased sharply, the most recent annual figure being 13 per million. This figure is probably higher because accidental death from barbiturates rather than suicide is frequently returned as a coroner's verdict. Barbiturate misuse falls into four groups: prolonged misuse in moderate overdosage; the use by addicts, often with alcohol; the taking of large doses to induce sleep; and suicide from barbiturates. The speaker did not believe that a combination of barbiturates and alcohol had a greater effect than the sum of the actions of the two components.

Dr. Harold Davis, the chief pharmacist to the Ministry of Health, said that of 100,000 national health service prescriptions in 1955, nearly 10% were for barbiturates or for medicaments containing them. The annual cost of barbiturates under the National Health Service is nearly $4,500,000. This does not include the cost of barbiturates bought outside the service. It was difficult to predict the cost of the new tranquilizers, but they would probably cost more. Dr. F. E. Camps, a pathologist, said that he was certain that many cases of fatal barbiturate poisoning remain undiagnosed because the average general practitioner does not suspect it. He had investigated the blood and urine in several cases of sudden death that would otherwise have been attributed to such conditions as coronary disease and found high concentrations of barbiturate. It is possible that barbiturates cause many undiagnosed deaths in babies.

Cancer of the Lung and Stomach.—Dr. Alan McKenzie has investigated the degree of accuracy in the diagnosis of cancer of the lung and stomach (*Brit. M. J.* 2:204, 1956) to determine whether these conditions are being overreported. To assemble the necessary data a questionnaire was sent from the general register office to every medical practitioner in respect of every second death ascribed to cancer of the lung or bronchus in January, 1955. If a diagnosis was made after bronchoscopy, detection of tumor cells in sputum or exudate, operation, or autopsy, it was classed as "established." If diagnosis was based on radiological examination or a specialist's consultation it was classed as "corroborated." All diagnoses made on clinical grounds only were described as "unsupported." In the case of carcinoma of the lung 3.2% of diagnoses were unsupported, 63.9% were corroborated, 56.2% were established, and in 2.8% the diagnosis was altered. The corresponding figures for cancer of the stomach were 8.4, 30.4, 59.5, and 1.7 for men and 18, 39.5, 38, and 4.5 for women. According to these figures, cancers of the lung and bronchus are not being overreported on death certificates, but it is still not possible to say whether the disease is being underreported, as most probably happened in the past. Not infrequently the diagnosis of bronchial cancer is not made until after a postmortem examination, and it is probable that the true numbers are still greater than appear from the death registrations.

The only conclusion drawn on the inquiry on stomach cancer is that certification of death from this cause is less likely to be accurate among older than among younger persons and that in a large proportion of those who die over 75 years of age the diagnosis cannot be regarded with complete confidence.

CORRESPONDENCE

ATHLETICS IN SCHOOL

To the Editor:—I appreciate the fact that Dr. S. E. Bilik, for whose work I have profound respect and admiration, has taken the time to comment at length in a recent issue of The Journal (161:1502 [Aug. 11] 1956) on my article, "A Physician Looks at Athletics" (*J. A. M. A.* 161:573 [June 16] 1956). I am in full accord with the basic principles that Dr. Bilik elucidated in his letter, but I am constrained to point out that he has misinterpreted my article to make it appear that my own opinions are contrary to these principles. I do not imply that there is "some sort of a tug of war between coaches . . . and physicians"; on the contrary, I am one of the many team physicians who enjoy an excellent and mutually profitable relationship with coaches. My position is that adequate health protection of athletic youngsters requires the "joint efforts of physicians, coaches, trainers" working as a team. I share Dr. Bilik's respect for Mr. Schneider, the coach of the high school team for which I am responsible medically. Charlie and I must get along well—he hired me, after he had known me for years and after I had been a player on one of his own high school teams.

Second, nowhere in my article did I state or infer that coaches and trainers misuse their youngsters in order to advance the interests of the school. Of course no coach or trainer does that! I did, however, wish to direct attention to the fact that coaches and trainers—through ignorance, not ill will—often make decisions that adversely and sometimes permanently affect their players' health; that "well-meaning trainers, coaches, and officials cause more disability than they prevent." I plead against ignorance and its inevitable concomitant, indifference. I agree with Dr. Bilik's description of trainers, insofar as the description applies to trainers in colleges and universities. The same broad generalizations cannot, unfortunately, be made about trainers in the secondary schools. I have always enjoyed excellent working relationships with trainers, a fact that is, perhaps, indicated by my recent election to advisory membership in the National Athletic Trainers Association. Continually in other papers and in talks to both physicians and nonmedical personnel interested in the health of athletes, I have emphasized the importance of joint responsibility. I have many times pointed out that, in some areas of overlapping interest, trainers and coaches often exhibit *a greater depth and precision of knowledge than do physicians* about health and safety measures for the members of their teams.

I am astonished by Dr. Bilik's apparent attitude that team health and safety are not proper and immediate concerns of the physician. Surely Dr. Bilik does not mean to suggest that physicians abrogate their responsibility to supervise and control, if not actually execute, any measures that directly influence health and safety. Trainers and coaches have their part to play, but—and this is the important consideration—the responsibility is joint, not exclusive. Certainly I do not suggest that team physicians buy athletic equipment, but I do suggest that team physicians be familiar with equipment, again so that they are able to execute their advisory responsibilities properly. My feeling is that a physician has every right to "meddle" in those areas concerning health and safety where his special knowledge implies special competence. No, a doctor need not treat every minor injury, but the decision as to whether an injury is minor is, usually, best left to the doctor. Of course first aid will be administered by coaches and trainers, but I urge these coaches and trainers to err on the side of caution and call a physician if there is any doubt at all about the nature or extent of the injury. The dangers of first aid given by laymen to seemingly slightly injured persons have already been well documented in the literature. Dr. Bilik has played a significant, indeed a pioneer, role in the treatment of athletic injuries and in sports medicine generally. However, after 30 years of involvement with nearly every phase of athletics, as player, coach, official, administrator, and team physician, I am not without adequate pegs of practical experience on which to hang my theoretical observations. There are so few physicians who have deep interest and broad knowledge about athletic injuries that I must close this communication with a plea for more, not less, communication between these few physicians.

Max M. Novich, M.D.
299 Clinton Ave.
Newark 8, N. J.

ANDROGEN THERAPY

To the Editor:—In the last 20 years the introduction of potent testosterone compounds has for the first time made it possible to induce androgenic effects in patients suffering from male hypogonadism. Soon after the successful synthesis of testosterone, it was found that certain esters, notably the propionate, produce greater androgenic activity, and testosterone propionate became the most popular agent for androgen substitution therapy. This compound is a potent androgen but is not ideal for human therapeutic use because it is only effective when given by frequent intramuscular injections, e.g., 25 mg. three times a week. Methyltestosterone is more convenient because it is effective when swallowed, but only in doses four or more times as large as those of testosterone propionate, rendering it an expensive form of therapy. At the endocrine clinic, University of California School of Medicine, sublingually administered methyltestosterone has been practically as effective as injected testosterone propionate, milligram for milligram (Escamilla and Gordon: Efficacy of Testosterone Compounds Administered Sublingually to Hypogonadal Men, *J. Clin. Endocrinol.* 10:248, 1950). It has the advantages of economy and ease of control; its disadvantage is that tablets must be dissolved slowly in the sublingual or buccal positions, which usually requires 30 to 60 minutes or more.

In the last five years androgen therapy has been simplified somewhat by the use of long-chain testosterone esters, which, when given intramuscularly, exert their effects for approximately one month. These compounds, the cyclopentylpropionate, enanthate, phenylacetate, and hexahydrobenzoate, have replaced the even longer acting pellets because they do not require surgical implantation, have a more even action, and are free of the danger of overdosage from fragmentation of the pellet. They have the disadvantage that their action cannot be terminated when undesired effects appear, e.g., hypercalcemia in osteolytic metastases from carcinoma of the breast.

Recently Herr and co-workers (Herr and others: Synthesis of Potent Oral Anabolic-Androgenic Steroids, Communications to the Editor, *J. Am. Chem. Soc.* 78:500, 1956) described the synthesis of 9α-fluoro-11β-hydroxy-17α-methyltestosterone, known as fluoxymesterone (Halotestin). Lyster and co-workers (Lyster and others: *Endocrinology,* to be published) described the androgenic activity of this compound in the rat. We have administered this compound as tablets for oral use to 10 hypogonadal men, 4 of them with primary testicular hypogonadism and the other 6 having hypogonadism secondary to lack of pituitary gonadotropin. Eight of the 10 had previously been treated with other androgens; in 2 administration of fluoxymesterone was the initial treatment. The maintenance dose, using the criteria of Escamilla and Gordan, in these patients was 10 to 30 mg. of methyltestosterone per day as tablets for buccal administration in seven patients or intramuscularly given testosteronecylopentylpropionate, 150 to 200 mg. per month, in five patients. In all 10 cases full androgenic effects were achieved and maintained by the oral administration of 1.5 to 2 mg. of fluoxymesterone per day over a period of four to six months. Because of the presence of an 11-hydroxyl group in the molecule, the possibility of corticoid activity was considered; no edema or hypertension occurred.

Gilbert S. Gordon, M.D., Ph.D.
Endocrine Clinic, Department of Medicine
University of California
School of Medicine
San Francisco 22.

BRASS PIPING

To the Editor:—With respect to the article in Business Practice, The Journal, Feb. 18, page 590, I would like to call attention to the fact that brass piping is not a good insurance against piping troubles. In some cases, even copper piping fails where the water is particularly aggressive, but brass pipe of a type once much used has almost gone out of use because there have been so many failures.

F. J. Schlink
Consumers' Research Inc.
Washington, N. J.

MISCELLANY

THE MEDICAL SOCIETY BULLETIN

Edward R. Pinckney, M.D., Napa, Calif.

Most large medical societies already publish their own periodicals. What about the small society? It, too, should have a regular means of communication. The basic purpose of having a monthly bulletin put out by the medical society consists primarily of getting local medical news of interest to its physician members. It is just another means of the "grass roots" approach to the dissemination of information of special importance to members of the particular society. Any physician who has attended small society meetings has been witness to situations where there was either (1) a guest lecturer and no business meeting, so that the physician remained completely oblivious to the medicopolitical matters that concern him; or (2) an excessively prolonged business meeting where a particularly interesting point of discussion obliterated the necessary planned program.

Between meetings, an active medical society office floods its members' mailboxes with notices of future meetings, lists of applicants to be voted on, and comments on a random sample of medical business matters, all of which are of great importance but easily overlooked because they arrive amongst the piles of third-class mail. Besides this onslaught of what might honestly be termed necessary information to the private practitioner, there are many other matters that should be brought to the doctor's attention in such a way that he will not only find the literature easy to read but be able to utilize the information. Some examples would include announcements concerning (1) local, state, and federal legislation (both before and after voting takes place, with comments on how the result of same will affect his practice); (2) postgraduate courses; (3) future meetings; and (4) general state medical policies.

What else can a medical society bulletin do for its members? Not only can it announce the future society meetings but, of even greater importance, it can present the conclusions of the executive committee as well as the results of the meetings of all the other specialized committees, so that the doctor has a bit of time to consider recommendations before he is asked to vote on them. Local hospital news, results of epidemiological investigations pertinent to the area, and even a gossip column telling, for example, where some of the doctors and their families are having their summer vacations are just a few more items that might be of particular interest to society members. This is another means of solidifying the professional and family outlook toward the practice of medicine.

Another equally important service of the bulletin is to provide a summary of the past society meeting. Often enough, a well-intentioned physician is unable to attend the regular meeting of the society for various reasons. Without an official society publication, the absent doctor usually hears of his society's decisions in a vague secondhand way, if at all. Yet these matters can be of great importance to him in his future practice and his relations with his fellow members. Actually, it is easy to sum up all this material, plus much more strictly local information, in about a dozen 6-by-9-in. carefully edited pages. Intersperse these pages with a few local and national advertisements, some necessary and periodic statistics, and a few opinionated expressions, and you have a monthly medical society bulletin.

In essence, then, the bulletin provides a small, up-to-the-minute guide to local business aspects of medicine. Unless your society happens to have an unusually prolific scientific writer, the bulletin should make no attempt to compete with all the other medical publications primarily concerned with medical research and clinical results. This, however, is not meant to deter a local physician from presenting an unusual clinical case or bringing to light some new idea he has been working on.

Distribution of this bulletin, not only to the members of the society and the auxiliary but also to members of the allied professions (e. g., pharmacists, detail men, community leaders, voluntary health workers, and advertisers) tends to promote much better public relations. The public is made to realize that the medical society is not a "secret" society and that its findings and discussions are of such a nature that the medical profession is not ashamed to have them known. With only this bit of background, it seems pretty hard to refute the idea that even the smallest society should have some form of monthly publication to incorporate all the above information.

How does one go about obtaining all the assets previously listed? In other words, how do you get a bulletin going, how much does it cost, who pays for it, and where do you get the people to find the time to do such a thing? Before such a venture is begun, the majority of the society members must really want such an organ of communication and be willing to underwrite the cost of the first few issues, if necessary. When one weighs the cost of publishing a bulletin of this type, one must reasonably deduct the cost of secretarial help, office facilities, and supplies, stationery, and postage that are already being used in dispensing information. But before actually going into cost, which seems to end up as the all-important factor, let us go back to developing the idea.

Once the society agrees that this is a venture worth attempting, a definite trial period should be established, say, six months. Next, a publication committee should be appointed and empowered to handle all necessary transactions in the name of the society. The committee elects its chairman, who is usually designated as the editor of the bulletin. No article could tell you which man to pick for this position, but surely every society has a few members who are interested in this sort of work. Aside from one or two organizational meetings, it should not be necessary for the members of the committee to devote more than two hours a month to this publication, and the editor can do a very substantial job if he plans to give one and one-half hours a week to it.

In more detail, the editor's work will consist of gathering together the pertinent information; proofing, cutting, and adding where necessary; and reviewing the entire concept with the committee. The hardest task the editor may have to face during the formative period is that of getting the material forwarded to his desk. This actually amounts to his sharing his burden among members of the society. Once procedures are set, the chairmen of the different society committees send the editor brief reports of their meetings, when held. It should take a particular physician's secretary no more than 15 minutes to write this up and send it to the editor. The society's selected secretary follows the same procedure with the executive committee minutes, which he is obligated to write up anyway. He also can include information on the next meeting, information on and pictures of new applicants, and an outline of the society's financial state. Reports on legislative and other political actions that affect medicine are readily furnished by the state association. The health officer will furnish vital statistics as well as pertinent information about public health affecting the private practitioner. Editorials may provide an opportunity for members to express their opinions. All of the material is typewritten, with double-spacing and wide margins, and sent to the editor. The number of words to a page depends on the type size used and on page size. The editor should usually stipulate the number of words needed for each particular article he requests. After one or two issues, the editor will find he is overstocked with items of interest, pictures of the new hospital, exhibits, and displays. The amount of material published is limited only by the allocated cost of production.

As regards cost, the easiest solution is to leave it to someone else. While this may sound facetious, it is meant to be quite serious. The simplest way is to hire an advertising counsel on a percentage basis. The net income to the society from advertising may be used to lessen or even to entirely defray the cost of

---

Former editor, *Bulletin of the Napa County Medical Society.*

publication. Hiring a nonmedical advertising counsel provides many other benefits, one of which is that the physician does not have to solicit business. A good advertising counsel can handle the entire business affairs of the bulletin, from layout to collection of accounts. He can be the one to make contracts and deal with the printer directly. While strictly guided by the policies of the publications committee of the society, he nevertheless eliminates the need for what might be considered unethical activity on the part of a physician. His business is simply business, and the society is limited to purely medical participation.

While cost varies in all parts of the country, $100 a month, before advertising is even considered, would probably sustain a 16-page bulletin. And, if just 5 or 6 of those 16 pages were used for advertising, the bulletin could be self-supporting. The typing of address stickers, the application of the stickers to the bulletin, and sorting and delivery to the post office can be made a very worthwhile service of the women's auxiliary.

In our busy present-day medical practice, the political and commercial side of medicine is equally as important as the clinical side. Here is just one more way of getting information to all members of a society, whether large or small, by a means economically within the society's means.

P. O. Box 599.

THE LEISURE CORNER

SCALE-MODEL RAILROADING

Scale-model railroading, a hobby that many doctors have found particularly suited for their leisure time, combines creativity and "operating" pleasure in equal measure. The fact that most model railroaders are adults contradicts the prevalent belief of a portion of the public that "playing with trains" is only for children. There is a vast difference between the familiar toy train set and a scale-model railroad layout. The truth is that building and operating a model railroad empire requires more skill and patience than most youngsters possess, although a sizable number of teen-agers are model rail enthusiasts. Few women, by the way, are independent model rail fans, but many become absorbed in the hobby once their husbands adopt it.

The objective of the serious model railroader is the creation of a completely authentic railroad empire. This involves such activities as the actual construction of locomotives and freight or passenger cars, the designing and wiring of track, the building and painting of scenery, and the construction of such miniature buildings as stations, factories, stores, and residences. In pursuit of reality, some model railroaders have re-created famous railroad problem areas and have actually solved the trouble through ingenious track plans. Others concentrate on scenery and build to scale a duplicate of a section of their own home town.

The advanced model railroader makes use of such skills as an electrician, a carpenter, a traffic engineer, and an artist have. The beginner, however, must master only a few simple tools: screw driver, small hammer, long-nose pliers, model knife, and small file. Basic carpentry is helpful in constructing the supporting frame for track; soldering, painting with an airbrush, drilling, and tapping are skills that come in handy later on. Although most hobbyists in this field limit themselves to relatively small layouts—perhaps covering an area of 5 by 10 ft.—some veterans build layouts as large as 30 by 30 ft. that take years to complete.

The novice hobbyist will find plenty of help available. Owners and employees of hobby shops will assist the beginner in getting started. Many cities have model railroad clubs, which welcome newcomers. There is a nationwide organization for rail fans: the National Model Railroad Association, with headquarters in Canton, Ohio. Perhaps most valuable are a number of basic books and periodicals: "Practical Guide to Model Railroading," "How to Wire Your Model Railroad," "Track and Layout," and *Model Railroader* and *Model Trains*. All of these are published in Milwaukee, a city that boasts the oldest model railroad club in the country and the birthplace of the national association.

When a basic layout has been created, the model railroader enters into the second phase of his hobby: the operation of the trains. (Actually, a layout is never "finished"; the possibilities for expansion are limited only by the amount of space available.) Variations in operation are endless. Many enthusiasts with large layouts even follow the timetables of existing railroad lines, while, in model railroad clubs, extensive operations may take place with members serving as engineers, towermen, yardmasters, switchmen, and even dispatchers.

With the growing popularity of the HO gauge model train, complex layouts can be set up in relatively small areas. The most popular spot for the pursuit of the hobby is a basement, but attics, spare rooms, and garages are often used. Some hobbyists even manage to find space in house trailers. The gauge of the track is determined by the inside distance between the rails. O gauge is the familiar "toy train" size and is one forty-eighth the size of the actual train; HO gauge is half the size of O gauge; S gauge is midway in size between O and HO; and TT, or table-top, gauge is less than one-half the size of O gauge, or one one-hundred-twentieth the size of the actual train. Cost makes little difference in choosing which gauge you wish to use. It will depend on available space and the amount of detail desired.

Compared with the serious pursuit of such hobbies as photography, model railroading is inexpensive. The initial investment need not be great: power-pack (which operates the locomotive) averages about $12; locomotive kits are available at $4 and up; freight car kits are between $2 and $4; track and scenery can be bought for a few cents per unit. Assembled, ready-to-run scale-model equipment costs slightly more. After the first major expenditures, the average hobbyist, according to *Model Railroader*, spends about $2.85 a week on his hobby. The biggest investment in any layout is in time and creative thought.

Specialization in model railroading keeps long-time enthusiasts interested. A West Coast physician builds nothing but models of cars on the Sacramento Northern interurban line. A Brookfield, Mass., man, a signal maintainer of the Boston and Maine Railroad, likes signaling so well that he built an elaborate signal system for his back-porch model layout. Others find their greatest pleasure in building bridges, cabooses, or stations. Those with a bent for history like to duplicate ancient trains and track layouts. Some fans, with time and money, will visit and duplicate existing trains and lines that are, in some way, unique, such as the Mojave Northern line, which runs only 15 miles over the Mojave desert to link a quarry with a cement plant.

Just why scale-model railroading should exert such fascination over so many American males is a matter of individual opinion, but the manufacturers, hobby shop proprietors, and publishers who serve the field generally agree that it is related to the well-established appeal of real railroading—the whistle in the night, the power of huge locomotives, the lure of distant places. Physicians who are model rail enthusiasts have found it eminently satisfactory for filling their leisure hours. Since they find time for travel difficult to obtain, the vicarious pleasure they achieve through operation of a layout is easily understandable. The relaxation found in doing something mechanical and, at the same time, artistic appeals to many doctors. Then, too, model railroading is ideal for a person who may be called away suddenly—a few minutes of work with the layout can be as refreshing as several hours. One pediatrician has even put his layout to work in establishing rapport with his patients; he invites youngsters to his home occasionally to watch while he and members of a model railroad club operate the trains. Whatever the reasons for the growing appeal of this hobby, the fact remains that there are more model locomotives plying tracks in basements and spare rooms than there are actual locomotives on real railroads.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Blood Picture in Rubella: Its Place in Diagnosis. F. K. M. Hillenbrand. Lancet 2:66-68 (July 14) 1956 [London, England].

The author investigated the blood picture of patients with rubella in the Falkland Islands as well as in Britain. He found that in conjunction with lymph-node enlargement the results of routine white blood cell counts are sufficiently characteristic in rubella to permit a confident diagnosis even of subclinical infection with german measles, in which symptoms may pass unnoticed. This aid to early diagnosis can be very important when it is necessary to protect by immunization a pregnant woman who has been exposed to the infection. The lymphatic hyperplasia, mainly of the postauricular and occipital lymph nodes, which typically follows rubella and may persist for many months, is associated with the presence of Türk cells and plasma cells in the blood. When persistent lymph-node enlargement is associated with these blood changes, a retrospective diagnosis of rubella can be made. The fact that patients with rubella (clinical or subclinical) examined between the first and ninth days showed plasma cells or Türk cells, which nearly always persisted until the sixth week, means that a person not showing these changes is very unlikely to have had rubella. In their absence, therefore, there is no need to fear damage to the offspring of a pregnant woman or to consider the advisability of therapeutic abortion.

An Epidemic Caused by APC Virus. R. Glander, G. A. v. Harnack and H. Lippelt. Deutsche med. Wchnschr. 81:1147-1149 (July 20) 1956 (In German) [Stuttgart, Germany].

The occurrence of an epidemic of respiratory disease in Hamburg, Germany, in the course of the last six months of 1955 is described. In the beginning, only children predominantly of school age were affected, but later adults also became ill. Thirty-two girls and 23 boys between the ages of 1½ and 14 years were admitted to the pediatric department of the General Hospital of Hamburg-Heidelberg or to the pediatric clinic of the University of Hamburg. The children had fever mostly above 103 F (39.5 C), which was remittent or intermittent and continued for from two to eight days. Upper respiratory symptoms were limited to the nose and pharynx. The tongue had a white or brownish coating, but the edges and the tip of the tongue were dark red. Cervical lymph nodes were enlarged. Eighteen children complained of lower abdominal pain, 7 had diarrhea, and 21 vomiting and nausea. Nuchal rigidity was observed in three children, but lumbar puncture did not reveal any abnormality. Forty-seven children had characteristic eye symptoms; 14 had unilateral conjunctivitis and 33 had bilateral conjunctivitis. Twenty-five children had leukopenia, and 14 of these had 70% granulocytes with segmentation nuclei. A deviation to the left in the granulocytes with a maximum of 34% cells with rod-shaped nuclei and immature cells was observed in 26 children. Eosinophils were absent in 50% of the patients. Toxic granulation of the cells with segmentation nuclei was observed occasionally. The hematological picture thus was similar to that in measles. The erythrocyte sedimentation rate varied from 10 to 30 mm. in 32 children. The clinical aspect suggested that the disease was caused by adenoid-pharyngeal-conjunctival (APC) viruses, but for technical reasons attempts at isolation could not be made. Complement fixation tests carried out by the virus department of the Children's Hospital of Philadelphia revealed that the epidemic respiratory disease was caused by APC virus of type 3; all tested serums contained neutralizing antibodies against this virus type. Antibiotics did not influence the course of the fever. Temperature was restored to normal by symptomatic treatment in most of the patients, but occasionally convalescence dragged on for several weeks.

Report on an Epidemic Caused by APC Virus. E. Breckoff. Deutsche med. Wchnschr. 81:1149-1151 (July 20) 1956 (In German) [Stuttgart, Germany].

Breckoff reports on 241 children with acute respiratory disease who were treated by him at their homes in villages on the outskirts of Hamburg during the epidemic outbreak described in the preceding paper. Most of the patients were between the ages of 5 and 16 years and only 22 (9%) were less than 2 years old. The epidemic began during the summer vacations, and the number of cases increased considerably with reopening of the schools, so that of the 1,500 children of school age 300 to 400 were absent from school at the same time. In some families several siblings became ill, and the incubation period varied between four and five days. The symptoms and signs described in the previous paper were also observed in these patients. The pharyngeal mucosa was very red, there were petechiae at the soft palate, and the posterior pharyngeal wall showed a fibrinous coating of dirty-grey color. Nose breathing was considerably hampered or even obstructed. The nasal mucosa was swollen, the conchae thickened, and the vessels distended. Many children complained of earache, and changes in the tympanum consisted of injected and tortuous vessels similar to those seen in the conjunctivas. A dark-red ring surrounded the tympanum. None of the children coughed. Bronchitis, pleuritis, and bronchopneumonia were absent. There were no deaths. All children recovered completely on symptomatic treatment. There was a definite tendency to relapses, which occurred within two or three weeks, but in an attenuated form. It took many weeks and even months until the work capacity of the children was completely restored.

Outbreak of Unusual Form of Pneumonia at Camp Gruber, Oklahoma, in 1944: Follow-Up Studies Implicating Histoplasma Capsulatum as the Etiologic Agent. A. E. Feller, M. L. Furcolow, H. W. Larsh and others. Am. J. Med. 21:184-192 (Aug.) 1956 [New York].

An outbreak of an unusual form of pneumonia occurred at Camp Gruber, Okla., in the spring of 1944. Twenty-seven men were admitted to the Station Hospital at the camp, all of whom had entered an abandoned storm cellar during field maneuvers, about 12 days before the onset of the disease. The closed chamber and the hot air currents in the storm cellar created ideal conditions for the air-borne dissemination of spores that might have been inhaled by the occupants. The illness was characterized by the sudden onset of predominantly constitutional symptoms, substernal pain, and constriction in the chest. Most of the patients were severely ill for from two to four weeks. The scarcity and minimal nature of physical signs over the lungs were impressive in contrast to the widespread roentgenographic changes. A disseminated type of pneumonitis occurred during the acute illness that subsequently tended to become nodular in character and faded slowly during the period of observation. Later examination showed that calcification, which in most patients was of a miliary type involving all lobes, had developed in the lungs. Etiological studies made during the outbreak and for several months thereafter failed to reveal the cause.

A comprehensive follow-up study was carried out on 26 of the 27 men who were hospitalized in the spring of 1944. In addition 11 other soldiers were studied, 3 of whom were men in whom roentgenograms of the chest had revealed characteristic widespread pulmonary infiltration but whose illnesses had occurred at Camp Gruber in 1943, one year before the outbreak of the

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1947 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

use of a tourniquet was the best method of preventing fat embolism. As a result of a method of detecting fat droplets in the circulating blood, it has been possible to make a study of fat embolism in 100 patients undergoing elective orthopedic surgery. The results of this study have been correlated with those obtained in experiments on animals. By these investigations it has been demonstrated that (1) fat embolism is more frequently associated with operations on bone than with operations on the soft tissues; (2) the use of a tourniquet in an operation on bone effectively sequesters fat in the extremity and prevents fat droplets from reaching the systemic circulation; and (3) compression of the soft tissues by a tourniquet produces a minor degree of fat embolism. A tourniquet should be used whenever possible in operative procedures involving trauma to bone because of its value in minimizing fat embolism. It is surprising that the knowledge of the prophylactic value of a tourniquet in bone operations has not been widely disseminated.

The Use of Chloramphenicol Succinate in Surgery. G. Gugliano and G. Bianchi. Minerva chir. 11:502-508 (June 15) 1956 (In Italian) [Turin, Italy].

The parenteral administration of chloramphenicol is now possible because of the recent discovery by Italian chemists of a chloramphenicol succinate: a white, crystalline, and readily soluble powder. Its chemical formula is D-threo-1-p-nitrophenyl-2-dichloroacetamido-3-succinaxy-1-propanol. The authors studied the effects of this antibiotic in patients undergoing surgical treatment. The effects of the drug were evaluated from two points of view: clinical, by considering the time needed for complete termination of fever; and bacteriological, by considering the time required for the pathological effusions to become sterile. In a period of two years the drug was given to more than 500 patients with inflammatory lesions of bones or joints, compound fractures, and peritonitis due to acute appendicitis or to other causes. The injections were given very slowly, were repeated daily, and were continued until the disappearance of the infection. Inflammatory lesions were completely sterile after 48 hours. There were no cases of intolerance or intoxication. Injection of the drug into the peritoneal cavity was not followed by local or general reaction. The drug had a greater effect on severe inflammatory lesions when it was injected locally or directly into the artery. In a few rare cases the germs resisted the effects of the drug.

Homogeneous Statistics of 38 Cases of Chronic Relapsing Pancreatitis Operated on in 1952 and 1953. P. Mallet-Guy, J. Feroldi and R. Vidil. Lyon chir. 51:531-556 (July) 1956 (In French) [Paris, France].

The results obtained by the authors in chronic relapsing pancreatitis do not support the pessimistic views held by some of those who are concerned with this problem. Progress should be made not by discarding the accomplishments of the past but by using them as a basis for future achievement. The effectiveness of several of the surgical procedures now in use is clearly shown by the statistics on 38 patients with this condition who were operated on during 1952 and 1953. Only cases in which the diagnosis was established by a typical clinical course, the discovery of indisputably inflammatory lesions, and a confirmatory biopsy were included. The operation to be performed should be chosen on the basis of a methodical survey of each patient, including biopsy of the pancreas and manometric and radiological studies of the biliary passages. A left pancreatectomy, which was used successfully in one case, is indicated when the lesions are strictly localized on the left side of the pancreas. A left splanchnicectomy, which should be used in cases in which the conditions for pancreatectomy are not met and there is no demonstrable dystonia of the sphincter of Oddi, was carried out in 23 cases, either alone (15) or in combination with external biliary drainage (2) or biliary anastomosis (6). Biliary anastomosis is not a treatment for pancreatitis. Manometric and radiological evidence of choledochal compression suggested its use in eight cases, but in two the rapidly fatal course of the disease prevented its execution. Dystonia of the sphincter of Oddi was present in 12 patients, 11 of whom had hypotonia and were treated by a right splanchnicectomy. The 12th patient, who had hypertonia, was successfully treated by vagotomy. None of the patients in this series presented the necessary indications for sphincterotomy. No evidence was found to support the theory that the pancreatic lesions are the result of a narrowing of the duct of Wirsung.

There were three deaths and one patient was lost to follow-up, leaving 34 in whom evaluation of the late functional results was possible. The results were perfect from the outset in 26 patients and after a slight delay in 5; in the other 3 they were good, but although pain was relieved certain functional disturbances persisted. There were no late failures. These statistics show that chronic relapsing pancreatitis can usually be treated effectively and that left splanchnicectomy not only has wide applicability to patients with this condition but may even be regarded as curative because it arrests the progress of the lesions.

NEUROLOGY & PSYCHIATRY

Infantile Hemiplegia and Hemispherectomy. J. Achslogh, F. Sody-Farber and P. Van Reeth. Acta paediat. belg. 10:53-68 (No. 2) 1956 (In French) [Brussels, Belgium].

The term hemispherectomy is expressive but inexact, because the procedure to which it refers is actually a hemidecortication that respects the central gray nuclei. The first series of patients in whom hemispherectomy was performed for epilepsy with infantile hemiplegia and personality disturbances was reported in 1950 by Krynauw. Similar reports have since been published by other workers, and the number of patients treated by this procedure must now exceed 100. Infantile hemiplegia may begin at birth, usually as the result of an obstetric accident, or it may appear during the first four years of life as a sequel to an inflammatory or vascular disease of the central nervous system, accompanied or not by convulsions and usually febrile. It may appear abruptly without premonitory symptoms or fever. The chronic stage is marked by the symptomatic triad of hemiplegia, epilepsy, and personality disturbances. The anatomic lesions, which include atrophy of the white matter and the gray matter in the hemisphere on the side opposite the hemiplegia, vary widely in extent and in intensity. The hemiplegia is spastic and more pronounced in the arm, which is held in flexion with the fist closed. Walking is usually possible, though irregular and accompanied by claudication. Sensitivity to touch and pain are for the most part preserved but diminished; deep sensitivity, on the other hand, is profoundly disturbed. Hemianopsia is sometimes present. Speech is preserved, though it may be below that of a normal child of the same age if the dominant side is affected. The mental state varies from nearly normal to severely deficient. Personality disturbances, which are almost always present, are often so pronounced that the child must be placed in a psychiatric institution. Epilepsy, when present, may be either focal, with one or more foci, or generalized, occasionally, however, it is absent. The best indications for hemispherectomy are found in patients with spastic hemiplegia, focal epilepsy, and personality disturbances, but the operation may be performed on patients in whom either epilepsy or personality disturbances are lacking. Each patient should be carefully evaluated, and the operation should not be undertaken without the assurance that the hemisphere to be retained is functionally normal.

The operative technique preferred by the authors is that described by Achslogh and Ectors; it consists of a rigorous decortication with complete preservation of the central gray nuclei. The effect of the operation on the sensory disturbances is slight. Aphasia never appears, but hemianopsia is complete and definitive, although the central vision is not affected and the patient is usually unaware of the defect. The major result of the operation is unquestionably the disappearance of epilepsy in almost all cases. This disappearance is accompanied by a significant reduction in the aggressiveness often dominant in these patients. The beneficial effect of hemispherectomy may be illustrated by the case of a 10-year-old girl who had had a right-sided infantile hemiplegia from the age of 13 months on, which was accompanied by epilepsy, slight aggressiveness, and moderate mental deficiency. A left hemispherectomy was followed by the complete disappearance of the epilepsy, the hemiplegia became less spastic; the aggressiveness diminished, and there was even a slight mental improvement. The neurophysiological problems connected with the mechanism by which these effects are secured are still unresolved, but they may well lead to a revision of opinions previously held. Hemispherectomy or hemidecortication is certain to become the operation of choice in the treatment of infantile hemiplegia.

Lithium Therapy in Mania: Practical Lines of Guidance. M. Schou. Nord. med. 55:790-794 (June 17) 1956 (In Danish) [Stockholm, Sweden].

In 69 out of 85 manic patients treated with lithium to date the manic symptoms disappeared or abated during the treatment; in 16 patients the treatment was without effect. Spontaneous variations are characteristic of manic-depressive psychoses, but in one-third of the cases the improvement is attributed to the lithium. Every psychosis with definitely manic features is an indication for treatment with lithium, but since the effect sets in rather slowly in the course of one or two weeks, it is often preferable in first-time mania and in patients with infrequent brief manias to await spontaneous improvement or to use electroshock. The treatment seems to be without effect in endogenous depressions. In conditions where serpasil and chlorpromazine are of undoubted therapeutic value the effect of lithium is slight or uncertain, but its effect in especially protracted or frequently recurring manias offers advantages over other forms of treatment. A tablet contains 0.3 gm. of lithium carbonate. A beginning dosage of 2 tablets two or three times daily is advised. After one or two weeks treatment can usually be continued with a maintenance dose of 1 tablet three times daily, the final dose being determined by the effect on the psychic condition, the lithium concentration in the blood, and possible symptoms of overdosage (nausea, diarrhea, strong tremor of the hands). A reasonable intake of salt must be insured, and the water intake must be adequate. Therapy with the substance should be discontinued if the salt or water intake fails during the treatment. During the treatment determination of the lithium concentration in the blood every two weeks is sufficient; flame photometric determination is simple and quick. Diseases of the heart and kidneys and conditions leading to low salt intake are contraindications. No late effects have been observed on administration for over three years.

GYNECOLOGY & OBSTETRICS

Torsion of the Human Pregnant Uterus. R. E. L. Nesbitt Jr. and G. W. Corner Jr. Obst. & Gynec. Surv. 11:311-332 (June) 1956 [Baltimore].

A 32-year-old Negro woman was hospitalized because of right lower quadrant pain associated with a right lower quadrant mass and amenorrhea of 11 weeks. Her history revealed two fleeting episodes of stabbing right lower quadrant pain two weeks prior to admission followed by constant "drawing" right lower quadrant discomfort. On pelvic examination the uterus appeared to be in the midline and felt a little large for the duration of the amenorrhea. There was a hard, nontender, 3-to-4-cm. mass, which was inseparable from the uterine wall and which arose deep in the pelvis and reached almost to the umbilicus. Examination under anesthesia demonstrated a 4-cm. globular mass apparently in the right lateral uterine wall and a 6-cm. globular mass apparently attached to the right cornu of the uterus. These findings suggested either a right interstitial pregnancy or a degenerating myoma at the right cornu. Upon the opening of the abdomen through a lower midline incision, an obviously pregnant uterus of at least 11 weeks' size and slightly more cyanotic than usual was encountered. A bilobed subserous myoma was found in the right lower quadrant at the left cornu of the uterus. The 180-degree torsion of the uterus upon the cervix was corrected manually, whereupon the increased cyanosis of the uterus disappeared. The woman made nine subsequent prenatal visits and was asymptomatic. During labor, which occurred at the 36th week of gestation, the uterus was noted to be in 90-degree torsion. However, this torsion did not interfere with the labor. During her hospital stay, the uterus remained in normal position. The patient has had a subsequent uneventful pregnancy.

Reviewing the literature on torsion of the pregnant uterus, the authors found that this relatively rare accident of pregnancy has now been reported 107 times. In 30% of the women torsion occurred in association with myomata uteri and in 15% with uterine anomalies. Ovarian cysts, adhesions, uterine suspensions, abnormal fetal presentations, fetal anomalies, and abnormalities of the spine and pelvis are also reported to be etiological factors in torsion of the pregnant uterus. The diagnosis of torsion of the uterus is seldom definitely established prior to laparotomy. The treatment of symptomatic torsion of the pregnant uterus is immediate laparotomy and detorsion. Contrary to the opinion commonly expressed, cesarean section with or without hysterectomy may not be necessary except in the most advanced degrees of torsion. When the accident occurs near term or during labor, cesarean section may be the procedure of choice. However, simple detorsion together with surgical removal of the causal abnormality seems sufficient in many cases, especially in the earlier months of pregnancy. Prompt surgical intervention coupled with adequate blood replacement and chemotherapy has resulted in a reduction in maternal mortality in recent years, but torsion of the pregnant uterus after the fifth month of gestation is still accompanied by considerable maternal risk.

The Use of the Routine Vaginal Smear as a Screening Test for Uterine Carcinoma. J. H. McClure, W. L. Caton and G. Lucchese. J. M. A. Georgia 45:305-308 (July) 1956 [Atlanta, Ga.].

The investigations described were carried out in order to determine more accurately the prevalence of uterine carcinoma in patients seen on the gynecologic service of Emory University at Grady Memorial Hospital, Atlanta, Ga., and to compare the "routine" vaginal smear method of screening for carcinoma of the uterus with the method of "biopsy on clinical suspicion." The population group seen on this service is predominately indigent urban Negro. A total of 670 patients was seen during the one-month period. Of these patients, 452 were Negro and 218 white. Forty of the 670 smears were interpreted as malignant. During the period covered by this study, 84 patients had a four-quadrant cervical forceps-biopsy done because of "clinical suspicion." Ten of these 84 biopsies were positive (five invasive carcinomas of the cervix and five in situ carcinomas of the cervix). The smears of 9 of these 10 patients had previously been interpreted as malignant. An attempt was made to obtain follow-up examinations on the remaining 31 patients.

Schiller tests and four quadrant cervical biopsies were obtained in 27 of the 31. A total of 18 of the 670 patients were found to have cervical carcinoma, and in eight of these the diagnosis was made solely because of the routine cervical smear test. Seven had invasive and 11 had in situ carcinoma. Five of the six patients with clinically unsuspected in situ carcinoma of the cervix were under 26 years of age. Only one of the six patients with unsuspected in situ carcinoma of the cervix had a positive Schiller test.

PEDIATRICS

Hemolytic Disease of Newborn Infants Due to ABO Incompatibility: Twelve Cases Treated by Exchange Blood Transfusion. O. Mellone, D. Delascio, P. Refinetti and others. Rev. paulista med. 48:266-278 (March) 1956 (In Portuguese) [São Paulo, Brazil].

Twelve newborn infants with hemolytic disease due to ABO incompatibility were observed. The blood groups of mothers and infants were as follows: type O, Rh positive in 10 women and type A, Rh positive in their infants; type O, Rh negative in a woman and type A, Rh positive in her infant; and type B, Rh negative in another woman and type AB, Rh negative in her infant. Two women were primiparas who had not previously had blood transfusions, but one of them had had an injection of anti-Arachnidia serum at an early period of pregnancy. Five women had previously had one or more infants with jaundice and anemia immediately after birth for which the infants received blood transfusions. The five infants got well, three without sequels and two with neurological sequels. The remaining five women had previously had either normal infants or still-born fetuses. The symptoms followed the pattern that differentiates ABO incompatibility from Rh incompatibility: Severe jaundice and anemia appeared immediately after birth or within the first 12 hours of the infant's life, with or without erythroblastemia and splenohepatomegaly. The course of the acute forms is the same as that of the disease caused by Rh incompatibility, associated with acute hemolysis. The acute symptoms consist of rapid aggravation of the patient's condition, with changes in temperature, disorders of respiration, and neurological symptoms and coma from kernicterus.

The treatment consisted of exchange blood transfusion, given intraumbilically in 10 cases and by the radial artery in 2. An average dose of 800 cc. of erythrocytes in saline solution was given. Immediate results were excellent for the nine patients who had the treatment within the first two days of the disease. All the patients recovered without sequels. Of the remaining three patients, one died from complications of umbilical hematoma. Two patients had the treatment starting on the fourth and fifth days, respectively, in the course of kernicterus. One patient died and the other recovered with neurological sequels. The nine patients who recovered without sequels have been observed for nearly two years. They are normal.

Hemorrhagic Adrenal Glands in the Newborn. P. Salomone. Minerva pediat. 8:675-687 (May 5) 1956 (In Italian) [Turin, Italy].

The author reports on 12 cases of acute adrenal hemorrhage in newborn babies. The most frequent cause of adrenal hemorrhage is difficult delivery in combination with one or more other causes, e. g., asphyxia, conditions that required intervention with forceps, and pathological pregnancy. None of the babies was born after a completely physiological pregnancy or delivery. Some factor that had caused the hemorrhage was present in each baby. Hemorrhage could also be considered as the result of nonadaptation of the baby to the stress of the birth. In almost all cases hemorrhage was present, not only in the adrenal gland but also in some other part of the body: the lungs, the intracranial organs, the digestive system, the spleen, the thymus, the liver, or the testes. The lungs were involved 8 times in 12 cases; in some cases with hemorrhage, in others with pneumonia or atelectasis. Male babies were affected more than female babies.

A Clinical Contribution to the Study of Congenital and Acquired Toxoplasmosis. A. Gentili. Riv. clin. pediat. 57:197-211 (Feb.) 1956 (In Italian) [Florence, Italy].

The author describes a case of congenital toxoplasmosis and one of acquired toxoplasmosis. The first patient presented all of the classic symptoms of the disease: chorioretinitis, intracranial calcifications, and hydrocephaly. The mother of the patient showed no symptoms of toxoplasmosis, but the author thinks that it is possible for an individual to have toxoplasmic infection without the manifestation of symptoms. The patient, who is now 6 years old, has been under observation since she was 7 months old. Treatment with sulfonamides stopped the evolution of the symptoms: the ocular lesions regressed and the hydrocephalic syndrome became stabilized. With the exception of chorioretinitis, the child is today in good physical and psychological condition. The child has never exhibited convulsive phenomena, and neurological examination has always been negative.

The patient with acquired toxoplasmosis contracted the disease at 9 years of age. Chorioretinitis was the only classic symptom present. Hemorrhages were absent. The course of the disease was afebrile. Serological examinations were made on the father, mother, and younger sister of the patient, none of whom exhibited any clinical manifestations. These examinations revealed the presence of antibodies. The author thinks this was due to an infection, without symptoms, that the whole family had contracted.

Early Diagnosis of Bone and Joint Tuberculosis in Children. T. J. Mills, R. Owen and E. H. Strach. Lancet 2:57-59 (July 14) 1956 [London, England].

The authors review observations on 60 patients in whom biopsy was performed to differentiate tuberculous from nontuberculous lesions of the bones and joints. Patients in whom the diagnosis was sufficiently obvious to preclude the need for biopsy were excluded. The following types of biopsy were carried out: aspiration of either a joint cavity or an abscess in 26 patients; biopsy of regional lymph nodes in 39 patients; joint biopsy of the synovial membrane in 31 patients; and bone biopsy in 11 patients. The patients were divided into three groups: in the first group of 35 patients tuberculosis was proved; in the second group of 20 patients the lesions were nontuberculous; and in the five remaining patients (third group) the lesion were not identified. In the first group biopsy established the diagnosis of tuberculosis beyond reasonable doubt in that the bacillus was isolated in 21 patients or the histology was typical of tuberculosis in 32 patients. In the second group the nontuberculous nature of the lesion was demonstrated by biopsy and the subsequent clinical course.

The decreasing incidence of tuberculosis at present underlines rather than diminishes the necessity for early biopsies. By following a policy of early biopsy the tuberculous or nontuberculous nature of the condition can be established promptly with a view to effective treatment. The authors feel that their mistakes have been mostly due to inadequate examination. They emphasize the fact that in all biopsies the material obtained must be submitted to histological examination, culture, and guinea pig inoculation.

Observations on Leprosy Among Children Born in the Culion Leper Colony During the Presulphone and the Sulphone Periods. C. B. Lara and J. L. Ignacio, J. Philippine M. A. 32:189-197 (April) 1956 [Manila, Philippine Islands].

This study was prompted by a suspicion that there has been some insidious change in the prevalence and character of leprosy among children during recently years at the Culion Leper Colony. The authors compared the incidence of leprosy among the children born in the colony in two eight-year periods. While at first glance the comparison between the period of chaulmoogra therapy (1933 to 1940) and the period of sulfone therapy (1947 to 1954) shows no appreciable difference in the incidence of leprosy among colony children, a more detailed analysis reveals a probable lower rate of incidence during the sulfone period. An increased average "age at onset" for all types of lesions, as well as a relative increase in the later developing types, especially the macules, supports this view. Whether the lower rate was actual or merely a manifestation of a lag in the incubation period, and whether it was influenced by the fairly widespread, nonintensive use of the sulfones or some other cause cannot be determined.

Hyperthyroidism in Newborn Infant: Report of Case and Review of Literature. A. J. Aballi, N. Casanova, A. Pacheco and Frank Lavernia. Rev. cubana pediat. 28:339-350 (June) 1956 (In Spanish) [Havana, Cuba].

Children born to women with hyperthyroidism, as a rule, do not suffer from the disease. The case reported by the author is the 14th in the literature. The mothers reported on in the literature had thyroid disorders during pregnancy. Ten mothers with active thyrotoxicosis had been treated with iodine or thiouracil during pregnancy, and four had undergone a thyroidectomy that resulted in hypothyroidism in one patient. The infants were boys, and all were slightly premature. The period at which hyperthyroidism appeared was variable. A diagnosis of hyperthyroidism was made in one infant during the mother's pregnancy because of the marked tachycardia perceptible in the fetal heart. In the remaining cases the diagnosis was made immediately after birth or within the first and fifth weeks of life of the infant. The symptoms were those of marked irritability, tachycardia, enlarged thyroid, and marked exophthalmos. Ossification was slightly accelerated. The electrocardiograms showed changes characteristic for hyperthyroidism for that age. The main complications were cardiac insufficiency, bronchopneumonia, and liver disease, However, the complications were rare and controllable, and the disease manifested a tendency toward spontaneous and rapid regression without treatment. The mother of the patient reported on had hyperthyroidism for which she received treatment beginning in the third month of pregancy and continuing with interruptions through the following months. The treatment consisted of administration of Tapazole (imidazole derivative) and Lugol's solution (iodine). The infant was normal at birth but showed marked symptoms of hyperthyroidism within the first week of life. It recovered within a few weeks without any specific treatment.

Acute Fetal Ichthyosis: Case with Survival of Infant for More Than One Year. H. Garces and F. Donoso. Rev. Chilena Pediat. 27:158-162 (April) 1956 (In Spanish) [Santiago, Chile].

Acute fetal ichthyosis consists of diffuse hyperkeratosis and cornification of the epidermis, the other layers of the skin being normal. The epidermal abnormality results in the formation of thick horny scales and red sulci on the skin from head to foot. The disease is rare. The cases reported in the literature have been observed in premature infants, mostly from parents who were interrelated. The etiology is not known. It is believed to be hereditary. Death occurs in almost all cases within the first few hours after birth. The case reported by the author is the fourth published in the literature of Chile. The parents were not related. The mother had previously had three normal children. The lesions in the infant girl were typical of the severe acute form of ichthyosis. She had neither hair nor eyebrows. There were skin abnormalities about the mouth, the nose, and the eyes. She was treated with antibiotics (terramycin, 30 mg. per kilogram of body weight daily), cortisone (37 mg. daily), and vitamin A (20,000 units daily) for one month, and care of the skin with medicated petrolatum. At the end of one month, treatment with antibiotics and cortisone was terminated and only treatment with vitamins A, C, and D and care of the skin was continued. Recurrent respiratory infections were frequent complications. The infant was cared for in the hospital for five months. She lived for more than one year. It is possible that cortisone had some effect on the patient's survival by increasing her strength. The drug had no effect on the skin lesions. The abnormal epidermal layer was detached from the infant's body once, only to be replaced by another layer with the same abnormal characteristics.

Semiologic Considerations on Myasthenia Gravis: Report of Case. E. O. Lis and A. Giancia. Arch. oftalm. Buenos Aires. 31:145-148 (May) 1956 (In Spanish) [Buenos Aires, Argentina].

Myasthenia gravis is rare in children. The subject of this report, a child 7 years old, suffered from frequent episodes of respiratory infections of an asthmatic type after which his ability to move was greatly diminished. Motor incapacity lasted for about 10 days after vaccination and again after an attack of parotitis. His gait was unnatural, as if he had no strength in his legs. At the age of 7 he developed a pronounced exophthalmos and limitation of the eye movements. He also exhibited tremor of the hands, great asthenia, dysphagia, difficulty in voiding and in defecating, and lastly palpebral ptosis appeared. The electrocardiogram showed changes suggestive of neurocirculatory asthenia. The prostigmine test gave positive results, and treatment with prostigmine controlled the acute symptoms.

Genuine Cirrhosis of Liver in Infants. K. Lambers and H. Richter. Ztschr. Kinderh. 78:60-70 (No. 1) 1956 (In German) [Berlin, Germany].

Cirrhosis of the liver is rare in infants less than 3 months old, but when it occurs, macroscopic and microscopic studies on the liver of these infants suggest that the condition is usually one of the following three: interstitial syphilitic hepatitis of the newborn, cholestatic cirrhosis in the presence of congenital atresia of the bile duct, or a manifestation of hemolytic disease of the newborn. Since the occurrence of hepatic cirrhosis in hemolytic disease of the newborn was not recognized until 1934, it is assumed that the majority of familial, etiologically obscure cases of hepatic cirrhosis in infants before that time were caused by hemolytic disease of the newborn. In addition to the three forms of cirrhosis mentioned, there occur in young infants (often in several in one family) hepatic lesions characterized by intra-acinar cirrhosis. Although this process is histologically similar to the hepatic cirrhosis resulting from Rh incompatibility, a definite relationship to hemolytic disease of the newborn cannot be demonstrated.

The authors report observations on an 8-week-old infant with hepatic cirrhosis. Another infant in this family had died six years previously (12 days after birth) with signs of severe jaundice. The symptoms were similar in the two children, except that in the first the course was somewhat more fulminant and the jaundice more severe. In the second infant the liver was enlarged and was of the hobnail type. Hyperglycemia, glycosuria, and galactosuria existed throughout the course of the disease. The disorder of the first infant was diagnosed as hepatic jaundice with enlargement of the liver, whereas the second case was identified as infantile cirrhosis of the liver. Histological examination revealed in the first child diffuse fatty degeneration of the liver with inflammatory infiltration of the interstitial cells, that is, the pathological process was relatively recent; whereas in the second child the liver showed a characteristic, diffuse intra-acinar cirrhosis. It is possible that the primary cause was the same in both infants and that cirrhosis developed in the second infant because of the more prolonged clinical course. The authors found seven similar cases reported in the literature. They suggest that these are cases of genuine cirrhosis of the liver that should be differentiated from the above-mentioned forms in which the causation is established.

UROLOGY

A Clinical Study of the Motor Paralytic Bladder in Poliomyelitis. B. G. Clarke. J. Urol. 76:66-69 (July) 1956 [Baltimore].

In spite of the relative frequency of urinary retention in patients with poliomyelitis there is little material in the literature on which to base an understanding of the physiological disturbances that occur. In 13 patients, bladder paralysis appeared concurrently with peripheral skeletal muscle paralysis during the acute, febrile stage of poliomyelitis. Distribution of peripheral paralysis had no relation to segmental location of bladder motor innervation. Among the adults capable of describing sensation, micturitional disturbances assumed the form of painful urinary retention. Large volumes of residual urine were obtained. Ileus of varying degrees of severity developed concurrently with difficulty in voiding. In two patients who died, no histological abnormality of the muscle, nerves, or ganglia of the bladder wall could be found. Paralysis of the abdominal striated muscles was present in only half of the patients. The authors find indications that the urinary retention of poliomyelitis is the result of detrusor weakness without sensory loss. It may simply reflect motoneuron changes, usually reversible, in the lateral columns of the sacral segments of the spinal cord, from which originate the parasympathetic motor nerves of the bladder. In surviving patients, normal bladder function returned during defervescence and beginning recovery from skeletal muscle paralysis. In the younger patients, simple measures such as manual expression of the bladder, administration of parasympathomimetic drugs, or one or two catheterizations sufficed for treatment. In the adults, indwelling catheter drainage during the phase of bladder paralysis was used successfully until return of normal bladder function.

Longevity Following Nephrectomy. A. E. Goldstein. J. Urol. 76:31-41 (July) 1956 [Baltimore].

The author reports a study in detail of the outcome of 391 cases of patients who underwent nephrectomy from 1918 to 1954 inclusive. The average life span after operation for renal tuberculosis was slightly more than 13 years in patients living until 1955, whereas in those who died before 1955, it had been only 2.7 years. The average length of life after nephrectomy for neoplasm among patients living in 1955 was 4.7 years, while among those who died prior to 1955 the survival was approximately 4.1 years. A nephrectomized patient can live a normal life, and there will be no interference with longevity except in those in whom nephrectomy was performed because of tuberculosis or neoplasm. In this study, patients who underwent nephrectomy for neither of those conditions and who were living in 1955 were healthy and had lived an average of 10.1 years since operation. Of the 122 traced patients subjected to nephrectomy after 50 years of age, 66% have already lived their average span of life of 65, and many more have gone beyond the average span of life. Patients undergoing nephrectomy can reach the average span of life of 65 years provided the opposite kidney is in good condition at the time of operation. The author hopes that nephrectomy can be avoided in some cases with the aid of newer drugs. Experience and judgment will help in the conservation of renal tissue with a view to increasing the survival rate. Although nephrectomized patients who did not have renal tuberculosis or neoplasm are no greater risks than other people, they are given higher insurance rates because insurance companies confuse these surgical diseases with the various types of nephritides, which certainly create poorer risks.

Present-Day Concepts of Polycystic Renal Disease: Analytic Studies of 67 Cases. P. Vallery-Radot, P. Milliez, C. Laroche and others. Semaine hôp. Paris 92:2232-2237 (June 30) 1956 (In French) [Paris, France].

Polycystic renal disease may be present for a long time without causing much discomfort. It is usually isolated and may be hard to detect. Death occurs as a rule about 10 years after appearance of the first serious functional symptoms and is usually due to severe renal insufficiency. Arterial hypertension is present in three-fourths of the cases, but death is rarely linked to a cerebral or coronary vascular accident. The first symptoms are variable and may consist of vague lumbar or abdominal pains, severe nephritic pains, hematuria with or without pain, albuminuria not associated with another disease, pyuria, arterial hypertension, or azotemia revealed by great debility and excessive thirst. In two-thirds of the 67 patients in the present series, the first symptoms were lumbar pain, hematuria, and arterial hypertension. The pa- tients ranged in age from 9 to 70 years and were almost equally divided as to sex (33 men). In most of the patients the kidneys were abnormally palpable. Bacillus coli was the organism most commonly found in the urine of patients with pyuria, but entero- cocci, staphylococci (micrococci), and streptococci were also pres- ent in some cases. The diagnosis of polycystic renal disease was confirmed by palpation in 21 cases and by radiology in 41. The pathogenesis of polycystic renal diseases was not clarified by observations in these cases.

Primary Tumors in Ureter and Renal Pelvis with Analysis of 12 Cases. F. Lund and F. Lundwall. Ugesk. læger 118:615-621 (June 7) 1956 (In Danish) [Copenhagen, Denmark].

From 1939 to 1954, papillomas or carcinomas in the ureter or renal pelvis were diagnosed in 12 patients, 11 men and one woman, aged from 41 to 74. Medical aid was sought because of hematuria, often sparse and intermittent. In 10 cases the diag- nosis was made preoperatively by intravenous urography, direct pyelography, or retrograde pyelography. The authors' investiga- tions show epithelial tumors in the upper urinary tract, whether histologically benign or malignant, to be particularly malignant in their clinical course, with a marked tendency to metastasize to the lower part of the urinary tract. On diagnosis, nephroureter- ectomy with partial cystectomy must be done, provided the other kidney functions satisfactorily. In five patients operated on radically there has been no recurrence during observation for from 1 to 11 years. The danger of superfluous operation is com- pensated for by the favorable results of the more radical opera- tion. The aim must be to find a more refined and certain method of establishing these tumors preoperatively and to sharpen at- tention to the presence of tumors in ureter and renal pelvis in patients with hematuria of unknown cause or with papillomas of the bladder, especially multiple papillomas centered around the ureter ostia.

Conservative Treatment of Acute Grave Renal Insufficiency: Review. P. Anthonisen, C. Brun and C. Crone. Ugesk. læger 118: 617-653 (June 14) 1956 (In Danish) [Copenhagen, Denmark].

From August, 1954, to March, 1956, 73 patients with acute anuria were treated in the Kommunehospital in Copenhagen. The anuria was due to obstruction in the urinary tract in 10 patients and to an acute flare-up of chronic renal disease in 5. The remaining 58 had acute ischemic anuria, most often from shock or complicating operations or severe barbiturate intoxica- tion. In 26 cases hemodialysis had to be resorted to; 4 of the other 32 patients died within 24 hours, and 16 of the 28 given conservative treatment exclusively survived. The purpose of conservative treatment of acute renal insufficiency is maintenance of the organism's internal milieu under conditions in which the water and electrolyte elimination is gravely compromised or has stopped and in which the elimination of residual products from the protein metabolism is almost suspended. The patient with anuria is almost always in a state of excessive catabolism. At least 100 gm. of glucose are to be given daily, and as soon as possible, i.e., when the renal function rises to somewhat more than 5%, protein substances should be given for building up the organism's tissue. Water is to be supplied in such amounts that there will be a daily loss of weight of about 0.5 kg. The amount of electrolytes supplied corresponds to what is lost through vomiting and diarrhea. Blood transfusions because of threatening or manifest shock must be given with extreme care Acute hyperkalemia can be temporarily combatted by infusion of glucose with insulin, together with injection of calcium salts Prophylaxis against infection is of the greatest importance. The clinical symptoms accompanying acute renal insufficiency depend more on disturbances in the water and electrolyte relations than on the accumulation of metabolic products containing nitrogen. If the blood urea level tends to rise above about 400 mg per 100 cc. the treatment must be supplemented by hemodialysis, but the fact that conservative treatment is the basic principle of treatment for all patients with acute anuria is stressed

Experiences with Hemodialysis: Thirty-Four Consecutive Patients. *P. Anthonisen, C. Brun, C. Crone, and others Ugesk læger 118:653-669 (June 14) 1956 (In Danish)* [Copenhagen, Denmark].

In the 18-month period ending in March, 1956, a total of 34 patients were treated with 55 dialyses in the Kommunehospital in Copenhagen. Dialysis was done in 26 patients because of uremia threatening life or hyperkalemia in connection with acute ischemic anuria; only one survived of the 14 most gravely affected, in whom the picture was dominated by the primary disease as well as by the uremia. Six of the 12 who also had acute anuria and grave uremia but in whom the primary affec- tion had receded survived. In the remaining eight patients with uremia or intoxications from various substances the immediate results of dialysis were good. In the most severe cases even the most energetic conservative treatment will not avail and hemo dialysis is necessary. The contraindications are few and relative, since the patients concerned are patients who without dialysis have a highly unfavorable prognosis. Persistent or more recent internal bleeding is a relative contraindication. Dialysis treat- ment cannot be separated from the conservative therapy The artificial kidney can be used only by a trained and experienced personnel, and both forms of treatment are best applied in clinical centers.

OPHTHALMOLOGY

Toxoplasmic Uveitis: Treatment with Pyrimethamine and Sulfa- diazine. C. J. Burnham and V. A. Beuerman. Am J Ophth 42 217-227 (Aug.) 1956 [Chicago].

Seven male and two female patients between the ages of 12 and 27 years with active uveitis were treated with pyrimethamine (Daraprim) and sulfadiazine All patients had a positive reaction to toxoplasmin skin tests Treatment was started with doses of 25 mg. of pyrimethamine two, three, or four times daily and with doses of 0.5 gm of sulfadiazine two or four times daily These doses were reduced gradually. Most of the patients were hospitalized for treatment. The duration of the treatment ranged from 1 to 10 months Some of the patients are still receiving treatment Four patients showed marked improvement within a week, which continued to quiescence of their lesions Four of the patients showed improvement varying from slight to marked over a longer period of time. One patient showed no response to therapy and in retrospect should probably not have been included in the group, although he had a positive reaction to the toxoplasmin skin test, the patient's father had died of tuberculosis, and the patient's disease was confined to the ante- rior segment (iridocyclitis). All the patients were carefully watched for toxic reactions to the drugs. Depression of the mor- phological elements of the blood did not occur in any of the patients. One patient had urticaria, which was presumably caused by the drugs; it was controlled by antihistaminics, allowing continuation of the therapy. The only other complications were slight anorexia and nausea.

Although the toxoplasmic causation of chorioretinitis in adults has been proved, the available diagnostic methods are fallible and in most cases the diagnosis of toxoplasmic chorioretinitis must be presumptive at best. The average ophthalmologist, not associated with a research facility, does not have available repeated serial Sabin dye tests; the combination of careful history and examination of the patient, a thorough attempt to rule out other granulomas as causative, and in addition a positive reaction to the toxoplasmin skin test is probably his best approach to making a presumptive diagnosis of toxoplasmic chorioretinitis. The decision to treat or not to treat a patient with presumptive toxoplasmosis should be made by the individual ophthalmologist and should probably be based partly on the severity of the patient's condition. It should not be begun without adequate supervision in regard to possible toxic effects from these drugs. Although there were no severe reactions to pyrimethamine and sulfadiazine in the small group of patients reported on by the authors, toxic reactions, including temporary but severe depression of the hematopoietic system, have been reported.

Epidemic Keratoconjunctivitis: Description of an Outbreak in an Institution for the Aged. J. Schneider, A. Kornzweig and M. Feldstein. Am. J. Ophth. 42:266-269 (Aug.) 1956 [Chicago].

An outbreak of epidemic keratoconjunctivitis in one of the units of the Home for the Aged and Infirm Hebrews of New York is described. It involved 16 men and women between the ages of 69 and 94 years. The clinical picture was characterized initially by a sense of irritation in the eyes, with redness and lacrimation. There was a varying degree of lid edema, chemosis, conjunctival redness, and redundancy with follicular hypertrophy. In three patients the discharge became serosanguineous, two patients had pseudomembranes with subsequent complete clearing, and one patient had true membrane formation with residual scarring of the fornices. The conjunctival phase of the disease lasted for from two to three weeks. The corneal lesions often started as diffuse, superficial, punctate staining lesions. Later round subepithelial infiltrates were observed in both the central and the peripheral cornea. Most corneal lesions cleared in about four to eight weeks. In six patients, however, corneal lesions were still present after 12 months. In most patients there was first involvement of one eye followed in a few days by symptoms in the other eye, probably related to the transfer of the infection from one eye to the other by the patients as they wiped their eyes despite repeated warnings. Special characteristics in this group were missing, except that the keratoconjunctivitis was uniformly acute, severe, and very disabling. The final vision in all patients returned to the acuity that was present before the infection.

The patients were strictly isolated and treated with 0.5% oxytetracycline (Terramycin) eye drops or 0.5% chloramphenicol (Chloromycetin) eye drops during the day, and oxytetracycline and chloramphenicol ointments were applied at bedtime. These antibiotics appeared to have no effect on the course or duration of the disease. Treatment is symptomatic and palliative. Preventive measures found useful are sterilization of tonometers by keeping the tonometer plunger in a solution of 1:5,000 benzalkonium chloride or by heat; the use of individual, boiled eyedroppers for each patient; preventing patients who are suspected of having the disease from touching arm rests, doorbells, and equipment in offices and clinics; and the surgical scrubbing of hands with a bactericidal detergent (Phisohex) by all who handle a patient suspected of having epidemic keratoconjunctivitis.

Mass Treatment of Trachoma in Nara Prefecture, Japan, 1951-1954. S. Kamiya. Am. J. Ophth. 42:269-283 (Aug.) 1956 [Chicago].

Lack of proper sanitation is the chief cause of trachoma in the Nara District in Japan, in which 6.8% of the total population belong to the lowest rank in the social order. These outcasts, most of whom have trachoma, live in isolated villages that are crowded and dirty. A four-year plan was instituted to wipe out trachoma. Between 1951 and 1954, 37 villages were chosen to test mass treatment of trachoma. A dispensary at the center of each village was open to all villagers for a period of one month. Although examinations were performed with the aid of a hand slit lamp, it was very difficult to make an exact diagnosis when the trachoma was still in its initial stages. Therefore, without exactly diagnosing trachoma, all persons who had chronic inflammatory signs of the conjunctiva were treated. An individual record card was prepared for each patient, with an evaluation of his clinical condition. Various conjunctival signs were graded by numbers. All patients were reexamined once a week and on the last day of the month; the numbers describing the conjunctival signs were recorded each time. Of 15,082 persons for whom record cards were made, 6,805 were between the ages of 1 and 15 years, 6,318 were between the ages of 16 and 54 years, and 1,959 were over 55 years of age. Of the 6,805 children, 5,129 were pupils in the primary and secondary schools; they were compelled by their schools to attend the dispensaries. Persons between the ages of 16 and 49 years had no time to attend the dispensaries regularly because of their daily work. Persons over 55 years of age did attend.

To most of the patients crystalline chlortetracycline (Aureomycin) ointment was administered once a day under the lower lid after the conjunctival sac had been washed out with 1% sodium chloride solution. The remaining patients were given oxytetracycline (Terramycin) and chloramphenicol ointment. Of 12,319 patients treated, 4,590 were cured. Three thousand seven hundred sixteen of the 12,319 patients had pretrachomatous conjunctival signs, i. e., slight redness near the inner and outer parts of the fornices, or some isolated follicles in the lower fornix; 2,744 of these 3,716 patients were cured by the treatment without having any residual traces of the disease, 937 remained unchanged, 26 became worse, and 9 were cured but left with traces of the disease. The remaining 8,603 of the 12,319 patients showed inflammatory conjunctival signs of various degree before the treatment. Some of them were cured by the treatment without residual traces of the disease, and some were cured but traces of the disease remained. The inflammatory signs of stage 2 of trachoma according to MacCallan's classification are more difficult to cure than the others. The highest incidence of trachoma stage 2 was observed in the patients between the ages of 16 and 54 years, so that it must have taken the disease 20 to 30 years to reach this stage. The traces that remained in patients who were treated for stage 2 lesions consisted merely of many fine lines. When patients with trachoma of stage 3 were cured, the traces of the disease that remained were still of a serious nature, and they appeared as irregular "islands."

Patients with pretrachomatous lesions, which are considered as stage 1 of trachoma in Japan, do not have typical trachoma but they should be treated, if efforts are being made to eliminate trachoma. Since the occurrence of trachoma depends not only on viral infection but also on unsanitary and dirty environments, both the patients and their families and the entire population of the village must be treated. Concentrated efforts to educate the people in sanitation, in addition to treating them, contributed to the remarkable results of mass treatment of trachoma.

THERAPEUTICS

A Preliminary Note on the Oral Treatment of Diabetes with N-(Sulfonyl-p-Methylbenzene) N'-n Butyl Urea or D 860 (A Product Free of Antibacterial Action). R. Moreau, R. Deuil, A. Sarrazin and others. Presse méd. 64:1261-1264 (July 7) 1956 (In French) [Paris, France].

The drug N-(sulfonyl-p-methylbenzene) N'-n butyl urea, or Tolbutamide (D 860), is the most recent among the hypoglycemia-inducing compounds orally effective in diabetic patients. In a group of 27 patients, 23 benefited from treatment by the drug. All except two were over 40 and nonemaciated. The patients were divided into two groups. The first group consisted of 14 patients who had never been given insulin. Nine of them obtained a perfect balance without any symptom of intolerance after two or more months of treatment. Three had an incomplete improvement. In the last two patients, one of whom had had diabetes for 21 years, treatment with Tolbutamide was a failure. The second group consisted of 13 patients who had previously been treated by insulin. Eight of these patients, who had received [illegible] for from two to four years, obtained a balance at least equal to and sometimes superior to that resulting from insulin therapy. Three of the cases in the second group were particularly interesting, one because of the patient's age and two because of use of very large previous insulin doses. A 16-year-old girl successfully substituted 2 gm. of Tolbutamide for 15 units of insulin. Of two women over 60 years old, one had received 40 units of insulin daily for one year and the other had received 55 units for 11 years, and both successfully substituted Tolbutamide for insulin. The last two patients (one under age 40), who tried Tolbutamide unsuccessfully, were put back on insulin therapy after 48 hours because of a considerable quantity of ketone bodies in the urine.

Tolbutamide does not possess any NH_2 group in para position in its chemical structure. It has no obvious antibacterial action. This quality is an unquestionable advantage when the drug is to be used in a prolonged fashion. Tolbutamide shows a clinically demonstrated hypoglycemia-inducing potency. It is well tolerated, as evidenced by comparative biological tests that show no subsequent hematological, hepatic, or renal disturbances. Its prolonged administration does not cause any digestive disorders or any cutaneous eruption. Average and continued dosage should be 1 gm. in the morning and 1 gm. at noon. Hospitalization is advised for changing from insulin to Tolbutamide therapy. It seems preferable to diminish insulin gradually while carefully watching for ketosis or hypoglycemia. The latter is possible through the accumulation of the two medicaments. If ketosis appears, insulin should be taken again in the usual dosage. Tolbutamide may allow insulin dosage to be reduced in young patients with recent diabetes. The type of response to the drug may allow determination of the variety of diabetes in a patient. A long-term follow-up study will be the only means of ascertaining the innocuousness of the drug and its hitherto unknown mode of action. The possibility of treating diabetes without parenteral injections is an interesting development.

Mestinon (Pyridostigmine Bromide) in Myasthenia Gravis. H. Schwarz. Canad. M. A. J. 75:98-100 (July 15) 1956 [Toronto, Canada].

Pyridostigmine bromide (Mestinon) was given to 14 patients with myasthenia gravis. The drug is about five times less toxic than neostigmine bromide, and its effect on the intestines is only half as strong as that of the latter. It is an excellent curare antidote, but its decurarizing effect is quite independent of its inhibitory effect on the cholinesterases. Pyridostigmine proved to be more effective than neostigmine in seven patients because of its superior ability to control myasthenic phenomena and the absence of side-effects after prolonged use. In two of the seven patients, abrupt withdrawal of the drug and its replacement by neostigmine produced severe gastrointestinal upset, and in two others it caused a sudden exacerbation of myasthenia that could not be controlled with increasing amounts of neostigmine. Combined treatment with pyridostigmine and neostigmine in three patients was superior to treatment with either pyridostigmine or neostigmine alone. Two patients were unchanged, and in the remaining two patients the results obtained with pyridostigmine were inferior to those obtained with neostigmine. Sixty milligrams of pyridostigmine can be safely substituted for 15 mg. of neostigmine, although in patients responding well to the former this ratio is frequently much less. The patients were studied for one year, and at no time during this period was there any evidence of parasympathomimetic stimulation or cholinergic phenomena, even when high doses of pyridostigmine were given for long periods of time. Pyridostigmine, either alone or in combination with neostigmine, is the drug of choice in most patients with myasthenia gravis, because some patients resistant to prostigmine have shown an excellent response to pyridostigmine and because the drug appears to be relative nontoxic.

Prednisone and Acetylsalicylic Acid in the Treatment of Rheumatic Affections. A. Robecchi, V. Danco and G. Marrazzi. Reumatismo 8:121-129 (May-June) 1956 (An Italian) [Turin, Italy].

Thirty patients with rheumatic affections were treated with a combination of prednisone and acetylsalicylic acid. The formula of the combination was prednisone 1 mg., acetylsalicylic acid 250 mg., ascorbic acid 50 mg., and aluminum hydroxide 200 mg. Ascorbic acid provides the vitamin C necessary in the treatment of chronic or acute rheumatism. Aluminum hydroxide prevents the gastric complications that acetylsalicylic acid or prednisone might cause. Of the 30 patients, 14 had rheumatoid fever, 6 arthrosis of the knee, 4 acute periarteritis of the shoulder, one a painful involvement of the shoulder joint, and 5 rheumatic infection. The minimal dose of prednisone able to maintain a certain clinical improvement and the erythrocyte sedimentation rate at law values was established. Treatment with the combination was started, and the dose of prednisone was cut down to one-third. The combination was given in divided doses from two to four times a day. Dietary restrictions were not imposed. Tolerance was perfect even in cases where the treatment lasted for many weeks. Some gastric disturbances were noticed at times, when very high doses were given. The results were as good as when prednisone or prednisolone are given alone. The effects were continuous; rheumatic symptoms regressed rapidly, biological tests tended toward normalization.

Cortisone in the Treatment of Some Liver Conditions. L. Andreoli. Riforma med. 70:708-712 (June 23) 1956 (In Italian) [Naples, Italy].

The author treated with cortisone five patients with various liver conditions: two had acute hepatitis, one had common cirrhosis, and two had posticteric cirrhosis. Three patients with acute hepatitis, two with common cirrhosis, and one with posticteric cirrhosis were kept as control cases and received the usual treatment without cortisone. Comparing the results obtained in the two groups, the author found that cortisone had a good general effect and a marked effect on the icterus. The regression of the icterus was speedy even in cases that could not have been cured with routine treatments. In three months' time the size of the spleen and of the liver decreased markedly. Patients did not receive any collateral treatment while they were being treated with cortisone. The use of cortisone seems particularly indicated for the treatment of acute hepatitis, especially in patients who can not be cured with common routine treatments. The next best results are obtained in patients with posticteric cirrhosis. By comparison, the effect of cortisone on common hepatitis does not seem to be pronounced. In all cases, however, the adrenal hormone succeeds in preventing progression of the condition

The Epidemiology of an Erythromycin Resistant Staphylococcus. A. F. MacCabe and J. C. Gould. Scottish M. J. 1: 223-226 (July) 1956 [Glasgow, Scotland].

The development of resistance to antibiotics is accepted by many as an inevitable outcome of their use, and so there is a tendency to anticipate and hope that some new antibiotic will be discovered in time to deal with the resistant flora left behind by the previous one. This attitude is extremely dangerous, and, in the case of erythromycin, the problem of development of resistance is very serious. In Edinburgh the use of erythromycin has been largely restricted to a few hospital centers, and the bacteriologists have discouraged its indiscriminate use. Three important maxims have been followed in the use of erythromycin: 1. It has been used in modest amounts and as an oral or parenteral preparation, almost entirely for short-term therapy. 2. it has never been used for the treatment of trivial infections. 3. It has been used with the cooperation of the bacteriologist. Despite these precautions a Micrococcus (Staphylococcus) pyogenes that was resistant to erythromycin was isolated from a third degree burn of the buttock in a 9-year-old boy (patient A), who had never before been in hospital and had never had any infection. Moreover, he had never at any time been treated with erythromycin.

The micrococcus isolated from the burn of patient A was found to be resistant to penicillin, streptomycin, aureomycin, and terramycin but sensitive to chloramphenicol, and on preliminary examination was found to be resistant to 50 mcg. per milliliter of erythromycin. No erythromycin was in use in this particular ward at this time, nor had been for the past six months; and none of the attendant staff had been treated with the antibiotic. The antibiotic sensitivity and bacteriophage susceptibility patterns of the micrococci isolated from the nose and wound of patient A were identical, and strains of the same phage pattern and antibiotic sensitivity were isolated from only one other source, namely patient B, who occupied the adjacent bed in the ward. The history of patient B revealed that he had spent several weeks in another hospital earlier in the year in a ward where erythromycin had been used, and it is likely that he acquired the erythromycin-resistant strain at that time. It was impossible to treat these patients in isolation, but great care was taken to prevent further cross infection. Patient A was treated by the systemic administration of chloramphenicol, and his wound healed rapidly without further complications. The authors emphasize the fact that in order to limit the spread of erythromycin-resistant strains patients being treated with this antibiotic should be nursed in isolation, and there should be continual vigilance to detect erythromycin-resistant variants in patients and contacts, so that the appropriate action can be taken.

RADIOLOGY

The Results of Radiotherapy of Bronchial Cancer. L. H. Garland and M. A. Sisson. Radiology 67:48-62 (July) 1956 [Syracuse N. Y.].

Eighty-one patients with bronchogenic carcinoma admitted to the San Francisco Hospital and 41 patients with bronchogenic carcinoma in private practice were treated by roentgen therapy alone. Most of the patients received about 3,000 r throughout the tumor and its known or presumed regional nodes in about four weeks. In a small number of apparently favorable cases the plan was to deliver a potentially curative dose of about 5,000 r in four or five weeks, but this was not often accomplished. The technical factors were orthovoltage (200 or 250 kv.), with filtration to give a half-value layer of from 1 to 2 mm. copper; target-skin distances of 50 to 70 cm.; and skin fields of from 10 by 10 cm. to 20 by 20 cm., often irregular in shape to conform to the primary tumor and the enlarged nodes. Multiple small fields were used for radical doses and two or four larger fields for palliative or moderate doses.

The average survival time after treatment in the 122 patients was 6.2 months, the range being from 1 to 60 months. This average survival time was about three months longer than the average in a series of untreated patients. Relief of symptoms for a period of weeks or months was obtained in approximately two-thirds of the treated patients, but marked improvement occurred in only about 20% of the patients. Results were slightly better in patients with anaplastic tumors than in those with squamous-cell growths. The response to radiotherapy, however, was not predictable on histological grounds; some of the well-differentiated squamous-cell lesions responded better than some of the anaplastic tumors. Reports of megavoltage and betatron therapy to date suggest that the results of orthovoltage therapy for bronchial cancer, with use of the technique employed by the authors, are of about the same order of effectiveness. These facts would justify making greater use of generally available orthovoltage roentgen therapy in the care and treatment of patients with inoperable bronchogenic carcinoma today. Radiotherapy in moderately heavy dosage (about 3,000 r tumor dose in four weeks or less) has a useful place in the palliative treatment of bronchogenic carcinoma. In heavy doses (about 5,000 r tumor dose in four or five weeks), radiotherapy is occasionally curative. Patients in poor general condition or with distant metastases should not be subjected to radical radiotherapy. Palliative radiotherapy, however, judiciously applied, may often be of aid in these patients.

Comparative Evaluation of Radioactive Colloidal Gold and Nitrogen Mustard in the Treatment of Serous Effusions of Neoplastic Origin. F. J. Bonte, J. P. Storaasli and A. S. Weisberger. Radiology 67:63-66 (July) 1956 [Syracuse, N. Y.].

Twenty-two patients with serous thoracic effusion from tumors originating in the breast or ovary or from other tumors and 38 patients with ascites of malignant origin were treated by intracavitary instillation of radioactive colloidal gold. Results of this method of treatment were compared with those in 30 patients with neoplastic effusion of the pleural cavity and of 10 patients with malignant ascites treated by instillation of methyl-bis (beta-chloroethyl)-amine (HN2), a nitrogen mustard. Twelve patients with peritoneal or pleural effusions from tumors originating in the breast or ovary or from other tumors were given combined therapy with radioactive colloidal gold and nitrogen mustard. Thirty-seven of the 60 patients who received radioactive colloidal gold therapy were improved and 23 were therapeutic failures. Twenty-five of the 40 patients who received nitrogen mustard therapy were improved and 15 were therapeutic failures. Nitrogen mustard directly instilled into malignant effusions thus appeared to be of the same order of effectiveness as radioactive colloidal gold. The use of nitrogen mustard has several advantages over radioactive gold. It is easier to administer, it is more generally available, it is less expensive to the patient, and it presents no irradiation hazards either to nursing personnel or to those administering the treatment. The satisfactory results obtained with nitrogen mustard in the management of serous effusions of neoplastic origin encouraged the authors to employ nitrogen mustard first and radioactive gold second as a method of attack. The number of patients who received combined therapy with radioactive colloidal gold and nitrogen mustard is too small to permit definite conclusions; it has not yet been proved that the combined form of treatment has any additional advantage. In certain cases one substance may be successful when the other has failed.

Diabetic Charcot Joints. J. G. Bolen. Radiology 67:95-98 (July) 1956 [Syracuse, N. Y.].

Two cases of neuropathic changes in the joints of the foot (Charcot joints) associated with diabetes mellitus are described in a 39-year-old woman and a 43-year-old woman. The right leg was amputated at a point 6 in. below the knee in the younger patient, and a midthigh amputation was performed in the older patient. The causation of neuropathic joint changes in the feet of patients with diabetes mellitus is unknown, but theories regarding the origin of the condition include diminution of blood supply, peripheral neuritis, and extension to bone from a soft-tissue infection. The process usually begins after several years of poorly regulated diabetes. Early signs and symptoms include relatively painless swelling of the tarsometatarsal region with gradual eversion of the foot. The disease progresses slowly to partial or complete necrosis of the tarsal bones and obliteration of their normal joint relationship as revealed by radiographic studies in the two women. No specific treatment of the joint lesions in diabetes is efficacious. A review of the literature revealed that the condition was apparently arrested by lumbar sympathectomy in two patients. Some benefit from immobilization of the foot and ankle by orthopedic appliances to prevent weight-bearing and further deformity was also reported. To obviate the extreme difficulty of regulating diabetes mellitus in the presence of a chronic infection and to relieve pain and deformity, the affected extremity is often amputated, as in the author's patients.

Splenoportography for the Diagnosis of Portal Hypertension. J. M. Falomir, M. Campuzano and B. Sepúlveda. A. M. A. Arch. Int. Med. 98:39-43 (July) 1956 [Chicago].

Percutaneous splenoportography according to Abeatici and Campi's technique was performed in 11 patients with portal hypertension associated with esophageal varices and splenomegaly. Thirty cubic centimeters of 70% iodopyracet (Diodrast) was injected by splenic puncture. No serious accidents were observed. The chief usefulness of the method lies in its ability to supply the following information: (1) confirmation of the existence of portal hypertension; (2) localization of the site of obstruction, thus helping to make possible a differential diagnosis between portal hypertension caused by intrahepatic obstruction (cirrhosis) and that caused by an extrahepatic block; and (3) demonstration of anomalies such as a fibrotic portal vein (which, in addition to being the cause of the hypertension, makes the vessel unfit for a portacaval anastomosis) or the formation of the splenic vein by two veins that go almost to the middle line, making it unfit for splenorenal anastomosis.

Hepatic Duct Carcinoma Seventeen Years After Injection of Thorium Dioxide. J. C. Roberts and K. E. Carlson. A. M. A. Arch. Path. 62:1-7 (July) 1956 [Chicago].

Thorotrast, a stabilized emulsion of thorium dioxide, has been widely used as a contrast medium for radiography. It is radioactive and is retained indefinitely in the reticuloendothelial system. Recent reports indicate that the combination of radioactivity and indefinite retention may lead to necrosis and fibrosis at injection sites, to hemopoietic disturbances, and to the formation of neoplasms. The authors present the history of a 45-year-old woman in whom carcinoma of the hepatic duct developed 17 years after intravascular injection of thorium dioxide into an extremity for demonstration of a peripheral vascular abnormality. Although no direct cause-and-effect relationship can be proved, thorium dioxide was extremely prominent in the portal lymph nodes and in the portal aspect of the liver. The presence of thorium dioxide was diagnosed before death by an abdominal roentgenogram and proved after death by spectrochemistry. Radioactivity was demonstrated by gamma-counting and autoradiographs. The estimate of the quantity of thorium dioxide retained, based on calculations of the amount found at autopsy in the liver, lymph nodes, and spleen, is in remarkable agreement with the usual dosage for peripheral vasculography.

Fatal Pulmonary Insufficiency Due to Radiation Effect upon the Lung. D. J. Stone, M. J. Schwartz and R. A. Green. Am. J. Med. 21:211-226 (Aug.) 1956 [New York].

Five men between the ages of 22 and 61 years, two with bronchial carcinoma and one each with metastatic testicular embryonal carcinoma involving a portion of the anterior segment of the right upper lobe and adjacent mediastinum, a large mediastinal mass caused by Hodgkin's disease, and mediastinal metastasis from seminoma, were given irradiation treatment. The first three patients received one irradiation course with a total depth dose of 4,100, 6,000, and 3,200 r respectively. Of the two remaining patients, one received three and the other five courses of irradiation therapy; the total depth doses administered to the first of these two patients were 4,477, 1,800, and 2,000 r, and those administered to the second patient were 2,700, 2,714, 3,135, 2,061, and 2,000 r. Radiation pneumonitis and fibrosis leading to severe pulmonary insufficiency occurred in all five patients. In the first and in the third patients the fatal syndrome occurred after 4,100 and 3,200 r respectively were given within two weeks, a relatively short period. The second patient was given the much larger dose of 6,000 r over a period of 40 days before pulmonary fibrosis occurred. One may, therefore, relate the individual development of pulmonary fibrosis to the volume of lung exposed, the total depth irradiation, and the rapidity with which this total depth irradiation is given. The occurence of cumulative effects of radiation is suggested by the observation that in the two patients who received multiple courses of irradiation therapy the previous courses were not associated with clinical manifestations, although pathological changes in the lung may have been produced, and that it was only after the multiple courses that the clinical picture of irradiation reaction developed. Correlated clinical, functional, and pathological findings indicated that impaired diffusion across the alveolar-capillary membrane played an important role in the functional abnormality in each patient. Steroid therapy with hydrocortisone, corticotropin (ACTH), prednisone, and prednisolone, utilized in four patients, failed to alter the course of the acute syndrome. The irradiation therapy given to the patients conformed to modern standard practice. This practice should now be reviewed in the light of the technical improvements that make possible delivery of more intensive irradiation to a more restricted area in depth in shorter periods, at the risk, however, of increasing irradiation fibrosis in a larger proportion of treated patients.

PHYSIOLOGY

The Pathogenesis of Sodium Retention in Congestive Heart Failure. A. C. Barger. Metabolism 5:480-489 (July) 1956 [New York].

The various stages in the progression of heart disease can be duplicated in the laboratory by the production in dogs of discrete, right-sided cardiac valvular lesions of increasing severity. These surgical operations result in alterations in cardiac function that can be graded from mild to severe and that are stable over periods of months. Recent observations in man and dog indicate that alterations in sodium metabolism occur very early in heart disease, even before a significant change in resting venous pressure. At such a stage of cardiac incompetence there is usually a fall in renal plasma flow and only occasionally a decrease in glomerular filtration rate. The findings in such patients are similar to those observed in normal persons with imposed circulatory stress and raise the question of the possible role of baroreceptors in the reflex regulation of sodium balance. Even with such minor degrees of cardiac incompetence, mild exercise further decreases the renal plasma flow, lowers the glomerular filtration rate, and is accompanied by a retention of salt and water.

As the clinical condition deteriorates and the resting venous pressure begins to rise, exercise produces an increasingly greater elevation of venous pressure. Such an acute elevation of venous pressure leads to sequestration of blood in the venous system and excessive filtration from the capillary bed. Since the lymphatics may, at this stage of the disease, be transporting fluid at a maximum rate, the increased filtration may not be accompanied by an increase in lymph return. With the elevation of pressure in the venous system during exercise, lymph return must be further impaired, resulting in a significant decrease in "effective circulating blood volume." Such fluid dislocation further enhances sodium retention. The glomerular filtration rate may still be normal, however, even when overt failure is present, with ascites and edema. Nevertheless, the retention of sodium introduced directly into the renal artery of dogs in failure is evidence for increased tubular reabsorption of sodium at this stage of the disease. It is important to the understanding of the pathogenesis of congestive heart failure to know whether the excessive secretion of aldosterone precedes the overt failure or is apparent only in the later stages of decompensation. With the progressive deterioration of the clinical condition of the patient and the development of anorexia and cachexia, profound alterations in renal hemodynamics ensue, further impairing the ability to excrete sodium and water Only with an analysis of the multiple factors that are altered in the natural progression of the disease can the relative importance of these various factors in the pathogenesis of sodium retention be determined.

A Manual Method of Artificial Respiration for the Simultaneous Resuscitation of Two Victims. A. L. Bennett, L. H Jodrey, J Christensen and M. M. Mehring. J. Appl. Physiol. 8:603-607 (May) 1956 [Washington, D. C.].

"How can one person most effectively give artificial respiration to two victims?" To answer this question the efficacy of the Holger-Nielsen method for simultaneous induction of respiration in two victims was compared with that of two standard single methods. When the Holger-Nielsen method is applied to two victims, they are placed close together in the prone position. Their adjacent arms are extended straight beyond their heads. The outer two arms are bent so that, with faces turned outward, each head may rest at the temple on the back of a hand. The operator kneels astride the two outstretched arms and close to the two heads He puts on pressure by placing a hand between the shoulder blades on each back while rocking forward on his knees. He then grasps the outer two elbows and pulls as he rocks backward. After the pull, the elbows are dropped and pressure is again applied to complete the cycle, which is repeated 12 times a minute Forty volunteers were tested for use as subjects. Not all subjects proved able to permit entirely passive respiration. Such subjects were eliminated in preliminary tests. A total pressure of 40 lb per subject was used. An audible time signal at 5-second intervals made it possible for the operator to maintain a uniform rate of 12 cpm for each method tested. Oxygen consumption of the operator was measured and his tidal exchange recorded by having him breathe in a closed system.

The results obtained on selected subjects were shown to be valid in terms of a comparison with tests made by others on unconscious subjects. The Holger-Nielsen method was found to be 96% more efficient than the Schafer method in terms of tidal volume exchanged, while it required 18% more effort in terms of maximum rate of oxygen consumption during work. The double Holger-Nielsen method, compared with the Schafer method in the same way, was 74% more efficient at a cost of 64% more work. The double method is so nearly equal to the single Holger-Nielsen method in its effect on tidal exchange that in case there were two operators available for the resuscitation of two victims there would be justification for the use of the double method to allow periodic relief of the operators and, more important, the freedom of one to keep airways open and to seek help.

BOOK REVIEWS

Progress in Neurobiology: I. Neurochemistry. Edited by Saul R. Korey, M.D., Professor of Neurology, Albert Einstein College of Medicine of Yeshiva University, New York, and John I. Nurnberger, M.D., Research Associate, Institute of Living, Hartford, Conn. With 23 contributors. Cloth. $6.75. Pp. 244, with 29 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1956.

This work is the first of a series of three projected volumes on neurobiology, a relatively new field of study that is advancing with ever-increasing impetus and accumulating a great variety of facts at nearly all levels of instrumental observation. The aid of practically every modern scientific device or technique of biological investigation is being sought to elucidate the biochemical and biophysical processes of the brain. This book attempts to present as up-to-the-minute a review as possible of the many-sided investigations in neurochemistry, including current work in the laboratories of the various contributors. This adds a sense of immediacy and tentativeness that is so often lacking in review articles, which sometimes give a false impression of established fact. Another aim of the series is to bring together the work of these investigators in the hope that a pooling of their ideas will result in fruitful concepts based on the evolvement of speculations spawned by the processes of correlation and interrelationship. And it is precisely here that the weakest link in this field exists. The range of the papers is wide—from enzymatic thioltransacetylations to the structure of ribonucleic acid, from cerebral copper proteins to adaptive enzyme formation, and from chemical changes in the postnatal development of the rat brain to the neurochemistry of seizures.

The reader may feel at times that he is in the midst of a scientific free-for-all. Aside from the fact that this is generally the case when spadework is being done in a new field, it is in part also due to the inclusion of papers that might properly belong elsewhere. For example, a paper on the electron microscopic studies of the neuron more properly belongs in a volume on the ultramicroscopic morphology and cytochemistry of the nervous system. On the whole the reviews fulfill their aim in keeping the reader abreast of this expanding field, and, therefore, this book admirably serves a vital function. It is a sad commentary on the state of our specialization in the biological sciences to note that practically all the investigators are either biochemists or neurologists, with no representation by those whose daily work consists of the study of the mind. It is exactly this cleavage that precludes the formation of integrated concepts spanning from the chemical through the symbolic and behavioral spheres, which would provide for the selection of foci of investigation and experimental design that would give depth to the understanding of mental functioning. Despite the general recognition of this incongruity, the lines remain sharply drawn between those who explore the chemistry of the brain and those who study psychology.

The Nature of Viruses and the Origin of Life. By Hideo Moriyama. Cloth. $7. Pp. 454, with 40 illustrations. Shonan Hygiene Institute, Kamakura; sole agency: Igaku-Shoin Company, Ltd., 20, Hongo-6, Bunkyo-ku, Tokyo, Japan, 1955.

The author's purpose is to expound a theory by which all the life phenomena might be explained most simply. His theory is founded on the numerous facts that he claims to have discovered and has been advanced by the "researches carried out by other workers." He lists 654 references, including about 30 to his own publications, few of which are less than 15 years old. There is no indication in the book or on its jacket as to the author's academic qualifications or background. The book is arranged in five parts, with a long summary and a list of references at the end of each. Some of the chapter headings are The Key to Solving the Riddle of Life, The Infection of Denaturation, Propagation of Transnaturation in Protoplasm by Viruses, Eczema or Allergic Dermatitis, The Origin of Sexual Reproduction, The Theory of Memory, and The Faculty of Protein to Memorize Its Structure. The author's interests include entomology, blood clotting and hemolysis, virology, genetics, bacteriology, oncology, epidemiology, endocrinology, chemistry, physiology, and cortisone therapy. These indicate the range of subjects dealt with to solve the riddle of life.

Many of the author's opinions, observations, and statements are questionable or confusing. Examples of such are statements that sapotoxin injected intradermally gave rise to virus particles (p. 8), and similar particles were found in erythrocytes (p. 82) and crushed castor beans (p. 226); bacteriophage in chicken feces originates in the chicken itself (p. 129); and protein denaturation is generally infectious. He states that viruses and life in general originated in the primordial ocean ooze that contained globulin-like protein; this protein united with precipitated lipids to form elementary bodies and protoplasm endowed with assimilase. Evidently the author had spontaneous generation in mind. Many statements are eyebrow raisers: "Mankind seems to have begun to make a dash at the fate of extermination—because of rapidly developing orthogenesis" (p. 427). "The tubercle bacillus is an inheritable pattern of the gene in the majority of human beings" (p. 278). "Life may be nothing but the manifestation of the function of assimilase" (p. 286). The book shows how an author can review vast fields of science, select the matter he wants, add a few personal observations, and weave facts and notions into a hypothesis. There are numerous tables, well-drawn charts and diagrams, and a few unclear photomicrographs. At times, sentences must be reread because of numerous misspellings and minor lapses of English, for which the author apologizes in the preface.

Outline of Orthopaedics. By John Crawford Adams, M.D., F.R.C.S., Consultant Orthopaedic Surgeon, St. Mary's Hospital, London, England. Cloth. $7. Pp. 423, with 299 illustrations, Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, Ltd., 16 and 17 Teviot Pl., Edinburgh 1, Scotland, 1956.

This is one of several condensed textbooks on orthopedics published in the last two to three years; each new book seems to be a definite improvement on the previous one. This book is compact, and the descriptions of the various orthopedic disabilities, though brief, are adequate. Discussions of treatment are minimized. In a book of this type that is a good thing, because treatment may be so varied, so expensive, or so debatable that discussion of it would take up many pages. The author gives his views on treatment briefly, and, if the reader is interested, he may look up the details elsewhere. The arrangement of material is excellent, particularly the part on the descriptions of regions. The author takes up the cause, pathological changes, clinical features, course, prognosis, and treatment of each condition described. The roentgenographic reproductions are uniformly good, and the line drawings ably illustrate the various conditions dealt with. The size of the book makes it easy to handle, and the printing is large enough to be easily read. This book can be recommended to medical students, interns, and residents. It would also be an excellent book for the orthopedist to have on his desk, because the line drawings would help him to explain to patients or their parents the underlying condition of the ailment they have.

A Clinical, Pathological, and Genetic Study of Multiple Neurofibromatosis. By Frank W. Crowe, M.D., William J. Schull, Ph.D., and James V. Neel, M.D., Ph.D. Publication number 281, American Lecture Series, monograph in Bannerstone Division of American Lectures in Dermatology. Edited by Arthur C. Curtis, M.D., Chairman, Department of Dermatology and Syphilology, University of Michigan, Ann Arbor. This study was supported by Contract AT (11-1)-70 from United States Atomic Energy Commission. Cloth. $5. Pp. 181, with 15 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

This monograph on neurofibromatosis from the Hereditary Clinic of the Institute of Human Biology, University of Michigan, was written by a dermatologist in collaboration with two geneticists. It presents the conclusions reached by a study undertaken in an effort to develop a representative picture of the clinical and genetic aspects of a relatively rare disease with protean manifestations. The material on which the monograph is based consists of 227 patients seen at the University of Michigan Hospital during the years 1934 to 1950. For the purposes of this study the patients were interviewed by a trained field worker and a tentative pedigree was drawn up as a basis for planning physician contacts with other members of the family. Affected persons were given a complete cutaneous examination, and a detailed medical and personal history was obtained. Whenever feasible, the patients and as many members of the family as possible were brought to the hospital for more thorough study, including roentgenologic surveys, psychometric examinations, consultations with members of other departments, and diagnostic biopsies. The presentation of the case material is made in a clear and concise manner. The discussion of the cutaneous, osseous, and genetic aspects is especially good. There are a number of excellent illustrations of the pigmented cutaneous lesions, cutaneous tumors, and bone lesions. In addition, there are figures and tables that give a thorough analysis of the genetic factors. There is a brief but adequate bibliography and an index. The book is authoritative and clearly written and covers the subject well. It is worth the study of all physicians and should be in the library of every dermatologist, roentgenologist, neurologist, and geneticist.

Cerebral Palsy: Advances in Understanding and Care. By Viola E. Cardwell, R.N., P.T., M.A. Cloth. $5. Pp. 625, with 81 illustrations. Association for Aid of Crippled Children, 315 East 46th St., New York 17, 1956.

There has long been a need for an authoritative textbook in the field of cerebral palsy. Because so many specialties, including pediatrics, neurology, physical medicine, orthopedics, ophthalmology, and psychiatry, as well as such ancillary specialties as speech, psychology, and education, are involved, no single person is qualified to cover the entire subject. The present volume has successfully brought together many opinions, observations, and suggestions on the diagnosis of cerebral palsy and the management of children with the disease. In this respect, the book is up-to-date and comprehensive. It is divided into three sections: one dealing with the general aspects of the problem, particularly the diagnostic facets; one with the treatment and management of the individual patient; and one with the community aspects of the disease. The appendixes are valuable, giving the sources of supply of specialized equipment, lists of organizations interested in the problem, and an extensive bibliography. The text is illustrated with pictures clearly showing various types of equipment and their use. The author has maintained an objective viewpoint in compiling materials from various sources, but, because the book is a compilation, it falls short of the goal of evaluating the various types of treatment described. As might be expected, it contains conflicting statements, thus reflecting its varied sources. Although not suitable as a textbook, it is, nevertheless, a valuable source book, and it should be especially useful for educators, nurses, physical and occupational therapy students, and professional nonmedical workers in the field of cerebral palsy.

Biochemistry of the Eye. By Antoinette Pirie, M.A., Ph.D., and Ruth Van Heyningen, M.A., D.Phil. Cloth. $7. Pp. 323, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

The purpose of the book is to encourage the use of the tissues of the eye in experimental biochemistry, so that the knowledge of the normal and abnormal eye may be enhanced. The volume is divided into 10 chapters, the first 4 of which are concerned with the lens, the tissue that has been more thoroughly investigated than any other tissue of the eye. Three of these four chapters discuss the composition of the lens, its metabolism, and the transport of substances into it; the other is on experimental and senile cataracts. Several chapters treat the composition and metabolism of the cornea, retina, aqueous humour and ciliary body, and vitreous humour and the chemical aspects of vision. A final chapter discusses the effects on the eye of nutritional deficiences. The book should be of interest to ophthalmologists and biochemists who have done work on the eye or who contemplate going into the field. This relatively small volume is not intended to be a complete treatise on the eye or even to include all that is known on the biochemical processes of the eye. It does include, however, most of the fruitful work that has been done on ocular biochemistry and indicates the large amount of work still to be done. The volume contains an index and a bibliography at the end of each chapter.

Gynecologic Cancer. By James A. Corscaden, Ph.B., M.D., Attending Gynecologist, Sloane Hospital for Women, New York. Second edition. Cloth. $10. Pp. 546, with 116 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1956.

This second edition is essentially a reference book written from the point of view of a clinician and stressing the author's personal conclusions. It presents well the American attitude toward the problems of pelvic cancer in women and reviews the English-language literature dealing with them. Cervical tumors and endometrial cancers are exhaustively discussed, but some of the rarer tumors, such as chorioepithelioma and vulvar tumors, are incompletely described. This is probably the best summary in the American literature of the clinical problems of gynecologic malignant disease, but it lacks an authoritative histological approach. In fact, the author deprecates pathologists in general and states that one must know his pathologist to interpret reports. The details of the problems that the pathologist must face are given scant attention. It is, however, primarily a clinician's report and as such carries the unquestioned authority of the author. The book is well printed on glossy paper and has good illustrations and an adequate index. The references to the literature at the end of each chapter are useful but are largely from English-language sources and refer mostly to clinical reports. This is an excellent book for the clinician, and its wide use should add much to the efficiency of care given to women with pelvic cancer.

Galen on Anatomical Procedures: De Anatomicis Administrationibus. Translation of surviving books with introduction and notes by Charles Singer. Publications of Wellcome Historical Medical Museum, new series, no. 7. Cloth. $8.75, 37s.6d. Pp. 289. Published for Wellcome Medical Museum by Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, England, 1956.

A classic in medical history is here made available in remarkably interesting form. It is a classic in the sense that it can be depended on to furnish instruction, pleasure, and occasional surprises to future generations as it has to past generations. It contains some vivid accounts of the successes and failures of surgeons between 129 and 198 A. D. It also contains details of fundamental experiments in the physiology of such structures as the phrenic nerves and the diaphragm as well as the results of innumerable dissections, especially of apes. An unusual feature of this edition is the set of illustrations by Kopel on the anatomy of the rhesus money; these facilitate the understanding of Galen's text. Except for his rather personal and belligerent manner, Galen sounds quite modern. His odd mixture of boastfulness and reticence suggests that the problems of anatomists and physiologists in his time were much like those of their modern counterparts. The notes and index are excellent. The book is recommended.

World Atlas of Epidemic Diseases: Second Part in 4 Issues: Second-Fourth Issues. Edited under sponsorship of Heidelberg Akademie der Wissenschaften, by Professor Dr. med. Ernst Rodenwaldt. Assistant scientific editor, Privatdozent Dr. med. habil. Helmut J. Jusatz. In collaboration with Prof. Dr. R. E. Bader, and others. [In German and in English.] Paper, loose-leaf. Various pagination, with 10 maps, 9 maps, 11 maps. Falk-Verlag, Burchardstrasse 8, Hamburg 1, Germany, 1954-1956.

The publication of this monumental work, started in 1954, has been completed. Part 1 and the first issue of part 2 (published in four issues) have already been reviewed in THE JOURNAL (May 9, 1953, page 197, and Feb. 19, 1955, page 690). The maps and text of part 2 were not issued in sequence, but, since they are perforated for inclusion in a loose-leaf binder and since the pages are numbered, they can now be assembled in the order in which they appear in the table of contents. Those who have the earlier issues should be pleased to be able to complete their collection. It is hoped that the loose-leaf format means that as certain maps become obsolete with improvements in methods of disease prevention they will be brought up-to-date and made available as replacements.

QUERIES AND MINOR NOTES

DOG BITES

To the Editor:—*What are the responsibilities of the physician, local authorities, and family in regard to dog bites when (1) the dog is a friendly neighbor's and (2) the dog is unknown and has disappeared? Is the physician obligated to give the rabies vaccine series if the dog is not found? If it was decided by the physician that the unknown dog was not rabid and/or the bite was only an abrasion and later the person died of rabies, is the physician liable? Is the mortality and morbidity from the vaccine significant enough to act as a deterrent when the dog cannot be found?*

William G. Thomas, M.D., Sycamore, Ill.

Answer.—Rabies control laws differ in the various states and cities. Whether the dog is owned by a friendly neighbor or by a stranger, the law should be adhered to strictly. Most rabies laws include the statement that it is unlawful for any person having knowledge that a person has been bitten by a dog to refuse to report such an occurrence promptly to the rabies inspector and/or local health authority. This obligation is equally binding on the physician, the family, and the local authorities. The physician must decide on the basis of the history and clinical findings, as well as his own judgment, whether to administer rabies vaccine. If the dog is not found and if the bite has penetrated the skin, the physician should administer antirabies vaccine unless there is some very unusual circumstance involved. A physician's liability for malpractice is very difficult to define, since there may be many extenuating circumstances in addition to the physician's own judgment of a case. Neurological complications after administration of antirabies vaccine occur in a ratio of from 1 to 2,000, to 1 to 7,000 (International Rabies Conference, Paris, 1927; Appelbaum and others: *J. A. M. A.* 151:188 [Jan. 17] 1953; Transcript of Proceedings, Oklahoma Academy of General Practice, Oklahoma City, Feb. 18, 1953, p. 34). Therefore the appearance of neurological complications is not sufficiently frequent to act as a deterrent in the administration of rabies vaccine.

POLLEN AND ROOM AIR CONDITIONERS

To the Editor:—*Is there any scientific evidence for the claims that a room air conditioner can effectively filtrate pollens?*

M.D., Massachusetts.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Many tests have been run with room air conditioners. Three general types are available, a room window filter, a combined filter with cooler, and the precipitator or the combined filter-precipitator type. All of them remove pollen from the air to a greater or lesser extent, the precipitator type being the most efficient. The question of effectiveness is relative. Patients with hay fever whose symptoms improve when exposed to half the normal amount of pollen will improve with the least efficient of the filters. Those who are extremely sensitive may respond only to the most efficient apparatus. The relief will also depend on the habits of the individual and on the amount of time spent in the conditioned room. Those who have pollen asthma do not have as good a response as those who have nasal symptoms only.

Answer.—Conventional room air conditioners, equipped with fibrous filters, will remove only the larger pollens from the air. Special cloth filters, or electronic precipitators, must be used to remove all but the smallest pollens for the treatment of pollen asthma. Millipore filters will remove all pollens, but require too much power to force the air through.

ASTHMA COMPLICATING MYOCARDIAL INFARCTION

To the Editor:—*A 67-year-old man had, as his chief complaint, severe dyspnea. He had been treated by another physician for asthma, which had its onset about six months ago. The treatment used is not known. The patient was having most difficulty in the expiratory phase of respiration and was coughing intermittently, with the production of thick greyish sputum; there were no specific complaints referable to the gastrointestinal, genitourinary, or nervous systems. He did complain of a peculiar sensation substernally. He was fairly well developed, fairly well nourished, and of small stature, and he appeared to be acutely ill. Pulse rate was 120 per minute, equal and regular. Blood pressure of the left arm, propped position, was 92/70 mm. Hg. Cyanosis of the lips was present. The neck veins were not distended in the propped position. There was a marked increase in the anterior-posterior diameter of the chest. Percussion and palpation were nondiagnostic. Auscultation revealed predominantly expiratory dry musical rales throughout, and it was felt that severe bronchospasm was present. There were no crepitant rales. Sinus tachycardia was present. No peripheral edema was present. An electrocardiogram showed an extensive myocardial infarction of the anterior wall. The diagnosis was (1) bronchial asthma, severe, intractable, and (2) myocardial infarction, acute. The asthma did not respond to bronchodilators, expectorants, sedation, and oxygen. Please answer the following questions: 1. Should corticotropin (ACTH) and the corticosteroids be used as therapy for the intractable asthma, or are these contraindicated in view of the extensive myocardial infarction? 2. Since it was felt that the patient would die of anoxia unless the bronchospasm were relieved, the therapy of the asthma was extremely important. If the steroids are contraindicated, what therapy should be used? 3. If steroids are used, should anticoagulants be used also as part of the treatment of the myocardial infarction, or should they be withheld because of the already altered clotting mechanism, as a result of the steroids?*

M.D., Illinois.

Answer.—In a patient whose myocardium is seriously damaged by infarction, severe diffuse airway obstruction (due to edema, secretions, or bronchospasm) may well be lethal, because of the resultant marked increase in the muscular work of breathing, hypoxia, and possible hypercapnia. Hypoxia not only may lead to an increase in the extent of the infarction but also may predispose to dangerous arrhythmias, such as ventricular tachycardia or ventricular fibrillation. The use of corticotropin or the corticosteroids is definitely indicated to relieve the diffuse airway obstruction, particularly if other therapy is found not to be immediately effective. However, these other measures should not be discontinued when corticotropin or corticosteroid therapy is initiated. Thus, antibiotics, bronchodilators, and sputum liquifiers should be administered by the appropriate routes. Oxygen therapy is essential in such a patient. However, if this patient has had chronic diffuse obstructive emphysema of long standing, with carbon dioxide retention, there is a danger of depression of respiration by the administration of high concentrations of oxygen, since the respiratory center in such a patient is relatively unresponsive to either increased partial pressure of carbon dioxide or increased hydrogen ion concentration in the arterial blood. Nevertheless, oxygen should still be given, but in lower concentrations, intermittently, well humidified, and while the patient is under constant observation by a physician. Control of the oxygen therapy will depend on its observed effect on the frequency and depth of respiration, the clinical appearance of the patient, and, whenever possible, blood gas determinations. Peptic ulcer (gastric or duodenal) occurs much more frequently in patients with chronic diffuse obstructive emphysema than in the general population. It may be present in the absence of symptoms. For this reason, the prescription of an ulcer regimen (diet and antacids) will be advisable if corticotropin or corticosteroids are used. Because of the increased incidence of peptic ulcer in these patients, the use of anticoagulants will perhaps be

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

associated with a slightly greater risk than in a patient without chronic obstructive emphysema. However, if the indication for their use is present, they may be given if daily prothrombin determinations are available. The selection of antibiotics and the control of the bronchopulmonary infection, which are especially important if corticotropin or corticosteroids are used, will depend on bacteriological studies of the sputum. Salt restriction and the administration of potassium will depend on the type of steroid employed and the duration of its administration.

SEBORRHEIC DERMATITIS

To the Editor:—*I frequently see cases of bilateral axillary dermatitis, usually negative for evidence of fungi. There is usually no other area of dermatitis on the body. Deodorants, of course, have been excluded, as well as soaps. I presume that the usual diagnosis is seborrheic dermatitis. At least 60 to 75% of these people are rather nervous. What is the usual treatment for this condition?* M.D., Alabama.

Answer.—The treatment must be appropriate to the diagnosis. The axillary spaces are not uncommon sites for seborrheic dermatitis, but usually other favored parts are involved first or concomitantly, such as scalp, retroauricular and nasolabial folds, eyebrows, and sternum. Other folds, too, may be involved, such as the inguinal and in the umbilicus. If none of these other parts is affected, then it might be well to consider other diagnoses. Dermatitis venenata from rubber dress shields, materials used by tailors in building up the armholes of coats, and toilet waters should be considered. Erythrasma is a fungous infection imparting a reddish appearance to the armpits. The causative organism, the Actinomyces minutissimus (Microsporon minutissimum), cannot be cultured and is difficult to demonstrate.

If the correct diagnosis is seborrheic dermatitis, then 3 to 5% sulfur and 2 to 3% salicylic acid in a water-washable base make a reliable remedy. In some cases antibiotic creams with bacitracin and neomycin are more effective. Monilial infections, so common in folds, may yield to nystatin ointment or lotion. A fresh effort should be made to uncover a cryptogenic cause of a possible dermatitis venenata and do away with it if found.

MULTIPLE-DOSE VIALS OF MEDICINES

To the Editor:—*How long should one attempt to use multiple-dose vials of medicines? We use Demerol and morphine rarely, and yet we have 25-or-30-cc. vials of these drugs, which were in stock before I came here. We also have large vials of procaine. These would last three or four years if we were to use them all. How should we dispose of narcotic preparations of this sort if it should be necessary?* M.D., Ohio.

Answer.—The chief objection to the use of large multiple-dose vials of various medicines is the possibility of contamination from repeated withdrawals of individual doses or from failure of the seals. For this reason, large vials are not desirable in a situation in which small doses are withdrawn infrequently. It is recommended that the large vials be disposed of and replaced with hypodermic tablets or with small single-dose ampuls. The morphine and Demerol solutions could be disposed of by shipping them to the federal district narcotic supervisor. For details of this procedure consult Article 196, Regulations no. 5, issued by the U. S. Treasury Department, Bureau of Narcotics. This procedure is not required in the case of procaine, which does not come under the federal narcotic law. The Ohio state narcotic law should also be consulted.

BOXING

To the Editor:—*In Queries and Minor Notes, in the June 23, 1956, issue of* The Journal, *page 770, the question is raised whether a list is available "of physical standards recommended for individuals who participate in boxing matches." The consultant answered, in effect, that the usual medical requirements are general in nature and that details are left to the examiner. He concedes that a person who has no vision in one eye should not be allowed to box because his ability to defend himself would be impaired and also because of the possibility of loss of vision in the remaining eye. I take a more radical view. Boshoff and I, in an article "Boxing Injuries of the Eyes"* (A. M. A. Arch. Ophth. *39:643-644 [Ma 1948) presented case histories of boxers previously healt who suffered tears in the iris, with hyphema, cyclodialysis traumatic choroiditis followed by detachment of the retina, choroidal tears near the fundus, extensive hemorrhages in th vitreous body, widespread macular changes, and rupture o the lamina elastica posterior (Descemet's membrane), resul ing in keratoconus and corneal scarring. Doggart (Impact of Boxing on Visual Apparatus, A. M. A. Arch Ophth 54:161 169 [Aug.] 1955) has corroborated these findings Non these injuries are accidental in the strict sense of the term They were deliberately produced, since blows to the face ar the prescribed means used in boxing. That these blows d not always succeed in causing damage to the eyes or, m frequently still, to the brain is irrelevant for the evaluation o the nature of these injuries. Recent neurological and electr encephalographic surveys have disproved the assertion th clinical and electroencephalographic abnormalities due to b ing are infrequent. Undoubtedly, the same statement hold good for injuries to the eyes. Thus, "the possibility of loss vision," which the consultant mentions as a reason to debar person from participating in boxing if he is blind in one ey must be considered a danger to everybody who exposes him self to the vicissitudes of a fight whether he has suffered previous eye injury or not. The fact that no list is availabl of medical standards recommended for participants in boxin cannot absolve physicians from their responsibility when the are called on to advise patients in connection with boxin The medical view must be that boxing is taboo, since it i the aim in this "sport" to assault the opponent and to disabl him by inflicting serious injury. It is this fact that distin guishes boxing from such activities as track and field sport tennis, swimming, games, weight-lifting, and gymnastics former British cabinet minister, Edith Summerskill, has give an excellent review of the problem in its medical, social, an ethical aspects in a book that has just come off the press (Th Ignoble Art, London, William Heinemann, Ltd., 1956)*

Ernst Jokl, M.D.
Kentucky Rehabilitation Center, Inc
University of Kentucky
Lexington, Ky.

SENSITIVITY TO RUBBER GLOVES

To the Editor:—*In the June 30, 1956, issue of* The Journa *page 931, there is a query concerning sensitivity to rubb gloves. I have a similar allergy and wish to pass on som information that may possibly be of help. 1 Neopren gloves or any other nonallergic gloves, when autoclave along with other rubber or latex gloves or materials, wi gradually assume their allergic properties. These gloves mu be autoclaved separately. 2. Neoprene does seem to becom more flexible, and possibly thinner, after frequent autoclav ing. 3. The B. F. Goodrich Company, Akron, Ohio, puts ou "special purpose" nonallergic gloves that answer the allerg problem but are extremely thin and tear easily They las through one or two operations. Gloves should be autoclave separately in order to maintain their nonallergic properties*

Louis Iozzi, M D
407 E. Ninth St
Chester, Pa

INFECTIONS DUE TO MIMA ORGANISMS

To the Editor:—*In* The Journal, *March 31, 1956, page 118 in Queries and Minor Notes, a doctor from Connecticut ask whether the pathogenicity of Mima organisms has been lim ited to causing vaginitis and conjunctivitis. An article by Townsend, Hersey, and me in the May, 1954, issue of th* United States Armed Forces Medical Journal (5:673) o *this subject may be of some general interest as we reported two cases of infection with Mima polymorpha as a causative agent in epidemic cerebral meningitis (Waterhouse-Friderich sen syndrome), one with autopsy findings and one with recovery.*

F. W. Wilson, M D
2229 Cross Lane
Orange, Texas

« Washington News »

Hearings Planned on U. S. Medical Education • •
National Library of Medicine Established • •
Porterfield Named Assistant to Burney • •
3,300 Mentally Handicapped Placed on Jobs • •

HEARINGS ON MEDICAL EDUCATION

The staff of the House Interstate and Foreign Commerce Committee is getting ready for a series of panel-type hearings on medical education problems. Tentatively set for December, the sessions will follow the style of the Salk vaccine hearings of last year and the general health hearings of the 83rd Congress. In these, men prominent in various fields appeared as panelists to discuss problems. Plans for the new hearings call for testimony from authorities in medical education, plus representatives of groups utilizing the services of doctors, such as the Defense Department, the Veterans Administration, private hospitals, mental institutions, and state and local health agencies.

Prior to adjournment, the committee authorized a fact-finding survey in anticipation of legislative action in the next Congress. The first step in this was requesting numerous organizations to submit data bearing on medical education. The next step is the projected panel sessions. Information from these two would serve as the basis for legislative proposals in the 85th Congress, which convenes Jan. 3.

The committee has indicated its interest in two major aspects of medical education: the financial needs of medical schools and the supply and demand for medical school applicants and physicians. In this connection, both political parties have pledged some action in medical education, and President Eisenhower has urged added funds for building more medical schools.

ARMED FORCES LIBRARY TRANSFERRED TO PUBLIC HEALTH SERVICE

The National Library of Medicine now is officially in existence. It was created by transfer of the Armed Forces Medical Library to the Public Health Service (Department of Health, Education, and Welfare), which will be responsible for development and operation of the new institution. Dr. E. H. Cushing, deputy assistant secretary of health and medical affairs in the Department of Defense, officially transferred the books and records to the PHS. Receiving the property at a ceremony at the Armed Forces Medical Library was Dr. L. T. Coggeshall, special assistant for health and medical affairs of HEW, who represented Secretary Folsom.

After the ceremony, Col. Frank B. Rogers took representatives of HEW and the PHS on a tour of the library building and facilities. Colonel Rogers, head of the military library, will be first director of the new National Library of Medicine. The military library was founded more than a century ago by the Army. Today it is one of the largest and most important medical libraries in the world, containing almost a million volumes that represent literature in all languages on medicine, dentistry, pharmacy, and allied sciences.

A board of regents will assist Colonel Rogers in administering the library. It will consist of 10 persons appointed by the President, with ex officio members including the surgeons general of the Public Health Service and the three armed services and the chief medical director of the Veterans Administration, the librarian of Congress, and the assistant director for biological and medical sciences of the National Science Foundation. At its last session Congress authorized the transfer, and also the construction of adequate facilities on a site to be selected by the board of regents.

NEW POSITION—ASSISTANT TO SURGEON GENERAL

Dr. John D. Porterfield, head of the Ohio department of mental hygiene and correction, has been named to the newly created post of assistant to the surgeon general of the U. S. Public Health Service. A career PHS officer, Dr. Porterfield has been assigned to the Ohio health department for the last nine years. Similarly, his superior, Surgeon General Burney, had been assigned to the Indiana health department as commissioner for a number of years prior to his recall to Washington two years ago.

In announcing the new post and Dr. Porterfield's appointment, Dr. Burney said Dr. Porterfield would "help us greatly in guiding the development of new programs while maintaining a balance of present programs to keep in step with the constantly changing situations and new developments in the health fields. His broad and varied experience in public health administration makes him a valuable addition to the Surgeon General's staff." While in the PHS Dr. Porterfield was stationed in San Francisco; Lexington, Ky.; Fort Worth, Texas; Chicago; and Puerto Rico. At the National Institutes of Health he had a part in the early development of the research grants program.

From the Washington Office of the American Medical Association.

MENTALLY HANDICAPPED PLACED ON JOBS

The U. S. Office of Vocational Education estimates that about 3,300 persons with mental handicaps were placed on jobs through joint federal-state rehabilitation efforts in the year ending last July 1. The total represents an increase of about 12% over the figure for the previous fiscal year. Placements included about 2,700 who had been mentally ill and 600 who are mentally retarded. They are among the 66,273 disabled who were restored to productive occupations through public rehabilitation during the period.

Many of those listed in the total, the office says, also received help from other public and private nonprofit groups operating rehabilitation projects financed in part from federal funds. Last year the OVR awarded $3,200,000 in support of 245 public and nonprofit rehabilitation projects, in addition to 30 million dollars granted for basic support of state rehabilitation agency work.

MANAGEMENT OF MASS CASUALTIES

The first course to be offered nurses on the medical management of mass casualties was conducted in late September by the Walter Reed Army Institute of Research, Washington, D. C., in association with the Catholic University of America. Attending the two-week session were Army Nurse Corps and reserve officers, Army Medical Specialist Corps officers, and civilian nursing leaders. It was under the direction of Major Harriet H. Werley, coordinator of nursing activities at the institute and consultant on atomic casualties. Among civilian leaders taking part in the program were Dr. Harold C. Lueth, Chairman of the Committee on Civil Defense of the American Medical Association and the Committee on Disaster Planning for the American Hospital Association. He talked on what the A. M. A. and AHA are doing to guide and assist the professions in preparing for disaster.

MEETING OF SOCIETY FOR CRIPPLED CHILDREN AND ADULTS

Total rehabilitation leading toward independence for the crippled will be emphasized at the 1956 annual convention of the National Society for Crippled Children and Adults to be held in Washington, D. C., in late October. Top authorities from both voluntary and governmental organizations concerned with the crippled will join in seminar discussions on the theme "Rehabilitation—Gateway to Freedom." A panel discussion, "Health, Education, and Welfare Speak—Partnership in Rehabilitation," will be under the chairmanship of Dr. Elmer Hess, immediate past-president of the American Medical Association. Participants in the panel will be Dr. Leroy E. Burney, surgeon general, Public Health Service; Dr. Martha Eliot, chief, U. S. Children's Bureau; Dr. Romaine Mackie, chief of services for exceptional children and youth; and Mary Switzer, director, U. S. Office of Vocational Rehabilitation.

PERSONNEL

Lieut. Col. Hall B. Jennings Jr. has been named as the new chief of the plastic surgery service at the Walter Reed Army Hospital. Previously he held a like position at the Brooke Army Hospital in Texas. . . . Brig. Gen. William L. Wilson has retired after 30 years of active service in the Army Medical Corps. He was commanding general of Madigan Army Hospital, Tacoma, Wash. . . . Commenting on the resignation of Bradshaw Mintener as Assistant Secretary of the Department of Health, Education, and Welfare, Secretary Folsom commended him particularly for his "sound advice" on Food and Drug Administration problems. He said Mr. Mintener had been "instrumental in laying a proper foundation for a greatly needed expansion" in FDA activities.

MISCELLANY

Irvin Stewart, president of West Virginia University, headed the United States delegation to the recent European Research Symposium in Vienna, Austria. The theme of the symposium, sponsored by the Organization for European Economic Cooperation, was scientific personnel and applied research. Dr. Stewart served as deputy director of the Office of Scientific Research and Development during World War II. . . . Investigation of the outbreak of typhoid among persons at a church convention in Missouri is continuing. Seventeen cases have been confirmed. A probable cause of the outbreak, according to U. S. Public Health Service, is contamination of a well by seepage from a toilet drainage system. . . . The Food and Drug Administration has seized four lots of drugs for adulteration or misbranding and one lot that had not been cleared for safety. Six hundred tons of food unfit for consumption were also seized.

Subacute Thyroiditis.—Cortisone produces immediate relief of the signs and symptoms of subacute thyroiditis but, as in the therapy of all other diseases so far reported, merely suppresses the manifestations of disease. In severe cases the side-effects and dangers of long-term therapy may outweigh the clinical benefit obtained. Since x-ray therapy continues to have a curative effect in a high percentage of cases without side-effects or relapses, it should be considered superior to cortisone alone. In severe cases, combined therapy with cortisone and x-ray is worthy of further trial. Cortisone should be used for its immediate effect if no contraindications exist, x-ray therapy being started simultaneously. In the cortisone-treated cases appearing in the literature, in spite of a majority of favorable reports, it was noted that the follow-up periods were often short, and numerous recurrences were seen.—Lawrence Taylor, M.D., Cortisone Versus X-Ray in the Treatment of Subacute Thyroiditis: A Report of Four Cases, *Annals of Internal Medicine*, June, 1956.

THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 7 — *CHICAGO, ILLINOIS* — OCTOBER 13, 1956

COPYRIGHT, 1956, BY AMERICAN MEDICAL ASSOCIATION

AGE, SEX, SERUM LIPIDS, AND CORONARY ATHEROSCLEROSIS

David Adlersberg, M.D., Louis E. Schaefer, M.D., Arthur G. Steinberg, Ph.D.
and
Chun-I Wang, M.D., New York

- *Chemical determinations of serum cholesterol and phospholipid values were made in 1,200 specimens of blood obtained from healthy males and females between the ages of 2 and 77 years. The sample represented a particular geographic group with certain sociological characteristics. In 38 men of the 28 to 32 year age group, the average serum cholesterol value was 243 mg. per 100 cc.; the corresponding figure for 50 women was 200. A similar difference was found in the serum phospholipid values, and both differences were statistically significant. The differences were reversed in the older age groups; in 45 men of the 53 to 57 year age group, the average serum cholesterol value was 240 mg. per 100 cc., while in 28 women the corresponding figure was 286. Both the cholesterol and the phospholipid values for the males remained constant through age 19, increased from age 20 through 33, and then remained constant to age 60; for females they remained practically constant through age 32, then increased sharply through age 58. The reversal of the difference between sexes suggests an explanation of the known preponderance of males among patients under 50 suffering from disease of the coronary arteries.*

There is increasing evidence that atherosclerosis is fundamentally a metabolic disorder, occurring in genetically predisposed individuals and apparently subject to many environmental influences. That there is an inborn error in the metabolism of lipids and lipoproteins, with resultant abnormal elevation of these fractions in the blood, is an important part of this concept. In a previous study[1] the incidence of idiopathic hypercholesteremia was estimated in the population of the Mount Sinai Hospital in New York City. Five hundred persons, 250 men and 250 women who were consecutive admissions to the medical wards, and 59 families of these individuals were studied. Of the 500 index patients (probands), 12% were found to have cholesterol levels that were abnormally high when judged by the standards of Keys and his associates.[2] The frequency of hypercholesteremia among the siblings of the hypercholesteremic probands was 36.2%, and among their children it was 34%. It could be assumed from this study that hypercholesteremia in the families of hypercholesteremic probands was determined by a dominant gene with incomplete penetrance, a conclusion in accord with that of other investigators.[3]

It was felt, however, that a study of a metabolic disorder of this type, occurring, as it may, in otherwise healthy persons, would be more valid if carried out on family groups representative of the general population rather than on families whose probands were hospitalized patients. Furthermore, since it has now been shown that lipid levels may vary with a number of factors, including ethnic origin, sex, age, diet, and perhaps occupation, data derived from one population group do not necessarily apply to another. Accordingly, individuals selected at random from a healthy group of industrial workers and their dependents of low-middle income in Staten Island, N. Y., were examined in order to establish cholesterol and phospholipid level norms for this population group. The data so accumulated will be used in the further investigation of the incidence and mode of genetic transmission of idiopathic hypercholesteremia. The study of the average lipid levels in various sex and age groups is the subject of this presentation.

The Present Study

Plan and Methods.—Approximately 1,200 apparently healthy males and females between the ages of 2 and 77 years were examined, and their serums were analyzed for total and esterified cholesterol and for phospholipids. About one-third of the specimens were obtained from children whose parents were also included in the study. In this sense, a factor of selection

---

From the departments of medicine and chemistry, the Mount Sinai Hospital.
Read before the Ninth Clinical Meeting of the American Medical Association, Boston, Nov. 30, 1955.

may be involved. Serum cholesterol levels were determined by the Sperry-Schönheimer method and serum phospholipid levels by Sperry's modification of the Fiske-Subarrow method.

Results.—Information relative to ethnic origin, color, and religion is given in table 1. The almost completely white population is otherwise moderately heterogeneous, with a distinct predominance of families of Italian and Irish origin and a heavy preponderance of Catholics. When the data concerning the surveyed population are broken down according to five-year age groups for each sex (table 2), it can be seen that, in the age groups 3-7, 8-12, and 53-57, the females have significantly higher cholesterol levels than the men, whereas in age groups 28-32, 33-37, and 38-42, the reverse holds true. In the other age brackets there is no significant difference between the sexes. The total serum cholesterol level of the males remained constant from age 2 through 19. From age 20 through 33 there was a significant increase of total cholesterol level, averaging 3.6 mg. per 100 cc. per year. Thereafter, until age 60, there was no further change. The total serum cholesterol level of the females did not change significantly from age 2 through 32, although there appeared to be a slight decrease from age 2 through 20. From age 33 through 58 a significant rate of increase of 3.2 mg. per 100 cc. per year occurred (table 3 and fig. 1).

TABLE 1.—*Ethnic Origin, Race, and Religion of Population Studied*

Ethnic Origin	%
Italy	38
Ireland	25
England, Scotland	17
Germany	6
Scandinavian countries	3
Poland	3
France	3
Spain	2
Hungary	2
All others	1

Race	%
White	98
Nonwhite	2

Religion	%
Catholic	71
Protestant	20
Jewish	9
Moslem	<1

TABLE 2.—*Serum Cholesterol Levels* by Age in Males and Females*

	Males			Females		
Age Group, Yr.	No.	Mean	$\sigma(\bar{x})$	No.	Mean	$\sigma(\bar{x})$
3-7†	34	179.8	6.48	36	209.0	7.13
8-12†	64	180.4	3.98	55	196.4	4.40
13-17	46	175.5	5.10	53	182.9	4.77
18-22	22	185.2	11.76	24	192.6	8.78
23-27	16	191.5	9.74	40	201.9	6.27
28-32†	38	243.1	8.02	50	200.1	4.60
33-37†	53	231.0	6.14	72	206.9	4.52
38-42†	57	246.9	6.11	64	224.5	4.94
43-47	77	237.2	5.30	56	238.9	6.93
48-52	63	238.8	5.73	34	249.5	9.13
53-57†	45	239.7	7.43	28	285.8	8.38
58-62	34	236.2	9.08	20	263.8	14.82
63-67	19	249.7	13.05	14	259.9	.....
68-72	6	242.5	.....	3	241.8	.....
73 & 77	2	200.5	.....	...		
Total	566			519		

* In mg./100 cc.

† The probability that these differences between males and females would arise by accidents of sampling is less than 1 in 10,000.

The changes in serum phospholipid levels with age were similar to the changes in serum cholesterol levels in the two sexes (table 4 and fig. 2). There were no significant differences between the sexes and between any age groups in the ratio of free to total cholesterol. The cholesterol-phospholipid ratio appeared to be a function of the change in the serum cholesterol level and was independent of age. For each increase in the serum cholesterol level of 1 mg. per 100 cc., there was a 0.71-mg. increase of phospholipid in the serum in the females and a 0.67-mg. increase in the males. In other words, as the serum cholesterol level increased, the ratio of cholesterol to phospholipid became greater. The differences between males and females in the changes of lipid levels with age are worthy of note. The period of marked increase of serum lipid levels, which occurs physiologically in both sexes, starts 13 years later in women than in men and lasts 12 years longer.

Comment

Observations on serum cholesterol levels in various population groups have been previously reported.[4] More recently, Keys and co-workers[2] studied 2,056 men of ages 17-78 in a middle-income group in Minnesota; 5,000 measurements were performed. McMahon and associates[5] performed 822 serum cholesterol determinations in 554 normal persons of ages 10-90.

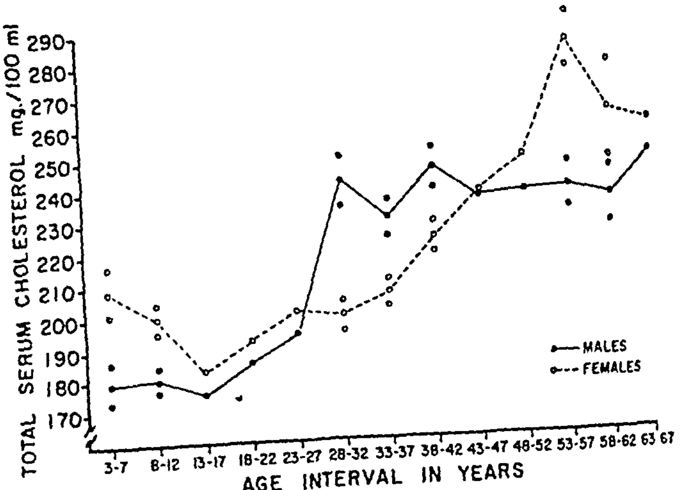


Fig. 1.—Total serum cholesterol levels by age in males and females.

Epstein and Boas[6] included cholesterol studies in their observations on prevalence of manifest atherosclerosis in a working population in New York that consisted mainly of Jews and Italians. Keys and co-workers[7] extended their cholesterol studies to population groups in England, Southern Italy (Naples), and Spain (Madrid). Oliver and Boyd[8] performed plasma cholesterol determinations in control groups of men and women aged 30 to 70+ in Scotland. Walker and Arvidsson[9] studied the changes with age in serum cholesterol levels in the South African Bantu.

// A survey of these data reveals marked differences in the cholesterol levels of the various population groups. There are also differences in alpha and beta lipoproteins and in the cholesterol-phospholipid ratio.[10] Whether these differences are genetically determined, as by sex or by genetically controlled metabolic factors,[11] or whether they are caused by such environmental influences as diet, climate, or occupation, cannot be decided at the present time. In certain populations, e. g., in the South African Bantu, the high incidence of malnutrition, liver disease (cirrhosis, hepatoma), and parasitic infestation may also affect the average serum lipid levels. Therefore, it must be concluded that each survey of serum lipid levels is valid for the specific population only and that comparisons between populations living under different geographical, cultural, economic, and social conditions cannot be made.

All available evidence indicates that coronary atherosclerosis is more common in males than in females in the younger age groups, that about 90% of persons under the age of 50 years who suffer from coronary artery disease are men, and that the first coronary artery occlusion occurs at an earlier average age in men than in women. However, the proportionate number of females suffering from coronary atherosclerosis increases after the menopause. Various theories have been advanced by other investigators in an attempt to explain these observations. Differences between males and females have been demonstrated in the concentration of macromolecules of the ultracentrifuged plasma.[12] The distribution of cholesterol in the alpha and beta lipoprotein fractions has been shown to differ for the two sexes.[13] The thickness of the intima of the coronary arteries in the male and female newborn infant was reported to be different. It may be postulated from the data derived from this study that the large annual increments in average serum lipid levels in men from age 20 through 33 play a part in producing the higher frequency of coronary artery disease in males in the younger decades and that increasing incidence of the disease in females in the older age groups may be related to the analogous changes occurring in women that start 13 years later and last 12 years longer than in men. The proof of this hypothesis will require a longitudinal study extending over a number of years. Careful observations on the frequency of coronary artery disease in males and females in close correlation with serum lipid and lipoprotein levels would be the goal of such an investigation.

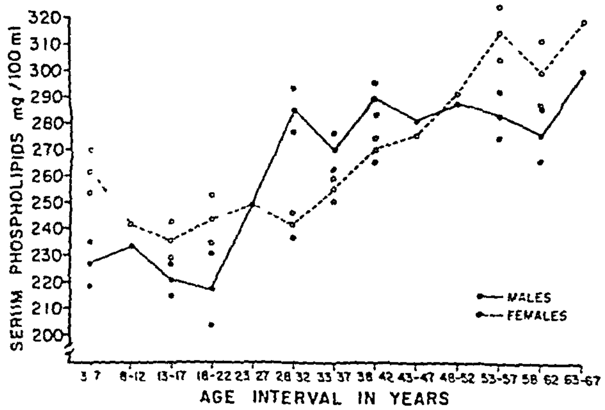


Fig 2.—Serum phospholipid levels by age in males and females.

The variations in serum cholesterol and phospholipid levels in normal males and females, reported here, provide further evidence that, while age has some effect on serum lipids, the aging process alone is not the determining factor in the development of coronary atherosclerosis. A substantial number of all cases of coronary artery disease and most coronary occlusions occurring in individuals under 50 are related not to age but to a complex pattern of metabolic, hereditary, environmental, and endocrinal factors, the precise proportions of which have not as yet been clearly defined.

Summary

Twelve hundred healthy males and females in Staten Island, N. Y., between the ages of 2 and 77 were examined and their serums analyzed for cholesterol and phospholipid, in order to establish average lipid levels for this population. These norms are being used in the investigation of the incidence and mode of transmission of idiopathic hypercholesteremia. The cholesterol and phospholipid levels for the males remain constant through age 19, increase from age 20 through 33, and then again remain constant to age 60. The levels for the females remain constant through age 32 and then increase sharply and continuously from age 33 through age 58. The differences in the age trends between the males and females may perhaps be related to the well-known preponderance of males with coronary artery disease in the younger decades and the proportionate increase of females with coronary atherosclerosis after the age of 50.

Table 3.—*Changes in Serum Cholesterol Level with Age in Males and Females*

Age Interval, Yr.	No	b*	P†
Males			
2-19	154	−0.278	>0.20
20-33	74	3.622	0.01>P>0.001
34-50	213	−0.445	>0.20
51-60	[illegible]	−0.821	>0.20
Females			
2-13	100	−1.478	>0.20
14-20	58	−2.065	>0.20
21-32	104	−1.077	>0.20
33-58	233	3.181	<0.001

---

* The average annual change of total serum cholesterol in mg/100 cc. is represented by the coefficient b in the regression equation $Y=a - bX$, where X=age in yr and Y=serum cholesterol level

† Probability that the true value of the average annual change may be zero

Table 4.—*Serum Phospholipid Levels* by Age in Males and Females*

	Males			Females		
Age Group, Yr	No	Mean	$\sigma(\bar{x})$	No	Mean	$\sigma(\bar{x})$
3-7†	29	227.1	8.35	31	261.9	7.96
8-12	50	233.2	4.94	51	241.7	5.10
13-17	40	220.6	5.98	46	235.5	6.54
18-22	20	217.0	12.40	21	243.7	9.35
23-27	16	249.4	12.99	38	249.0	7.23
28-32†	34	285.3	8.71	45	241.4	4.56
33-37	45	270.0	6.63	67	255.0	4.24
38-42†	49	289.4	5.93	61	270.2	4.46
43-47	61	280.9	6.47	50	275.2	6.22
48-52	47	287.5	8.43	31	290.9	7.79
53-57	41	282.8	8.75	26	313.7	9.91
58-62	30	275.3	9.54	18	298.3	11.84
63-67	17	298.4	11.19	14	317.1	.....
68-72	6	279.8	.....	3	279.3	.....
73 & 77	2	244.0	.....	.		
Total	489			502		

---

* In mg/100 cc

† The probability that these differences between males and females would arise by accidents of sampling is less than 1 in 10,000

Fifth Avenue and 100th Street (29) (Dr. Adlersberg).

This research was supported in part by a grant from the National Institutes of Health, U. S. Public Health Service

Footnotes

1. Schaefer, L. E.; Drachman, S. R.; Steinberg, A. G., and Adlersberg, D.: Genetic Studies on Hypercholesteremia: Frequency in Hospital Population and in Families of Hypercholesteremic Index Patients, Am. Heart J. 46: 99-116 (July) 1953.

2. Keys, A., and others: Concentration of Cholesterol in Blood Serum of Normal Man and Its Relation to Age, J. Clin. Invest. 29: 1347-1353 (Oct.) 1950.

3. Wilkinson, C. F., Jr.; *Hand, E. A.,* and *Fliegelman,* M. T.: Essential Familial Hypercholesterolemia, Ann. Int. Med. 29: 671-686 (Oct.) 1948.

4. Barker, N. W.: Plasma Lipoids in Arteriosclerosis Obliterans, Ann. Int. Med. 13: 685-692 (Oct.) 1939. Page, I. H., and others: Plasma Lipids of Normal Men at Different Ages, J. *Biol.* Chem. 111: 613-639 (Nov.) 1935. Kornerup, V.: Concentrations of Cholesterol, Total Fat and Phospholipid in Serum of Normal *Man:* Report of Study with *Special* Reference to Sex, Age and *Constitutional* Type, Arch. Int. Med. 85: 398-415 (March) 1950.

5. McMahon, A.; *Allen, H. N.;* Weber, C. J., and Missey, W. C., Jr.: Hypercholesterolemia, South. *M. J. 44: 993-1002* (Nov.) 1951.

6. Epstein, F. H., and *Boas, E. P.: Prevalence of Manifest* Atherosclerosis Among Randomly Chosen *Italian and Jewish* Garment *Workers:* Preliminary Report, J. *Gerontol.* 10: 331-337 (July) 1955. Boas, E. P., Elster, S. K., and Adlersberg, D.: Calcific *Aortic Stenosis: Study of* Serum *Cholesterol:* With Observations on Calcific Aortic Stenosis in Familial Xanthomatosis and Hypercholesteremia, Am. Heart J. 48: 485-496 (Oct.) 1954. Epstein, F., Simpson, R., and Boas, E. P.: Relations Between Diet and Atherosclerosis Among Working Population of Different Ethnic Origins, Am. J. *Clin.* Nutrition 4: 10-19 (Jan.-Feb.) 1956.

7. Keys, A.: Atherosclerosis: *Problem* in Newer Public Health, J. Mt. Sinai Hosp. 20: 118-139 (July-Aug.) 1953. Keys, A., and others: Effects *of Diet on Blood* Lipids in Man: Particularly Cholesterol and Lipoproteins, Clin. Chem. 1: 34-52 (Feb.) 1955.

8. *Oliver,* M. F., and *Boyd, G. S.: Plasma* Lipids in Coronary Artery Disease, Brit. Heart J. 15: 387-392 (Oct.) 1953.

9. Walker, A. R. P., and Arvidsson, *U. B.:* Fat Intake, *Serum* Cholesterol Concentration, and Atherosclerosis in *South African* Bantu: I. Low Fat Intake and Age *Trend of Serum Cholesterol* Concentration in South African Bantu, J. Clin. Invest. 33: 1358-1365 *(Oct.) 1954.*

10. Footnote 9. Barr, *D. P.: Basis* for *Dietary Treatment* in Prevention and Control of Atherosclerosis, editorial, Am. J. Med. 13: 665-667 (Dec.) 1952.

11. Adlersberg, D.: Inborn Errors of Lipid Metabolism: Clinical Genetic, and Chemical Aspects, A. M. A. Arch. Path. 06: 481-492 (Nov.) 1955.

12. *Gofman,* J. W., and *others:* Blood Lipids and Human Atherosclerosis, *Circulation 2: 161-178* (Aug.) 1950.

13. Barr, D. P.: *George E. Brown Memorial Lecture: Some* Chemical Factors in Pathogenesis of *Atherosclerosis, Circulation* 8: 641-654 (Nov.) 1953.

TREATMENT OF SPONTANEOUS PNEUMOTHORAX

Armand A. Lefemine, M.D., Edward T. O'Hara, M.D.
and
Joseph P. Lynch, M.D., Boston

• *In simple spontaneous pneumothorax, as distinguished from tension pneumothorax and hemopneumothorax, a variety of therapeutic approaches may be considered. Three different approaches were used in 42 nontuberculous patients with simple spontaneous pneumothorax. No underlying pulmonary disease was found in 32; in the remaining 10 the etiology ranged from asthma to sarcoma. In 15 of the cases, with partial collapse of the affected lung, rest was sufficient treatment, and the average time required for complete reexpansion of the lung was 12 days. Closed thoracotomy, consisting of the insertion of a catheter in the second intercostal space anteriorly and the maintenance of suction for two days, was done in 12 of the more severe cases; in those cases in which it was successful the average time required for reexpansion of the lung was 3½ days. It was much quicker and more effective than repeated aspiration.*

The treatment of spontaneous pneumothorax must be individualized to meet the specific needs of the occasion. The life-threatening tension pneumothorax and hemopneumothorax are special problems, and the need for aspiration and closed thoracotomy is quite clear. It is in the more commonly encountered situation of the simple spontaneous pneumothorax, regardless of etiology, that a variety of therapeutic approaches may be considered. The classic approach to spontaneous pneumothorax, whether partial or complete, is that of rest with limited activity, augmented when necessary by aspiration by needle. The results of this treatment, which have been reported extensively, can hardly be improved on in terms of recovery. In more recent times increasing emphasis has been placed upon closed thoracotomy as a routine measure in the initial phase of the condition, rather than as a late tool for the more unresponsive cases. The advantage of early closed thoracotomy lies in the shortened interval needed for complete expansion of the lung and for convalescence. In addition, the possibility of chronic pneumothorax with subsequent decortication and pleural effusion, as well as of empyema due to prolonged collapse, is obviated. Certain theoretical disadvantages of this procedure must be considered. One is the possibility of infection; the other is the possibility of hemothorax.

Previous Studies

The general mode of therapy in most of the reported series has consisted of a period of bed rest and limited activity, with aspiration used infrequently and only for the relief of symptoms in those with a large and complete pneumothorax. Rottenberg and Golden[1] found that only 9 of 97 patients required thoracentesis. They found the time for reexpansion to average 4 weeks and to vary from six days to 12 weeks. Hyde and Hyde[2] found that the period required for reexpansion without the use of a catheter was an average of seven weeks. This represents an investment of considerable money as well as time. Hughes and Lowry[3] found that only 4 of 37 patients required more than 24 hours of decompression by catheter for reexpansion. Shefts and others[4] found that, in 33 of 37 patients treated primarily with decompression by catheter, reexpansion took place within a few minutes.

Present Study

We have treated 42 patients with spontaneous pneumothorax at the Boston Veterans Administration hospital from the time of its opening in 1952 to 1955.

From the Department of Surgery, Veterans Administration Hospital.

Read before the Ninth Clinical Meeting of the American Medical Association, Boston, Dec. 1, 1955.

We were particularly interested in comparing the various modes of therapy used, namely, rest with limited activity, aspiration, and closed thoracotomy, from the point of view of relative safety, *duration of* pneumothorax, and required time for convalescence. In our series the numbers of cases treated by rest with limited activity, aspiration, and closed thoracotomy were approximately equal. Fifteen patients of the total of 42 were treated by rest alone. Aspiration and closed thoracotomy were employed in 12 patients each; 3 patients who had been treated with drainage by catheter required open thoracotomy because of persistent leak.

Table 1.—*Degree of Collapse in Forty-Two Patients with Pneumothorax, by Method of Treatment*

	Rest	Aspiration	Thoracotomy
No. of patients	15	12	15*
Complete collapse	0	4(33%)	11(73%)
Partial collapse, 30% or greater	5(33%)	8(66%)	4(27%)
Partial collapse, less than 30%	10	...	...

*Three were open thoracotomy, while 12 were closed

The technique used in closed thoracotomy included the standard insertion of a no. 16 soft rubber catheter in the second intercostal space anteriorly with the patient under local procaine anesthesia. This catheter was connected to a two-bottle suction system operated with a Stedman pump. Suction was maintained at 10 cm. H_2O for two days. X-rays were taken daily in most cases. Table 1 shows the breakdown in the three groups as to complete or partial collapse. It is important to note that the amount of collapse in those treated by rest and in those treated by aspiration was much less than in those treated by closed thoracotomy. Only one-third of the patients treated by rest and limited activity had collapses greater than 30%; none had complete collapse. Of those on whom aspiration was performed, only one-third had complete collapse, whereas the majority of patients in the group treated by closed thoracotomy had complete collapse. This is important in evaluating the results.

The series included all cases of spontaneous pneumothorax, irrespective of etiology. The patients' ages varied from 17 to 71 years, with an average age of 30 years. Underlying pulmonary disease was found in 10, or 24%, and included emphysema, asthma, bronchitis, bronchiectasis, granulomatous disease of the lungs, and sarcoma. All those with chronic pulmonary disease had had partial collapse. The two patients of this group with complete collapse of the lung had metastatic sarcoma. None in this series had tuberculosis.

Table 2.—*Days Required for Full Reexpansion in Forty-Two Patients with Pneumothorax, by Method of Treatment*

	Rest	Aspiration	Closed Thoracotomy*
Days, range	3-31	6-39	1-9
Av.	12.2+	15.1	3.5
Hospital days, range	4-31	11-22	6-18
Av.	14.6	15.4	10

*Six patients received conservative treatment for an average of 3.5 days prior to closed thoracotomy.

The etiology of simple spontaneous pneumothorax has been commented upon extensively. Congenital vesicles and localized atelectasis with formation of blebs have been well demonstrated as etiological conditions by the studies of Hayashi, Kjaergaard, and others.[5] Other factors such as exertion and chronic pulmonary disease with bronchospasm and infection, when superimposed on the formation of blebs, must be considered as contributory causes.[6] Exertion was found associated with the onset of symptoms in only 6 of the 42 patients. The symptoms usually consist of a sudden sharp pain in the upper anterior chest on the side affected and dyspnea. Dyspnea alone was noted as the initial symptom in two instances. The dyspnea and pleuritic pain tended to subside and, in some, to disappear in two to three days. Cough was a symptom in two. Hemoptysis and cyanosis were not observed.

Diagnosis was made by x-ray. The x-rays of all patients were reviewed, and the extent of collapse was estimated in terms of percentage. Figure 1 illustrates a typical x-ray of a patient with complete collapse. Recurrent pneumothorax has been experienced by a small though significant percentage of all groups studied. Seven patients, or 17% of this group, had had prior proved episodes. Two of these had had multiple recurrences; one had asthma in addition, and the other, who had had recurrent partial bilateral pneumothorax five times over the course of four months, had a granulomatous disease of the lungs, with extensive fibrosis and formation of blebs (fig. 2).

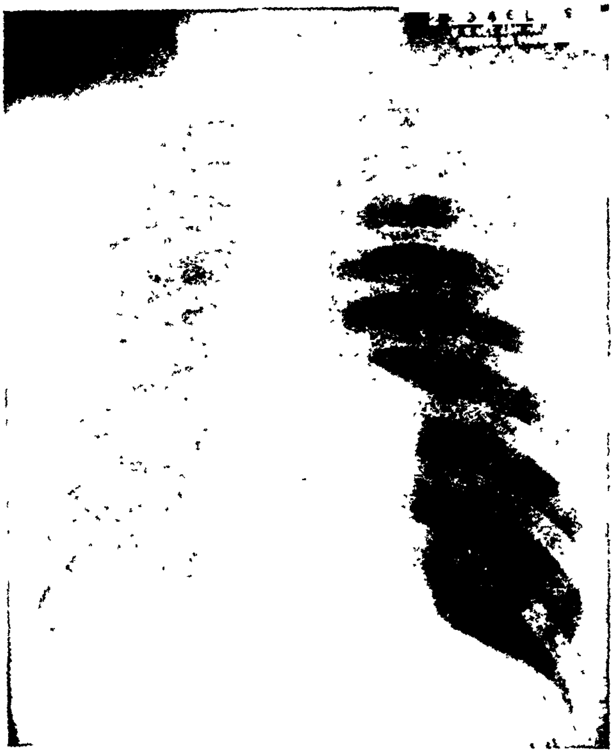


Fig. 1.—X-ray illustrating typical case of complete collapse.

In approaching the problem of therapy, it is well to remember that the pneumothorax may well have been present for some time; the duration of symptoms in this series varied from a few hours to six weeks. Only 25 patients, or 60%, entered the hospital within 24 hours of the onset of symptoms. Other aspects to consider are the extent of the collapse and the magnitude of the symptoms. Of the 42 patients seen, 17, or 40%, had complete collapse. Of the 25 (60%) with partial collapse, 17 had collapses of more than 30%. Thus 34, or 80%, of the series had pneumothorax with greater than 30% collapse.

Table 2 shows the time required for complete reexpansion of the lung and the total hospitalization for each method of treatment. The results in those treated by rest with limited activity and by rest plus aspiration were approximately the same. Thus, those treated by rest alone required an average of a little over 12 days for full expansion. This can be considered a minimal figure because of the lack of follow-up on some or because of a prolonged interval before follow-up x-rays were obtained. Those treated by rest plus aspiration required an average of about 15 days for complete expansion. Aspirations were not performed more than twice on any patient in this group. The range of time for full expansion in these groups was from 3 to 31 days when treatment was rest alone and 6 to 39 days when aspiration was also given. On the other hand, those treated by closed thoracotomy showed complete expansion of the lung on an average of three and one-half days from the institution of suction. The range was from one to nine days. This does not include the three patients who required open thoracotomy. The average length of hospitalization was 10 days, but this is due to the delay in instituting suction in 6 of the cases.

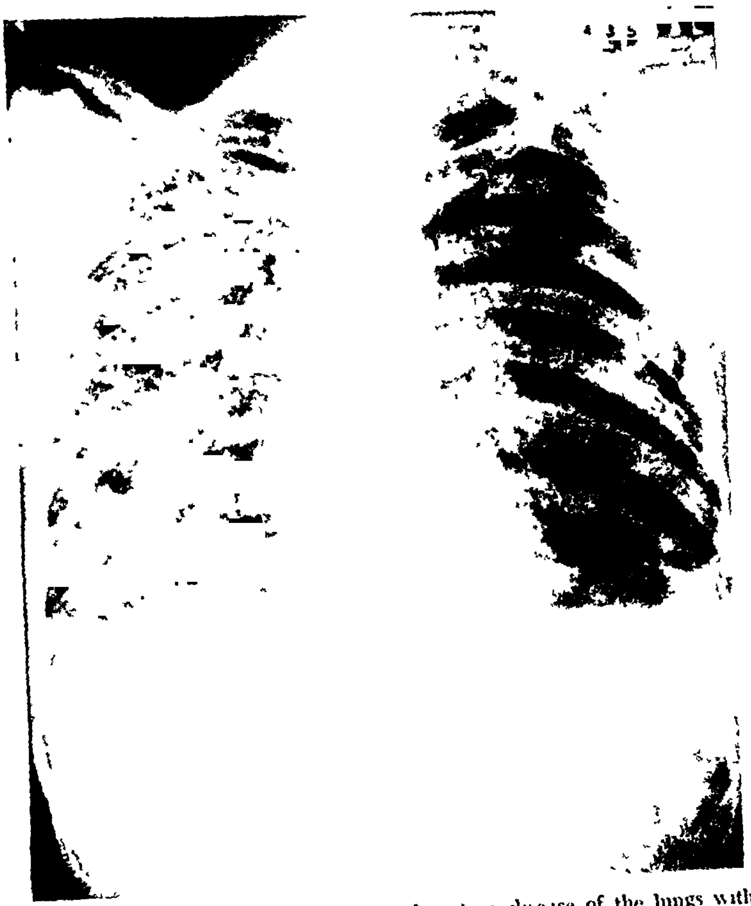


Fig. 2.—X-ray of patient with granulomatous disease of the lungs with extensive fibrosis and blebs who had recurrent bilateral lung collapse.

One complication was encountered in this group. The patient required a closed thoracotomy for a persistent leak after receiving expectant treatment and two aspirations over a period of nine days. After this procedure he developed hemothorax and empyema in addition to the persistent leak that at this time required open thoracotomy. Drainage of a recurrent localized empyema one and one-half years later resulted in complete recovery. This complication was due presumably to an error in technique.

General Approach

The significant reduction in time required for complete expansion of the lung and particularly for convalescence in a group of patients that is predominantly young and active led us to formulate the following general approach to spontaneous pneumothorax. If the patient is asymptomatic and the collapse is less than 30%, a conservative approach is indicated. If the collapse is greater than 30% or if the patient is symptomatic, aspiration to 80% expansion using a pneumothorax machine or syringe is indicated. A repeat aspiration is performed within 24 hours if necessary. If the pressure remains positive despite the withdrawal of 2 liters of air, it is a clear indication of persistent leak, and closed thoracotomy should be performed. If the expansion is not maintained despite a repeated aspiration, closed thoracotomy with suction is instituted and usually maintained for two days. This is followed by test clamping of the tube daily until expansion is maintained. The need for closed thoracotomy can be determined in 24 hours. If the leak persists despite closed thoracotomy with suction for five to seven days, open thoracotomy is performed.

The adjunctive use of thoracoscopy and injection of a sclerosing solution of glucose or the insufflation of talc have been discussed by Shefts and others[6] and by Marrangoni and others.[7] Thoracoscopy per se has no diagnostic advantages over the taking of x-rays in this condition. The use of a 50% glucose solution has been generally discarded because of the severe pain that accompanies its use and the difficulty in controlling application to a site. Insufflation of talc is advocated by some on the basis that it prevents recurrences. It, too, has the disadvantage that it is difficult to place the talc at the desired site and frequently the sclerosing reaction involves other surfaces, which is undesirable. To date we have experienced no recurrences in patients treated by simple closed thoracotomy, although the follow-up period is short. We do not believe that any of the adjunctive measures, such as thoracoscopy with the injection of a sclerosing agent, are indicated in the usual case of spontaneous pneumothorax. There is a place for these methods in the treatment of patients with repeated episodes of pneumothorax.

Summary and Conclusions

Forty-two patients with spontaneous pneumothorax were treated by rest with limited activity, aspiration, and closed thoracotomy. Closed thoracotomy required an average of three and one-half days for complete expansion of the lung compared to an average of approximately 12 days by rest and 15 days by aspiration. A therapeutic approach utilizing all the advantages of each method and preventing the prolonged convalescence of rest and aspiration was followed. The purpose of our approach was to employ the advantages of each method of therapy and to determine a clear indication for the need of closed thoracotomy rather than to use it routinely in all. Although rest is relatively the safest in terms of infection, it carries with it the threat of chronic pneumothorax with subsequent decortication as well as prolonged convalescence. Repeated aspirations have no advantage over a carefully done closed thoracotomy and lack the effectiveness of the latter procedure in persistent leaks and the rapidity of expansion obtained by closed thoracotomy.

Addendum

Since the time of writing of this paper, we have encountered two cases of spontaneous pneumothorax with active pulmonary tuberculosis.

150 S. Huntington Ave. (Dr. Lefemine).

References

1. Rottenberg, L. A., and Golden, R.: Spontaneous Pneumothorax: Survey of 105 Cases, Radiology **53**: 157-167 (Aug.) 1949.

2. Hyde, B., and Hyde, L.: Benign Idiopathic Spontaneous Pneumothorax: Review of 63 Cases, Am. J. M. Sc. **215**: 427-430 (April) 1948.

3. Hughes, F. A., Jr.; Kraeft, N. H., and Lowry, C. C.: Treatment of Idiopathic Spontaneous Pneumothorax, J. A. M. A. **146**: 244-247 (May 19) 1951.

4. Shefts, L. M.; Gilpatrick, C.; Swindell, H., and Gabbard, J. G.: Management of Spontaneous Pneumothorax, Dis. Chest **26**: 273-285 (Sept.) 1954.

5. (*a*) Kjaergaard, H.: Spontaneous Pneumothorax in Apparently Healthy, Acta med. scandinav., supp. 43, pp. 1-159 and 1-93, 1932. (*b*) Ornstein, G. G., and Lercher, L.: Spontaneous Pneumothorax in Apparently Healthy Individuals: Clinical Study of 58 Cases with Discussion of Pathogenesis, Quart. Bull. Sea View Hosp. **7**: 149-187 (April) 1942. (*c*) Hayashi, cited by Kjaergaard.[5a] (*d*) Hamman, L.: Note on Mechanism of Spontaneous Pneumothorax, Ann. Int. Med. **13**: 923-927 (Dec.) 1939.

6. Macklin, M. T., and Macklin, C. C.: Malignant Interstitial Emphysema of Lungs and Mediastinum as Important Occult Complication in Many Respiratory Diseases and Other Conditions: Interpretation of Clinical Literature in Light of Laboratory Experiment, Medicine **23**: 281-358 (Dec.) 1944. Myerson, R. M.: Spontaneous Pneumothorax: Clinical Study of 100 Consecutive Cases, New England J. Med. **238**: 461-463 (April 1) 1948.

7. Marrangoni, A. G.; Storey, C. F., and Geib, P. O.: Management of Spontaneous Pneumothorax, Am. Rev. Tuberc. **72**: 257-267 (Sept.) 1955.

TRANSTRACHEAL RESUSCITATION

Jay J. Jacoby, M.D., William Hamelberg, M.D., Carolyn H. Ziegler, M.D., Frederick A. Flory, M.D.
and
John R. Jones, M.D., Columbus, Ohio

• *Operative medications and the increased degree of muscular relaxation now requested by surgeons, especially where there is some predisposing factor to respiratory obstruction, all increase the responsibilities of the anesthetist to be aware of all methods to assist the patient's respiration while under anesthesia. When, after respiratory obstruction, all commonly applied methods of providing a clear airway have not been successful, or are unable to be accomplished, the insertion of an oxygen-carrying needle into the tracheal lumen may prevent a respiratory death. Oxygen saturation of the arterial blood, decreased to the point of cyanosis, may be reversed to normal or above within minutes after application of this technique and can be maintained for 30 minutes or more until the obstruction is alleviated. This is for emergency treatment only.*

A large proportion of operating room deaths may be attributed to respiratory difficulty. The majority of these deaths probably are preventable. Depression and paralysis of respiration are encountered more frequently in anesthetized patients now than in the past, because of the nature of the drugs now commonly used. Thus respiratory obstruction is more important now than it was in the past because the patients' efforts to breathe are not as forceful. An additional consideration is the fact that in the past the degree of muscular relaxation requested by surgeons was not as great as it is today. Depression, obstruction, and paralysis of respiration, which frequently occur, require that the anesthetist be adept in assisting the respiration of anesthetized patients.

Artificial respiration or assisted respiration, attempted in the presence of respiratory obstruction, is of little or no value. Providing a clear airway is usually a relatively simple procedure and can be accomplished by proper positioning of the head, support of the mandible, traction on the tongue, or by the insertion of an oral or nasal airway. When respiratory obstruction occurs and cannot be overcome by these simple techniques, endotracheal intubation and tracheotomy offer a more certain means of providing a clear airway. In some instances the insertion of an endotracheal tube may be technically impossible, because of the anatomic structure of the patient or the inadequate skill of the anesthetist or because equipment for intubation is not available. Such a situation should not, but does, arise. If there is severe obstruction, and intubation is not possible at the moment, the alternate treatment is tracheotomy.

Unfortunately, too many anesthetists are reluctant to recommend tracheotomy, and too many surgeons are reluctant to perform this simple operation; thus, the procedure may be delayed until it is too late to be of value. The reason for the anesthetist's delay in recommending a tracheotomy is his hope that he will soon be able to accomplish the intubation. The reason for the delay on the part of the surgeon may be his lack of familiarity with the procedure or his unwillingness to do an unscheduled operation, with the need to explain later to the patient and his family that a therapeutic misadventure had occurred. A simplified and rapid method for the performance of a tracheotomy has recently been proposed, but special equipment is required.[1]

Since the provision of oxygen at a time of need is of critical importance, a preliminary investigation with animals was undertaken to determine whether any

---

From the Department of Surgery (Division of Anesthesia) and the Medical Center of the Ohio State University College of Medicine.

Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956.

other simple method could be devised to provide oxygen. The percutaneous insertion of a needle into the lumen of the trachea is a simple procedure. Such a needle could be used for the insufflation of oxygen. It was found that, in animals in which respiration was stopped by use of either barbiturates or muscle relaxants, anoxia could be prevented for rather prolonged periods by the insufflation of oxygen through a transtracheal needle or cannula.[2]

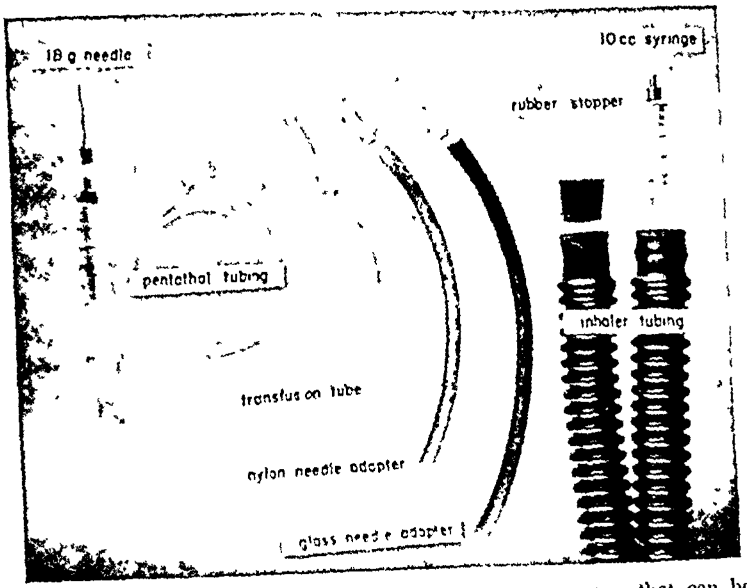


Fig. 1.—Materials commonly available in operating rooms that can be used in transtracheal resuscitation.

Shortly after the publication of that work, communications were received from a number of individuals stating that transtracheal resuscitation had been used successfully for patients with respiratory difficulty. Indeed, the technique was used successfully by members of the surgical house staff in the emergency rooms and wards of our hospital. It was decided, therefore, that a clinical investigation should be undertaken to determine objectively the values and limitations of the procedure in human patients. To be of real value and to make it readily available to all, the method should require no special equipment. For this reason, the techniques of the experiments with animals were modified, and an effort was made to utilize only materials commonly available in all operating rooms.

Technique for Transtracheal Resuscitation

The materials necessary for transtracheal resuscitation consist of an 18-gauge (or larger) needle, a 10-cc. syringe, a source of oxygen, and an adapter to attach the oxygen supply to the needle. The connection between the transtracheal needle and the oxygen tube may be made with a glass needle adapter, with the tapered end of a transfusion or infusion set, or with a small plastic "Pentothal tube" commonly used by anesthesiologists. If an ordinary anesthetic machine is used as the source of oxygen, the corrugated inhaler tubing of the gas machine can be adapted by the insertion of the barrel of a 10-cc. syringe into its end. The corrugated tubing may also be adapted by the use of a one-hole rubber stopper, to which tubing of a suitable size is attached (fig. 1).

The insertion of the transtracheal needle is accomplished simply and rapidly. The patient's neck is extended. The location for the needle insertion may be the cricothyroid membrane, as is ordinarily recommended for transtracheal injection of cocaine, or the first 2 or 3 cm. of trachea below the larynx. The trachea is steadied between the index finger and thumb of the one hand; the needle, attached to an empty syringe, is thrust through the skin at the midline, in a posterior and inferior direction. Traction is made on the plunger of the syringe. When the needle enters the trachea, the operator obtains a sensation of release of resistance. At the same time, air is aspirated freely into the syringe. The plunger of the syringe is then moved up and down several times to be certain that air moves without resistance in both directions. The syringe is detached, and the oxygen supply is then connected to the needle; oxygen is administered at 4 or 5 liters per minute (fig. 2).

Procedure and Results

Five patients who had malignancy in the upper respiratory passages and were scheduled for surgical procedures under general anesthesia were selected for transtracheal resuscitation. Except for their local lesions, these patients were in good physical condition. On a preliminary visit by the anesthesiologist, it was determined that respiratory obstruction probably would occur immediately after the induction of general anesthesia. Because of the size and location of the tumor mass, in ordinary circumstances a tracheotomy under local anesthesia would have been performed on these patients prior to the induction of general anesthesia or an endotracheal tube would have been inserted under local anesthesia. It was decided to proceed with general anesthesia without the prior performance of a tracheotomy. The surgeons cooperated in this investigation, standing by in the operating room prepared to perform a tracheotomy if it should be necessary.

The patients were prepared for operation in the usual way by the administration of meperidine (Demerol) hydrochoride and atropine in moderate doses. After a patient was placed upon the operating table, blood pressure, pulse, and respiration rate were recorded at frequent intervals, both before and during the procedure. A reliable calibrated oximeter was attached for continuous readings of oxygen saturation of the arterial blood. Its accuracy was verified by analysis of arterial blood by the Van Slyke method. A cardioscope was attached for continuous observation of the electrocardiograph. An infusion was begun, and general anesthesia was induced by the intermittent administration of thiopental sodium in small amounts (50 mg.).

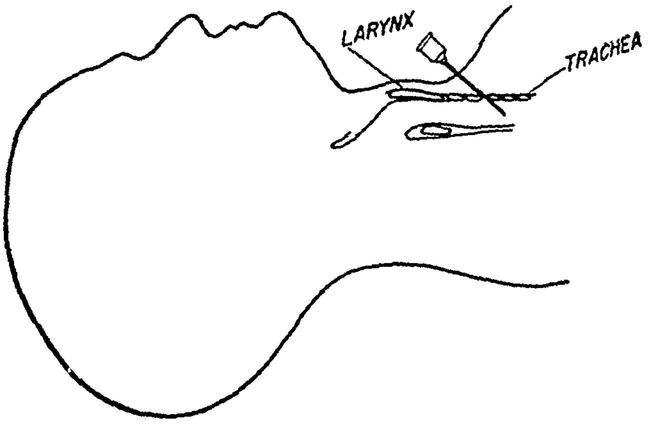


Fig. 2.—Placement of the needle for transtracheal resuscitation.

Prior to induction of anesthesia, these patients experienced respiratory difficulty because of the size and location of the tumor mass. As expected, in each patient complete respiratory obstruction occurred as soon as unconsciousness developed. Within one minute the level of oxygen saturation of the arterial blood diminished; within three minutes it fell markedly, and the patient became noticeably cyanotic. The transtracheal needle was then inserted, and administration of oxygen was begun at a rate of 4 liters per minute. In 30 seconds, the oximeter indicated a reversal in the progress of anoxia. The oxygen saturation level returned to normal or above within two minutes after the transtracheal administration of oxygen was begun. Cyanosis disappeared, and a satisfactory color of the skin and mucous membranes was noted.

In each of these instances the patient was attempting to breathe but was unable to do so because of the mechanical obstruction by tumor tissue. Retraction of the intercostal spaces and of the soft tissues of the neck was obvious. When the flow of oxygen through the transtracheal needle was begun, the patient's efforts to breathe continued. No outside air entered the patient's trachea during the inspiratory phase. During exhalation, however, the release of gas was readily noticeable to the observer—both by sound and by feeling the gas blow against his hand.

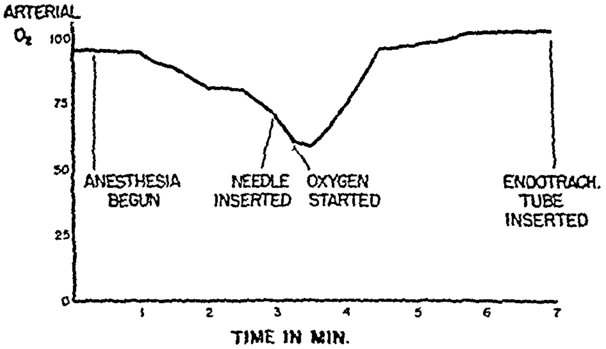


Fig. 3.—The effect of transtracheal administration of oxygen in counteracting rapidly progressive hypoxia due to respiratory obstruction.

Although transtracheal resuscitation was designed as an emergency interim procedure, the patients seemed to do so well with it that it was continued in some during the surgical procedures. Under normal circumstances, the technique would be used only until the respiratory difficulty was properly cared for by qualified individuals, either by tracheotomy or by endotracheal intubation. Blood pressure, pulse rate, skin color, and oxygen saturation level were observed at intervals of one to two minutes. In spite of the fact that total obstruction of inspiration was present, these patients gave no evidence of anoxia and the only evidence of carbon dioxide retention was a slight increase in blood pressure and pulse rate during the procedures.

Before transtracheal resuscitation was begun, the lowest levels of oxygen saturation of arterial blood reached were 85%, 76%, 75%, 59%, and 45%. Three minutes after transtracheal administration of oxygen was begun, the levels of saturation were 95%, 97%, 100%, 101%, and 102%, and they remained high throughout the procedures. The durations of transtracheal administration of oxygen in these patients were 5, 19, 34, and 42 minutes; for one patient it was 13 minutes with complete obstruction and 66 minutes with partial obstruction. The procedures were terminated when the obstructions were relieved, by tracheal intubation, tracheotomy, or allowing the patient to awaken.

Comment

During transtracheal resuscitation, the elimination of carbon dioxide is much more of a problem than oxygenation. Oxygen reaches the alveoli both by means of the mechanical blowing effect and by diffusion respiration.[3] However, carbon dioxide is less effectively removed by being mechanically carried out with the excess oxygen. Although blood levels of oxygen are well maintained, carbon dioxide levels rise.[2] The removal of carbon dioxide could be improved by alternately filling and emptying the lungs, using either intermittent pressure on the patient's chest or intermittent insufflation of oxygen. The former method is the more practical, since intermittent administration of oxygen at small flow rates would be inadequate and it is not possible greatly to increase the flow of oxygen because of the resistance of the small-bore 18-gauge needle. If a larger caliber needle were used, greater amounts of oxygen could be administered, and it would then be possible to place a Y-tube in the oxygen delivery system and alternately occlude and release the open end of the Y-tube.

In this group, the removal of carbon dioxide was aided by the fact that the patients were attempting to breathe. Although, during inhalation, no air entered the lungs, exhalation resulted in the discharge of the excess oxygen and accumulated carbon dioxide through the patient's mouth. When the technique was first tried, there was some concern about the possibility that the oxygen administered through the transtracheal needle might build up considerable pressure because of inability to find a route of egress. This could introduce the hazard of overdistention and damage of the lungs. It was found, however, that this was not a problem. The structure of the respiratory tract is such that it is relatively easy for air to escape, although it may be very difficult for air to enter. This is caused by the fact that the vocal cords are tented in an upward direction and that both the epiglottis and the soft tissues of the throat may form a one-way valve. Air pressure from above may tend to make the obstruction worse by pushing the tissues more closely together, but air pressure from below separates the tissues and allows relatively free exhalation.

The insertion of a needle into the trachea might be expected to produce mechanical difficulties. The procedure, however, is an accepted one for the introduction of local anesthetic agents prior to endoscopy. Complications due to the introduction of a needle may be either traumatic or infectious. Neither of these, however, is of frequent occurrence. The possibility that these complications might occur does not detract from the use of the technique for local anesthesia, nor should it be a deterrent to the use of this technique as a lifesaving procedure. Neither of these complications occurred in this small group of patients.

The introduction of oxygen through the transtracheal needle might be a cause of complications. If the point of the needle were not located within the lumen of the trachea, subcutaneous emphysema would occur. A small amount of subcutaneous emphysema was noted in one patient not included in this series, in whom the procedure was done as an emergency measure. In addition, if the point of the needle were to enter a blood vessel, the possibility of air embolism would exist. This has not been known to occur. It must be strongly emphasized that the administration of oxygen should not be begun unless the operator is certain that the point of the needle is within the lumen of the trachea. At the time that the needle is introduced, a syringe is attached to it and air is aspirated from the trachea repeatedly. Free movement of the plunger of the syringe indicates that the needle is properly placed. An additional complication might be the perforation of other structures by the needle if it were improperly placed. In children, particularly, since the tracheal walls are not very rigid, it would be possible to insert the needle into and through the trachea and penetrate the tissues behind it. This must be guarded against by very careful introduction of the needle and by securing it firmly in place.

Summary and Conclusions

Respiratory obstruction may occur as a complication of general anesthesia. Usually this can be treated by simple measures. If these are not effective, endotracheal intubation or tracheotomy should be performed. If these cannot be done for any reason, transtracheal insufflation of oxygen may be utilized as a stopgap measure. Oxygenation can be maintained by this technique for periods of 30 minutes or longer. Within this time skilled help can usually be obtained for definitive treatment of the respiratory obstruction. It is not recommended that transtracheal resuscitation be used as a substitute for endotracheal intubation or tracheotomy, but it can be of value for a relatively brief period for the prevention of death from anoxia.

References

1. Sheldon, H. C.; Pudenz, R. H.; Freshwater, D. B., and Crue, B. L.: New Method for Tracheotomy, J. Neurosurg. **12**: 428-431 (July) 1955.

2. Reed, P. J., and others: Studies with Transtracheal Artificial Respiration, Anesthesiology **15**: 28-41 (Jan.) 1954.

3. Hooke, R.: Account of Experiment Made by R. Hooke, of Preserving Animals Alive by Blowing Through Their Lungs with Bellows, Phil. Tr. Roy Soc. **2**: 539-540, 1667. Meltzer, S. J., and Auer, J.: Continuous Respiration Without Respiratory Movements, J. Exper. Med. **11**: 622-625, 1909. Draper, W. B., and Whitehead, R. W.: Diffusion Respirations in Dog Anesthetized by Pentothal Sodium, Anesthesiology **5**: 262-273 (May) 1944. Roth, L. W.; Whitehead, R. W., and Draper, W. B.: Studies on Diffusion Respiration: II. Survival of Dog Following Prolonged Period of Respiratory Arrest, ibid. **8**: 294-302 (May) 1947. Draper, W. B.; Whitehead, R. W., and Spencer, J. N.: Studies on Diffusion Respiration: III. Alveolar Gases and Venous Blood pH of Dogs During Diffusion Respiration, ibid. **8**: 524-533 (Sept.) 1947. Whitehead, R. W.; Spencer, J. N.; Parry, T. M., and Draper, W. B.: Studies on Diffusion Respiration: IV. Oxygen and Carbon Dioxide Content and Hydrogen Ion Concentration of Arterial and Venous Abdominal Blood of Dogs During Diffusion Respiration, ibid. **10**: 54-60 (Jan.) 1949. Spencer, J. N.; Draper, W. B.; Parry, T. M., and Whitehead, R. W.: Studies on Diffusion Respiration: V. Hemoglobin-Oxygen Pump, Fed. Proc. **7**: 119-120 (March) 1948. Draper, W. B., and Whitehead, R. W.: Phenomenon of Diffusion Respiration, Anesth. & Analg. **28**: 307-318 (Nov.-Dec.) 1949. Parry, T. M.; Spencer, J. N.; Whitehead, R. W., and Draper, W. B.: Studies on Diffusion Respiration: VIII. Changes in Heart Rate, Blood Pressure and Electrocardiogram in Dogs During Diffusion Respiration, Anesthesiology **10**: 615-620 (Sept.) 1949. Shires, T., and Eyer, S. W.: Studies in Diffusion Respiration, J. Aviation Med. **22**: 22-30; 38 (Feb.) 1951.

ADVERSE REACTIONS TO MEPROBAMATE

Henry T. Friedman, M.D.
and
Willard L. Marmelzat, M.D., Beverly Hills, Calif.

• *Adverse reactions seen after the administration of the tranquilizing drug meprobamate included cutaneous, muscular, gastrointestinal, and paradoxical cerebral effects. The cutaneous effects, seen in five cases, were chiefly purpuric and accompanied by intense itching; one 400-mg. tablet of meprobamate sufficed to produce the skin lesions without previous exposure. Temporary palsy of extraocular muscles produced diplopia in one case; severe diarrhea occurred in another. Paradoxical cerebral reactions in the form of extreme excitement were seen in three cases. The seven case histories here given illustrate the intensity and reproducibility of these reactions. All patients recovered after the drug was withdrawn; recovery was hastened by the use of antihistaminics, corticotropin, topical applications, and colloidal baths.*

Meprobamate is a drug that has received extreme widespread acceptance by the medical profession of the United States as well as by the general public. Scarcely a day goes by without some laudatory mention of this wonderful new tranquilizing drug in the daily press, in national lay periodicals, and even through radio and television mediums. Particularly in the area in which we practice is this compound being used indiscriminately for a tremendous number of patients by a large number of physicians. The desire for a harmless pill that will almost magically return man into a bucolic, idyllic emotional state free from everyday stresses and strains is a deep-rooted one. There is extreme paucity of pharmacological and clinical reports on this compound. Likewise, to our knowledge, no clinical reports have been published of toxic, idiosyncratic, or allergic reactions. The drug has been on the clinical market for only approximately one year, and we feel that it is time to warn the medical profession of possible toxic and allergic reactions to this compound. The only clinical reports published to date are by Selling[1] and Borrus.[2]

Clinical Instructor in Medicine, University of California at Los Angeles (Dr. Friedman), and Chairman, Department of Dermatology and Syphilology, Queen of Angels Hospital and Santa Rita Clinic, Los Angeles (Dr. Marmelzat).

Pharmacology

Meprobamate, or 2-methyl-2-*n*-propyl-1, 3-propanediol dicarbamate, was first synthesized by Ludwig and Piech[3] in 1950. It is stable in both gastric and intestinal juices and is relatively insoluble in water. The original pharmacological and toxic actions were studied in animals by Berger,[4] utilizing rats, mice, dogs, cats, rabbits, and monkeys. Meprobamate resembles mephenesin in producing reversible paralysis of the voluntary muscles without significantly affecting autonomic functions. It acts on the central nervous system and, in fact, inhibits internuncial circuits. It is antagonistic to strychnine and counteracts symptoms from released inhibitions during light anesthesia. It also augments anesthesia with barbiturates. There is little direct action on the muscles, no effect at myoneural junctions, and no blocking of conduction of peripheral nerves. Closely related to mephenesin, it has a much longer duration of action and is rapidly absorbed through the gastrointestinal tract. The latent period for action of the compound is as long as the duration of action once it is established. No nausea or emesis is produced in dogs, monkeys, or man. Approximately 10% is secreted unchanged and the remainder conjugated with glucuronic acid in the urine.

Report of Cases

Case 1.—A 55-year-old female was placed on meprobamate therapy, 400 mg. twice a day. After the patient had taken the second pill, severe diarrhea developed, with cramps, gas, and nine watery stools in 24 hours. Medication was discontinued at once, and 48 hours were permitted to elapse before the readministration of one 400-mg. tablet orally, which produced diarrhea within one hour.

Case 2.—A 73-year-old male was given meprobamate, in a 400-mg. tablet, to relax him because of coronary artery disease and chronic cardiac decompensation. Four hours after initial ingestion of the tablet he had chills, and within six hours he had an eruption that was purpuric and maculopapular in type. The rash occurred pubically and about the pelvic girdle, anteriorly and posteriorly, and in both antecubital fossae. Itching was marked and extreme in character. Twelve hours after the patient's ingestion of the pill, the eruption began to clear. It took three days to entirely disappear. One week later the patient was given 200 mg. of the same compound, in four hours itching began, and after five hours the eruption began to appear. It was less severe but in the same locale and presented similar primary lesions. On March 20, 1956, one 400-mg. tablet was given orally experimentally, and four hours later the eruption began to appear. This was quite severe, as in the original outbreak. There seems to be no doubt of the cause-and-effect relationship of this drug and the appearance of the rash. This patient had never had a drug eruption before nor had any known allergic symptoms.

Case 3.—A 33-year-old female, without prior history of allergic disease or sensitivity to drugs, received 400 mg. of meprobamate four times a day for 15 days. On the 16th day she developed a small group of violaceous maculas on the midback. Rapidly, within a period of two days, the eruption became generalized over the entire body in a symmetrical fashion, with maculas, papules, and small vesicles. All the lesions were purpuric in nature and showed a tendency toward coalescence. The mucous membranes were not involved. Medication was discontinued, and the patient was treated with corticotropin (ACTH), 80 units per day intramuscularly, plus colloidal baths and topical therapy. She recovered in one week. Later she was given one 400-mg. tablet of the same drug and developed a similar eruption on the back of the trunk. Biopsy and histopathological diagnosis of the initial site on the back gave the following findings. The epidermis exhibited alternating exaggeration and diminution of the granular layer with slight surface hyperkeratosis. The capillary tufts were dilated, with moderate thinning of the suprapapillary plates. The most general change was noted in the cutis and consisted of plasmocytic and lymphocytic periadnexal and pericapillary infiltration in a collarette arrangement. The patient's serologic tests for syphilis were negative.

Case 4.—A 49-year-old female had no history of any drug sensitivity except for the development of a pruritic dermatosis involving the right breast, both axillas, the back, and the inguinal region two years previously, after the systemic administration of penicillin. She had no other history of allergic or atopic disease. She had been instructed to take 800 mg. of meprobamate at six-hour intervals for nervousness. After the first dose of 800 mg. she developed an acute eruption involving the right breast, both axillas, the back, and the entire inguinal area. Examination revealed an acute process, involving the skin of the right breast, back, axillas, inguinal folds, and vulvar areas. This consisted of an erythematous base, with a loosely adherent furfuraceous scale. Borders of the lesions were not clearly demarcated. Diascopic examination produced a complete blanching of the erythema. Mycologic cultures and scrapings revealed no pathogenic growth. Therapy consisted of medicated baths, compresses with dilute alibour water, topical administration of hydrocortisone cream, and antihistamines given parenterally. The patient's eruption disappeared within 72 hours. Five days later 400 mg. of the meprobamate orally produced the same eruption in the same area within three hours.

Case 5.—A 51-year-old female took four 400-mg. tablets of meprobamate per day for one week prior to the onset of an eruption on her back. In a 48-hour period the eruption spread rapidly to involve her neck, both upper extremities, and the upper thighs. The pruritus was most intense. There was no history of any previous allergic or atopic diseases. She had been given one x-ray treatment and medication topically by another physician and was seen by us five days after the onset of the original lesion. Examination revealed the presence of a symmetrical eruption over the back, neck, thighs, and upper extremities, with the wrists being particularly involved. Eruption showed a faint red morbilliform pattern, with a tendency toward confluence in the large macular areas. The mucous membranes were not involved. The patient improved rapidly under treatment with colloidal baths, corticotropin, 60 units per day for five days, antihistamines orally and by intramuscular injection, and hydrocortisone cream topically. One week later the patient took one 400-mg. tablet of meprobamate, and pruritic, erythematous maculas recurred in the identical areas previously involved within approximately three hours after the ingestion of the medicament.

Case 6.—A 45-year-old male took one 400-mg. tablet of meprobamate, and three hours later there was a marked erythema of the genitalia and the inner aspects of both thighs. Itching was severe, and the lesion was red and macular in type. The patient was placed on therapy with antihistamines orally, and the rash cleared up in approximately three days.

Case 7.—A 32-year-old female was given 400 mg. of meprobamate every morning for two days without any therapeutic effect or ill-effects. The next day she took 800 mg. at 4 p. m. At 8 p. m. diplopia accompanied by nausea developed. This lasted until she fell asleep. The next day she was well. The patient has developed generalized dermatitis from penicillin. She has had hay fever, eczema, and bronchial asthma since early childhood.

In addition, there were three cases of paradoxical reaction to meprobamate of extreme excitement rather than tranquilization. After two tablets in each instance the meprobamate therapy was discontinued. One tablet subsequently produced excitement and nervousness within one hour after oral administration.

Comment

Although there were only sparse reports in the literature regarding this new drug and no samples were sent out to practicing physicians for trial, meprobamate, marketed by two related established drug companies under two different names, has been sold from coast to coast in great quantity. Almost a year was required for the production to equal the demand. From various physicians in our area, we found that many internists have seen several patients with drug eruptions from meprobamate. Some cases have been so severe that hospitalization and treatment with intravenously given corticotropin were required. In an occasional case the life of the patient was in actual danger. No one to date, however, has reported these cases in clinical literature. We have learned of cases with generalized urticaria, the localized fixed drug-type eruption, and the morbilliform toxic-type drug eruption. Basically, the lesions we have seen fall into four categories, namely, muscular paralysis, intestinal hyperactivity, dermatological reaction, and paradoxical reaction.

From the pharmacology of the compound,[4] muscular paralysis with a large dose would appear to be a real possibility. For ocular palsy to occur from two tablets (800 mg.) seems impossible; yet it occurred in one patient. Intestinal hyperactivity from a muscle-relaxing compound that is said to have no autonomic nervous system effects seems rather paradoxical, as in case 1. On the other hand, paradoxical reactions, where sedation is expected and excitement is produced, have long tradition in regard to the barbiturates and other sedative compounds.

The skin lesions were interesting, in that the sites of predilection appeared to be the pelvic girdle area, the breast area, and the flexor surfaces of the arm. Less commonly involved were the trunk, anteriorly and posteriorly, and the legs. More remarkable was the fact that a patient who had never taken the compound before would develop the reaction within three to five hours after taking one tablet. Usually in drug eruptions the patient has had prior contact with the compound before developing dermatitis medicamentosa. In other words, prior sensitization is required before a reactive state is created, which on reexposure gives a clinical allergic response. A possible explanation of this phenomenon is that these patients have been exposed in the past to chemically related compounds such as mephenesin. No percentages of toxic reactions can be given, as we have no idea of the morbidity of adverse reactions in a large definitive series of patients on therapy with this compound. However, Selling[1] reported on 187 patients without any adverse responses in 1955.

Summary

As a result of administering a new tranquilizer, meprobamate, we have seen three cases of paradoxical excitement, one case of intestinal hyperperistalsis with rice water stools, one case of palsy of the extraocular muscles with diplopia, and five cases of skin lesions, chiefly but not solely purpuric in nature, extremely pruritic, and with a predilection for the lesions to appear first in the pelvic girdle area, genitalia, and groin in both males and females. As yet no severe exfoliative dermatitis has been seen, though this appears to be a likely prospect. Initial exposure with one 400-mg. tablet of meprobamate may produce the skin lesions in less than four hours. Meprobamate has the potential of producing a number of diverse dermatological patterns that may be confused with other dermadromes. No mucous membrane lesions were seen.

435 N. Roxbury Dr. (Dr. Friedman).

References

1. Selling, L. S.: Clinical Study of New Tranquilizing Drug: Use of Miltown (2-Methyl-2-n-Propyl-1, 3-Propanediol Dicarbamate), J. A. M. A. **157**: 1594-1596 (April 30) 1955.

2. Borrus, J. C.: Study of Effect of Miltown (2-Methyl-2-n-Propyl-1, 3-Propanediol Dicarbamate) on Psychiatric States, J. A. M. A. **157**: 1596-1598 (April 30) 1955.

3. Ludwig, B. J., and Piech, E. C.: Some Anti-Convulsant Agents Derived from 1, 3 Propanediols, J. Am. Chem. Soc. **73**: 5779-5781 (Dec.) 1951.

4. Berger, F. M.: Pharmacological Properties of 2-Methyl-2-n-Propyl-1, 3-Propanediol Dicarbamate (Miltown): New Interneuronal Blocking Agent, J. Pharmacol. & Exper. Therap. **112**: 413-423 (Dec.) 1954.

A STATEWIDE PROGRAM FOR HOSPITALIZATION OF THE INDIGENT

H. Phillip Hampton, M.D., Tampa, Fla.

• *The provision of hospital care for the indigent in Florida has been a responsibility of the individual county governments, but the unevenness of budgeting and frequent evasion of responsibility has made the county line, for some patients, a barrier to good medical care. Recent legislation has made it possible to initiate a program for hospitalizing the acutely ill indigent by creating a state and county matching fund out of which payments can be made directly to hospitals for the costs of caring for certified indigents. Further decisions will have to be made concerning outpatient care for the indigent and compensation to physicians for indigent medical care. The Florida Medical Association has authorized a foundation fund to promote graduate medical education in hospitals, provide outpatient care for the indigent, and encourage better medical care throughout the state. It is recognized that indigence itself is a disease that needs to be eradicated, and that the primary purpose of medical care must be rehabilitation of the patient to independence.*

To provide good medical care for the people of the United States today requires no departure from traditional principles of the medical profession that have been paramount in achieving the finest state of health of any nation in the history of mankind; but, on the contrary, to meet the problems of medical care in a modern, rapidly growing, largely urban population, these traditional principles require emphasis and novel application in a cooperative manner. If we are to resist the pressure for complete state control of medicine and to successfully defend the principle that a free medical profession can best and most economically administer medical care to the American people, then we must present positive plans for such care for all of the people. Voluntary health insurance appears the answer for the majority, but the indigent, by definition, cannot afford the premium.

Chairman of the State Advisory Council on Hospitalization Service for the Indigent.

Read before the Section on Preventive and Industrial Medicine and Public Health at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956.

Care of the poor is a measure of civilization, but indigency must be recognized as a disease, the end-result of several causes—economic, sociologic, medical, and political. The judicious use of aid may relieve suffering and perhaps help to remove the cause of indigency, but indiscriminate welfare programs, especially politically inspired, will be insidiously destructive of initiative and create more dependency. The treatment of indigency must be specific; a panacea will lead only to addiction. The goal of successful therapy must be rehabilitation to independence.

Preliminary Study

In 1954 the Florida Medical Association requested the state's governor to name a committee to study the rapidly growing problem of hospital care for the acutely ill indigent in the state. The request was motivated by concern that many indigent persons in some parts of the state were not getting proper medical care, by the fact that hospitals were required to absorb much of the cost of caring for the acutely ill indigent person, and, by the hope that in providing an adequate correlated statewide program for care of the acutely ill indigent the cause of some indigence could be eradicated. In order to simplify the initial study, hospital care for the chronically ill indigent and compensation to physicians were not included. It was assumed the doctors of Florida would continue their services to acutely ill, hospitalized indigent persons without charge, pending further study.

The committee report published in two volumes presented the following major findings: Although the Florida constitution charged the county governments with the responsibility of providing hospital care for the indigent, the majority of counties either ignored the responsibility or budgeted an amount entirely inadequate to provide proper hospital care. As a result, (*a*) hospitals were usually required to absorb all or part of the cost of indigent hospitalization and passed this cost on to paying hospital patients and (*b*) the county line often acted as a barrier to good medical care and prevented efficient use of existing hospitals established under the regional hospital system in neighboring counties. The absence of a statewide plan for hospitalization of the acutely ill indigent tended to encourage the creation of an all-charity hospital in each county, a deceptively costly and undesirable method of providing hospitalization by "class." (A major finding of the Hoover commission task force on federal medical services was the wasteful inefficiency of the national, undemocratic practice of providing hospital care for the sick by "classes"—separate hospitals for veterans, merchant seamen, federal employees, and each of the military services.)

There are two groups of individuals unable to pay for medical and hospital care: (*a*) those persons on the state welfare rolls who require public assistance for food, clothing, and shelter and (*b*) those persons who, after proper investigation, are found able to provide the basic necessities for themselves but cannot meet the cost of medical care and hospitalization—the medically indigent. The latter group is being rapidly increased by the influx to Florida of new permanent residents, many of whom have retired on small pensions. Medical services to the indigent granted gratuitously by physicians of the state cannot be easily evaluated, but a cursory inquiry indicates that many millions of dollars' worth of free services are given each year. A physician may give his services without cost to anyone but himself; however, there is no such thing as free hospital care—someone must pay the bill. Determination of indigence and provision of relief can best be administered at the county government level, and the local governments should be encouraged to assume their responsibility and coordinate their efforts.

The committee recommended establishment of a uniform system of hospitalizing the acutely ill indigent by creation of a state and county matching fund out of which payments might be made directly to hospitals for the costs of caring for certified indigents. It recommended that the fund be administered through the state board of health, with authority to regulate methods of determining indigence, approve hospitals, establish uniform methods of hospital accounting, and determine hospital cost rates; the board would cooperate with other state and federal agencies in providing hospital care for the indigent.

Method of Operation of Program

The recommendations were enacted into law by the 1955 Florida legislature and became effective Jan. 1, 1956. Although the initial appropriation was inadequate, the program has been adopted by about one-third of the counties and has created widespread interest in the problem of hospitalization of the indigent. The program is administered through the county health officers and is flexible enough to meet the individual problems of each county. The health officer may delegate determination of indigence and other duties to qualified agencies. A one-page form is used by the physician who makes the diagnosis and refers the patient for hospital admission, by the social worker who determines indigence, and by the hospital for the bill.

A Hospital Service for the Indigent Fund may be set up in each county, to which the state will contribute not more than the amount spent by the county for hospital care of the acutely ill indigent, or the county may send the entire amount it has budgeted for hospital care of the acutely ill indigent to the state fund, from which hospital bills may be paid directly. The state welfare board has expressed the desire to provide hospitalization for acutely ill indigent persons who are receiving welfare aid and has pooled funds for use through the Hospital Service for Indigent program, which in effect provides welfare recipients with adequate hospital insurance. This coordinated program as initiated by the Florida Medical Association will provide better hospital medical care for the indigent, with a more equitable distribution of costs and full utilization of existing hospital facilities.

Plans for Further Development

Further development of this plan of hospital care for the indigent may offer far more to the people of Florida and the medical profession, but major decisions of policy are required to direct the development, and the decisions should be made by the medical profession concerning (1) outpatient care for the indigent, (2) graduate medical education in hospitals, and (3) compensation to physicians for indigent medical care.

It is obvious that good outpatient care for indigent persons would often prevent the necessity of hospitalization, provide better selection of hospital cases, and permit earlier discharge of patients. It would be a logical development of indigent medical care economically and medically. The control of outpatient services must be supervised by the medical profession for the most efficient and effective administration of medical care.

Graduate medical education in hospitals has become a prerequisite for adequate medical training and a potent influence in improving hospital care. The imminent development of two medical schools in Florida accentuates the need for improved postgraduate medical educational facilities throughout the state. Improved graduate medical education in hospitals will provide better medical care for the indigent more economically, for nothing is more costly than cheap medical care.

The traditional compensation to physicians for medical care of the indigent has been the satisfaction of helping to relieve suffering and aiding the progress of medical knowledge. Recently several government medical care programs have offered fees for some medical services to hospitalized indigent persons. Acceptance of such fees is a small price for which to sell the heritage of American medicine, for, if the physician accepts government fees for care of the indigent, can he logically oppose government-paid medical care for all? In practice it has been found that payment of fees for medical service to the indigent does not encourage the best medical talent to participate, but providing medical care to the indigent in conjunction with a medical education program attracts voluntary services of the most able physicians. In this manner the liability of indigent medical care may be converted into a valuable asset to the community and foster better medical care for all of the people.

The Florida Medical Association has authorized a foundation fund to promote graduate medical education in hospitals, provide outpatient care for the indigent, and encourage better medical care throughout the state. The medical profession can best administer such a program to achieve the greatest beneficial effect from the funds expended. The coordinated development of outpatient facilities for indigent medical care and graduate medical education in conjunction with the Hospital Service for Indigent program, with hospitals throughout the state used to maximum efficiency, will require study and careful planning. Such a pilot demonstration research project has been described and a grant requested for financing the study.

Conclusions

Free medical care to the poor has been a humanitarian principle of the medical profession that has been found to yield additional rewards in fostering cooperation among physicians and promoting medical education and research. Recently, however, medical care of the indigent has fallen into government hands, largely because of the overwhelming magnitude of the problem in urban communities, but also to some extent due to default by the medical profession, whose members have become preoccupied with rapidly advancing technical and scientific achievements to the neglect of traditional interest in medical problems of the community and affairs of government.

The smaller government (county) units should be encouraged to assume their responsibility to provide hospitalization for the indigent, and the medical profession should continue services to hospitalized indigent persons without the individual physician accepting government fees. Physicians should provide medical services and administer the program of medical care for the indigent in a cooperative manner to improve graduate medical education and medical care for all.

Rehabilitation to independence must be the primary purpose of medical care in order to effectively eradicate the disease of indigence. Intelligent administration of indigent medical care programs by cooperative effort of the medical profession will provide opportunity for rewards far beyond the medical service rendered.

706 Franklin St. (2).

Alkaptonuric Arthritis.—Alkaptonuria is a rare inborn error of metabolism in which occurs a defect in the breakdown of the amino acids phenylalanin and tyrosin. Katabolism stops at the stage of homogentisic acid, which is excreted in the urine. There it slowly oxidizes, producing the characteristic dark colour. The disease is inherited as a Mendelian recessive character. Almost all alkaptonurics by the time they reach middle life develop ochronosis, a pigmentation of the cartilage and fibrous tissues of the body. Secondary degenerative changes in articular cartilages and intervertebral discs cause a widespread arthritis. Less than one hundred cases of this form of arthritis have so far been described. Few instances have been recorded in patients under thirty and most have reached forty before joint symptoms are noticed. Although alkaptonuria has an approximately even sex distribution, alkaptonuric arthritis is much more common in men. Although most patients develop a stiff spine, only about half of them have serious pain in the back. Deformity, never great, is caused by narrowing of the intervertebral discs. The joints of the shoulder girdle are frequently involved, usually the gleno-humeral joint, but sometimes, as in the case described by Leslie (1943), the sterno-clavicular joint. Knees and hips are affected but the smaller joints rarely so. Radiographs of the spine in established ochronosis are diagnostic. The thoracic and lumbar discs become narrow and calcified. The calcification is diffuse throughout the disc, sparing only the peripheral few millimeters and the hyaline plates against the vertebral bodies. It is also discrete from the osteophytic lipping on the vertebral margins.—A. J. Harrold, Alkaptonuric Arthritis, *The Journal of Bone and Joint Surgery*, May, 1956.

HOSPITAL AND MEDICAL FACILITIES SURVEY AND CONSTRUCTION PROGRAM

John W. Cronin, M.D., Washington, D. C.

• *There is an imperative need for leadership by the medical profession in programing all categories of health facilities at the community level. Funds have been authorized for hospitals and related health facilities, for nursing homes, for diagnostic and treatment centers, for ambulatory patients, and for rehabilitation facilities by virtue of the Hospital Survey and Construction (Hill-Burton) Program instituted in 1946 and the Medical Facilities Survey and Construction Amendments of 1954. The total annual authorization of this program is 210 million dollars. The actual annual appropriations have averaged about one-half of the authorization. The total estimated cost of the 2,905 projects approved (May, 1956) amounted to 2.284 billion dollars. The federal contribution is 740 million and is matched by sponsor's funds amounting to 1.544 billion dollars. The current estimated bed deficit in the United States and territories, as reflected by the official Hill-Burton state plans, is 850,000 beds. Developments under this program have been substantial but slow. The public health physician and the private practitioner form the team to which the citizens look for guidance in these matters.*

The Hospital Survey and Construction (Hill-Burton) Program was instituted in August, 1946. Its purpose is to make available adequate hospital, clinic, and similar services to all the people through a program of grants to states for survey and planning and to provide grants on a matching basis to assist in the construction of public and voluntary nonprofit hospitals, public health centers, and related facilities. The facility must fill a community need and may be new construction or the remodeling or enlarging of existing facilities. The project sponsor must initiate the project and is responsible for its operation. The federal government provides financial assistance, sets minimum standards of construction, and by law, is restricted from the selection of personnel in the operation of, or in exercising any supervision or control over the administration of, the completed facility. All projects must be nonprofit or public in type, must render a community service, and must not discriminate on the basis of race, creed, or color.

Funds

The Medical Facilities Survey and Construction Amendments of 1954 authorized categorical funds for hospitals for the chronically ill and impaired, nursing homes, diagnostic centers or diagnostic and treatment centers, and rehabilitation facilities. Federal funds were appropriated to match state funds to survey the need for hospitals and medical facilities prior to the utilization of the construction funds within the respective states. The program in the states is administered by a single state agency, which in all but eight states is the health department.

As of May 1, 1956, the total estimated cost of all facilities approved amounted to 2.284 billion dollars. The federal contribution is 740 million dollars and is matched by sponsor's funds amounting to 1.544 billion dollars. There have been 2,905 projects approved. Of these, 2,035 projects providing 94,566 beds have been completed and are in operation, 553 projects adding 24,915 beds are currently under construction, and 317 projects adding 11,580 beds are in the preconstruction stage. A total of 131,061 hospital beds, 619 public health centers, and many other adjunct facilities are being added to our nation's reservoir of health facilities.

The majority of all approved applications (73%) are for general hospitals with a total of 94,928 beds; 3% are for mental hospitals with 13,047 beds; 2% are for tuberculosis hospitals with 8,478 beds; 2% are for chronic disease facilities with 7,484 beds; 19% are for public health centers; and 1% is for other related health facilities. It should be pointed out that the terms beds and bed shortage are always symbolic of services and service deficits. Twenty per cent of the total funds went to teaching institutions, including 37 university medical school hospital projects. Of the 1,057 new hospitals, about 55% are located in towns under 5,000 population, while only 11% are in cities of 50,000 or more. The civil defense implications are obvious. Five hundred thirty-five new general hospitals are located in areas in which no hospitals existed prior to the beginning of the program.

The total annual authorization of this program is 210 million dollars. The actual total annual appropriations have averaged about one-half of the authorization. The estimated bed deficit in the United States and territories, as reflected by the official Hill-Burton state plans, is 850,000 beds. Progress in alleviating this shortage is slow because of annual population increase and the physical and functional obsolescence of the nation's existing hospital resources.

In 1955, $1,200,000 of federal funds was appropriated for research, experiments, and demonstrations in hospital services, facilities, and resources by the Public Health Service and also through grants to states, universities, and nonprofit organizations. These funds have been allocated to 27 applicants, and a wide range of studies are under way. It is anticipated that these studies will add a great deal of information in regard to a better utilization of hospitals and medical facilities as well as develop newer methods of better patient care.

Health Maintenance

The modern medical program for the individual is one of health maintenance. This requires a fusion of curative, preventive, and restorative services. The public health physician and the private practitioner form the team to which the citizens look for guidance, leadership, and assistance in all health matters. There must be mutual understanding, mutual trust, mutual respect, and a spirit of complete cooperation between these health leaders. The public expects it; the patient requires it. Public health physicians must be interested and active in medical care problems and services. The

---

Chief, Division of Hospital and Medical Facilities, Public Health Service, Department of Health, Education, and Welfare.

Read before the Section on Preventive and Industrial Medicine and Public Health at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956.

private practitioner likewise must know more about and actively support public health practices. Anything less will result in quasiprofessional leadership in total health matters and less than appropriate and satisfactory health services to the individual and the mass of individuals known as the public. We as physicians must meet this situation objectively and with forthright actions. It is our responsibility and our obligation to accord leadership in matters of health so that the patient may be accorded health services of the highest quality and devoid of distracting influences, which can only detract from the quality of patient care rendered.

The demands of high-quality patient care today require the utilization of diagnostic instruments of precision that are complicated, expensive, and ever on the increase. They serve to assist the physician to practice scientifically. They supplement his efforts in practicing the art of medicine. Instruments of precision per se have little value. They require proper utilization in a proper setting by skilled users, and, above all, judgment and interpretation in the application of their results by the physician in the light of his findings after the acquisition of the history and the examination of the patient. The contributions of the chemist, the physicist, and the engineers to the development of modern instruments of precision have been enormous and of great value. The capital costs required for those instruments are great and perhaps will increase as new ones and ways of utilizing them are developed.

In many communities the hospital serves as the mobilization depot for diagnostic instruments of precision as well as providing the clinical laboratory service facilities. Frequently located at or near the hospital are found physicians' offices, and in many areas the public health facilities of the community are adjacent. In such arrangements, a true medical center has developed and total health maintenance programs are developing.

Needs of Chronically Ill

One of the current problems in medical care relates to provision of facilities and type of care designed to meet the needs of the chronically ill and impaired. Many such patients do not require the usual hospital services and yet do require skilled nursing care under a physician's direction. Frequently this type of care is beyond the facilities to be found in a home. These factors, among others, underlie the development of the nursing home designed for and operated to provide skilled nursing care and in which the patient is under the attending physician's care. This type of nursing home is an essential part of the constellation of medical care facilities. The standards of design and construction, as well as those for the quality of services rendered in such nursing homes, should meet the demands of its patients just as specifically as in the modern general hospital of today we find standards of design and construction and standards of operation for the acutely ill.

It has been estimated that at least 25% of the general hospitals' patients are chronically ill. Many of these can be adequately cared for in a skilled nursing care home at less than one-half of the per diem cost of care in the general hospital. In addition, the construction costs per bed are considerably less than for the average general hospital.

The medical care of our ever-increasing group of citizens over the age of 65 years demands special consideration. When one realizes that each day about 1,000 people join the more than 13 million others who are over 65 years of age in this nation, and that many of them currently have or may acquire chronic illnesses and impairments, one must deduce that the need for medical leadership is great in developing resources for the aging. Facilities for day care and others for night care only are being planned. These types of facilities require medical services in many instances.

Rehabilitation and Health Education Programs

There is need for advice of physicians in developing and planning the housing facilities for persons seeking intensive diagnostic services through their attending physicians at the health and medical centers on a noninpatient status. The scope, character, and extent of diagnostic services that may be appropriately accorded require medical opinion and judgment. The contributions of the physician to industry in assisting in the planning for the employee programs to more closely relate the total capacities of the individual to the demands of the job are invaluable to management and of greatest importance to the employee. This area of activity of the physician, as in his services to the chronically ill and impaired, brings to the forefront his role in rehabilitation programs. It is essential and requires his keenest judgment and taxes his faculties of leadership.

The 1954 amendments to the Hill-Burton program relating to the survey of need for and assistance in the construction of chronic disease facilities, diagnostic or diagnostic and treatment centers, nursing homes, and rehabilitation facilities were designed to induce sponsors to develop planning for and to construct these needed types of health facilities. This aspect of the program is developing slowly and brings into focus the quality of care to be accorded through our health facilities. The need for and responsibility of leadership by the medical profession in programing all categories of health facilities at the community level are imperative and must be accepted by every competent physician. Many physicians have done just this in many communities. The public health physician has inherent in his position the health of the public. As with the private practitioner, one of his most effective tools is a health education program. In my opinion health education and research are basic to all health programs. There is need for much more of each. The public health physician should enter the field of research in medical care and effectuate the application of the research studies. The public health physician is a doctor of medicine by training and by experience has acquired a broad appreciation of the basic needs of people in the health area. His qualities of leadership and his unique knowledge relating to the problems supporting total health maintenance programs are needed by the private practitioner and the general public. His obligation is to make his contribution effectively. Who else is better qualified by training, experience, and interest?

330 Independence Ave. (25).

MOVEMENT IN DIAGNOSIS AND TREATMENT

Frances Baker, M.D., San Mateo, Calif.

• A study of the patient's movements is essential to physical diagnosis, and a study of such movements is the basis for treatment of locomotor dysfunction by exercise. Both diagnosis and treatment require a knowledge of the rhythm of movement obtained not only by research but by the development of a fine sense of "feel" and a degree of manual dexterity that can be acquired by constant practice and that, therefore, cannot be taught didactically. The doctor must learn to work with his hands when treating his patients in an attempt to reestablish functional movements. Then he can transfer his ideas and techniques by demonstration, better than by words, to his staff. The physiatrist is equipped especially to use physical agents for diagnosis and treatment. These agents should not be neglected. Exercise for the purpose of reestablishing functional movement to as nearly normal as the pathology will permit is of greatest importance, yet careful study of its application has been neglected.

Motion is the essence of life. Like all things pertaining to life, we know little concerning it. It is an inherent characteristic of all animate things to move through space with ease and power, not only for protection but for the pleasure of doing so. Man has developed games of skill and of prowess and the dance for the satisfaction and joy of motion. When, for any reason, the rhythm of movement is disturbed it becomes a handicap to the individual, and if the ability to move is decreased or lost that individual is severely handicapped, crippled, or helpless.

The desire to reduce or correct the pathological condition or to reeducate the individual to a pattern of movement has resulted in research of many types. The methods of observation and of recording have made tremendous advances. From simple observation we have passed to photography and now to cinematography; from palpation and faradization we have moved on to electromyography; and from the kymograph we have changed to the oscillograph. We are able to observe and measure motion as it occurs in the joints under normal and pathological conditions and to determine its effect on the different parts of the body with ever-increasing accuracy.[1]

Research Pertaining to Locomotion

Locomotion, though appearing simple in the normal case, is actually dependent upon complicated mechanisms. Any information that can be obtained to give us more adequate knowledge of the mechanisms employed in locomotion is of value in directing exercise for therapeutic purposes. Information obtained from the motion picture has proved to be of assistance in analyzing the movements of the body in the three planes of motion: (1) sagittal, the plane of progression; (2) frontal, the elevation and depression that occurs with progression; and (3) horizontal, in which transverse rotary movement occurs.

One excellent project[2] can be mentioned as an example of some of the fine research that has added to our knowledge of movement and has changed many previous conceptions concerning it. This report is the result of research by a team of specialists over a period of two years at the University of California. In this study, records made simultaneously by motion picture and the electromyograph gave invaluable information on which to base conclusions. The study showed that movement in the plane of progression is accompanied by definite changes in the frontal and horizontal planes. Not only elevation and depression but rotary movement as well occur with progression in space. For instance, in general, upward or forward angular displacement of the pelvis and leg take place during the swing phase, while downward and backward angular displacements occur during the stance phase. Lateral and medial movement of the pelvis and adduction of the femur are compensated for by abduction of the lower leg. The transverse rotation that takes place in the extremity is of particular importance to a smooth gait. Study of the rotation reveals inward and outward rotation taking place from pelvis to foot, with the greater angles existing distally. Rotation takes place at joints, permitting relative rotation of one bone with respect to another. Transverse rotations of the pelvis, femur, and tibia occur in all normal individuals and seem to be absorbed in the articulations and ligaments of the foot. Inward rotation starts as the foot leaves the floor and continues to increase until the heel strikes the floor and until the extremity receives the full weight of the body. During the stance phase outward rotation takes place. If, for any reason, movement in the various planes is blocked or disturbed, the normal rhythm is seriously disturbed.

With motion pictures to show the movement in the three planes and electromyographic tracings to record the activity of the muscles in relation to the movement of the particular skeletal part, the exact time at which a muscle begins activity and the exact time at which such activity is terminated during the phases of swing and of stance can be plotted. By this study, it has been found that groups of muscles fall into the following three main classifications with regard to their important action in locomotion: acceleration, deceleration, and stabilization. We not only require information regarding movement but require knowledge concerning the muscular action that is used primarily to establish stabilization and equilibrium. These do not manifest themselves in visible motion, yet they play the most important part in locomotor performance. Some knowledge of the conditions under which the body maintains its equilibrium can provide an awareness of approaching pathological situations that can lead to a prophylactic and therapeutic regimen.[3] The

---

Chairman's address, read before the Section on Physical Medicine at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956.

understanding of equilibrium and of the active movement of the patient is fundamental for diagnosis and treatment. Many of these movements have come to be signs that have been given the names of those who have recognized their significance. These movements have therapeutic as well as diagnostic value.

A year ago Dr. Schmidt[3] in his chairman's address to the Section on Physical Medicine, American Medical Association Annual Meeting, reviewed the many valuable diagnostic tests that electrical currents have provided—the reaction of degeneration, chronaxy, the strength-duration curve, the galvanic-tetanus ratio, the strength-interval curve, and the electromyograph for the recording of fibrillation or degeneration action potentials. This apparatus is of distinct value in diagnosis. Equipment with which to produce heat, light, and electrical stimulation and mechanical forces is available and of value in treatment. I have mentioned only a few trends in the study of movement. Much information has been collected, and the interest is growing constantly, which will lead to better understanding of the normal states and, hence, lead to improved methods of managing pathological states.

Application of Techniques of Mobilization to Locomotor Dysfunction

The progress made in physical medicine and rehabilitation during the past 25 years has resulted in marked improvement in the recovery of patients with pathological disturbances of the motor system, since the physiatrist is vitally interested in the diagnosis and treatment of motor handicaps. The history and the various tests lead to a diagnosis and to a plan of treatment. Here it is to be emphasized that unusually valuable information can be gained by studying the performance of the patient not only at the time of examination but during the period of treatment. The first examination of the patient having severe pain or with a neurological disease may lead to a probable diagnosis but often gives little information as to how the patient will react to therapy. A more definite diagnosis may be made as the response to treatment is observed. For this reason, the doctor in charge of the patient should himself assist the patient with all parts of the program of treatment requiring movement until some relief is obtained or until a plateau is reached that will permit the development of a plan of procedure that his observing assistants, the physical therapist and the occupational therapist, will be ready to carry forward. He has gained diagnostic evidence and has used his fund of information regarding movement to speed recovery. Also, he has permitted himself to become acquainted with his patient. Confidence has been established, and the relationship between any mental strain and the physical handicap can be discussed and given a proper evaluation. The patient has the opportunity of assisting in the management of his own problem.

An example presents itself in the patient with acute low back pain. The routine history is obtained, and an examination is done that naturally includes a check of the posture, muscular spasm, mobility of the back and hips, and response of the reflexes. The possibilities of subluxation, strain, sprain, arthritis, and herniated intervertebral disk are considered, not forgetting such possibilities as malignant disease or infection. Aside from the use of manipulation when subluxation is found, the routine plan is to prescribe a program of exercise. The fundamental exercises for low back pain can be found in any textbook and are given the name of one of the various authors who has described them. Usually they are done from a supine position. They are (1) flexion of the trunk, which is accomplished by (*a*) raising both legs from the table with the knees flexed or extended or (*b*) rising to a sitting position; (2) trunk rotation, which is accomplished by flexing knees and hips and carrying the knees from one side to the other; and (3) trunk lateral flexion, which is accomplished by lifting the legs sufficiently to clear the table and carrying them to one side and then to the other.

These abdominal exercises are designed to relax the spastic muscles of the back and to lead toward flexibility and strengthening of the abdominal muscles for support. Too frequently the patient is requested to perform these exercises after being given a mimeographed description of them or a hasty demonstration. Because of pain the patient is unable to proceed. These are fundamental exercises, but if the doctor will apply them, modify them, and assist the patient with them the musculature of the back will gradually relax. The most common way of stimulating pain when trying to perform these exercises is arching the spine due to the action of the psoas muscles. The patient is taught how to maintain a flattened back by controling the tilt of the pelvis. The necessary assistance will be supplied to prevent a recurrence. The doctor will note whether lateral flexion is possible to both right and left sides. When the pain is severe it is often impossible to return from a long sitting position to the supine position. It is necessary to flex the knees and hips, thus placing the thighs firmly upon the abdomen. It is the modification of these exercises in the treatment of acute back problems that makes them valuable for treatment and valuable for differential diagnosis. It is a clinical sense or feel that the doctor develops as he treats his patient, which results in the better management of the condition and a better demonstration of techniques to be used by his staff.

The same can be said to hold true for the patient with an acutely painful shoulder, where gentle traction, discussion of relaxation, and carefully assisted-resisted motion can not only bring about relief of pain but lead to a differentiation of the various pathological conditions that affect this joint. It is not always possible to differentiate such simple things as bursitis and bicipital tenosynovitis on first examination. This is an important differentiation, since treatment of the two is so different.

The neurological diseases present like problems. This is true, for instance, where the disease produces spasticity. Though certain patterns are expected, it is surprising how much variation can be present. It often requires several periods of study before an understanding between patient and doctor permits of an analysis of the muscular activity and of the balance between antagonistic muscles, so that a correct plan for development of balanced power and use of reflex mechanisms can be put into a therapeutic program.

Physical medicine is a relatively new but important field of medicine It is a field in which the doctor actually learns to work with his hands when treating his patients Thus, the variations in the reactions of his patients come to be as much felt as recognized by routine signs The doctor's ability to apply the movements of the body in such a way as to obtain therapeutic results, as well as diagnostic evidence, is a refined art of medicine. Whether the doctor is treating a patient with acute low back pain or pathological disorder resulting in acute pain of any other motor area, or whether he is retraining motor patterns interrupted by the deformity of arthritis or by the various neurological disturbances, he can only direct his assistants to obtain the best results in a ratio proportional to his own ability to obtain results His capability depends upon his knowledge of the disease and his ability to demonstrate in a refined degree techniques that follow functional patterns.

The fundamental means to physical return are based upon the use of exercise rather than upon mechanical equipment The more expert the director of the patient is in the recognition of the pathology from the standpoint of anatomic and physiological diagnosis and from the standpoint of functional anatomy. the better the results should be. The emphasis must be placed upon reeducation of the patient in the use of his body after damage of some sort, whether trauma or disease, has caused a disability, upon education of the individual as to his assets and deficits, and, in some instances, upon education leading to social and economic rehabilitation.

Conclusions

Why we are able to move in space remains a mystery. At best we know that movement depends upon trigger-fine mechanisms of which we have some knowledge. Beyond the information that research can provide concerning motion and aside from the basic principles that can be passed along by word of mouth or the printed page, the doctor interested in the relief of crippling disease must develop not only his sense of observation but a fine sense of feel and of manual dexterity These are things that cannot be taught. An aptitude that the doctor can develop is a valuable asset. By demonstration, even more than by words, he can transfer his techniques and his ideas of management to his staff—the therapists who work with him day after day. The physiatrist is one who has chosen to make use of physical agents in the diagnosis and treatment of disease. No technique is more difficult to understand, to perform, or to teach than exercise that is for the purpose of reestablishing functional movement to as nearly normal as the pathology will permit, yet it is hard to think of a means of treatment that has been more neglected.

1 Tilton Ave

References

1 Steindler, A Kinesiology of Human Body Under Normal and Pathological Conditions, Springfield, Ill, Charles C Thomas, Publisher, 1955

2 Fundamental Studies of Human Locomotion and Other Information Relating to Design of Artificial Limbs, 1945-1947 University of California, National Research Council Committee on Artificial Limbs, Advisors to Veteran's Administration and Office of the Surgeon General, U S Army

3 Schmidt, W H Importance of Diagnostic Methods in Physical Medicine, J A M A. 159:1175-1177 (Nov. 19) 1955.

CLINICAL NOTES

HEMOLYTIC ANEMIA IN PATIENT RECEIVING NITROFURANTOIN (FURADANTIN)

Michael West, M.D.
and
Hyman J. Zimmerman, M.D., Chicago

Nitrofurantoin (Furadantin), N-(5-nitro-2-furfurylidene)-1-aminohydantoin, a drug related to the antimicrobial nitrofurans, has been employed in the past few years in the treatment of acute and chronic urinary infections. Side-effects include nausea, occasionally accompanied by vomiting, diarrhea, pyrosis, headaches, and urticara. No ill-effects on the liver or kidney have been reported. There is one reported instance of leukopenia after the use of nitrofurantoin.[1] There has been no other report of hematological abnormality during its use. The case reported below is thought to represent the development of hemolytic anemia with the use of this drug.

Report of a Case

A 28-year-old Negro man was admitted to the hospital on Sept 2, 1955, with the complaint of a swollen, tender penis for approximately two weeks At the onset of this swelling he had received two injections of penicillin, but had used no other drugs prior to admission to the hospital A history of polyuria and polydypsia for five months was then elicited from the patient Six years before he had pneumonia and gonorrhea, both were treated with penicillin The patient's mother had had diabetes for 40 years The father and two siblings were said to be free of any chronic disease. No history of allergy could be elicited from the patient

Physical examination revealed an obese Negro male who weighed 270 lb (122 5 kg) and was 5 ft. 9 in. (175 26 cm.) tall. He was afebrile, and his pulse rate was 80 per minute and regular. His blood pressure was 140/90 mm. Hg in both arms Except for a severe balanitis and obesity, no abnormalities were found The urine on admission was cloudy, with a specific gravity of 1.033. There was no albuminuria, but the test for sugar yielded a 4+ result and a strongly positive acetone reaction Microscopic examination showed many white blood cells, with some clumping A urine culture revealed no bacteria growth Before the results of this latter test were known, treatment with nitrofurantoin (150 mg four times a day) was initiated, and the diabetes was treated with appropriate diet and "regular" insulin

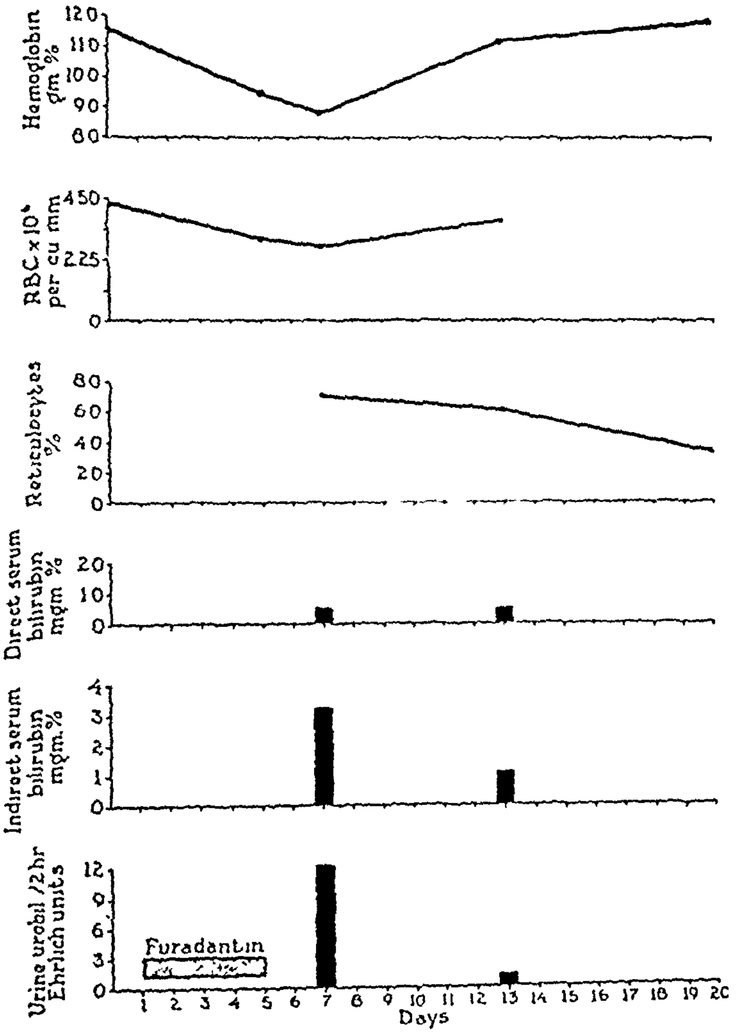
Initially the red blood cell count was 4,250,000 cells per cubic millimeter. The hemoglobin level was 11.5 gm per 100 cc. The white blood cell count was 9,000 cells per cubic millimeter, with 67% granulocytes, 24% lymphocytes, 5% monocytes, and 3% eosinophils The serologic test for syphilis was negative. On the fourth hospital day, "coffee-colored" urine was passed. Administration of nitrofurantoin was then discontinued after a total dose of 2 4 gm had been given On this day, the red blood cell count was 3,040,000 cells per cubic millimeter, with a hemoglobin level of 8 8 gm per 100 cc. (see figure). The white blood cell count was 8,650 per cubic millimeter, with 56% granulocytes, 32% lymphocytes, 6% monocytes, and 6% eosinophils The reticulocyte count was 7.4% The total serum bilirubin level was 3 2 mg per 100 cc, with a direct level of 0 5 mg. per 100 cc The urine contained 12 3 Ehrlich units of urobilinogen in a two-hour specimen tested by the method of Watson and co-workers[2] The sulfobromophthalein test revealed 7 5% retention after 45 minutes The thymol-turbidity, cephalin-flocculation, alkaline phosphatase, and protein-partition tests were all normal. There was no bile in the

---

From the Medical Service, West Side Veterans Administration Hospital, and Department of Medicine, University of Illinois College of Medicine.

urine, but hemoglobin was present. A Coombs test, performed with direct, indirect, and layering methods and with trypsinized erythrocytes, was completely negative. A sickle cell preparation was also negative. Bone marrow examination showed increased erythropoeisis and eosinophilia.

One week later, the red blood cell count had risen to 3,600,000 per cubic millimeter. The total serum bilirubin level fell to 1.2 mg., and the direct level remained at 0.5 mg. per 100 cc. The two-hour test for urobilinogen gave a normal value of 1 Ehrlich unit at this time. Three weeks later the red blood cell count had risen to 4,500,000 per cubic millimeter and the hemoglobin level to 13.3 gm.; the total serum bilirubin level at this time was 0.6 mg. per 100 cc., with a direct fraction of 0.2 mg. per 100 cc. The diabetes was well controlled with 25 units of isophane (NPH) insulin and a 1,600-caloric diet. Attempts to demonstrate a hemolytic factor in this patient's serum with nitrofurantoin used as the precipitating agent were unsuccessful. Rabbits were fed nitrofurantoin after the intravenous administration of 5 cc. of the patient's serum. Study of the rabbits' blood daily for five days revealed no gross evidence of hemolysis. Likewise, incubation of a saturated solution of nitrofurantoin in saline solution with the patient's serum and normal red blood cells gave no visible evidence of hemolysis. Unfortunately, osmotic and mechanical fragility of the erythrocytes was not determined.



Hematological and biochemical evidence of hemolysis developing during administration of nitrofurantoin (Furadantin), with recovery after withdrawal of drug.

A month and a half after the initial episode, a test dose of 100 mg. of nitrofurantoin was given to the patient. There was no significant change in the red blood cell count or reticulocyte count during a five-day observation period. After four days, however, the stool urobilinogen level rose from an initial value of 140 mg. to 266 mg. per 24 hours. The serum iron level was elevated to 173 mcg. per 100 cc. on the second day after a prior value of 145 mcg. per 100 cc. The total serum bilirubin value reached 0.9 mg. three days after a control of 0.6 mg. per 100 cc. The indirect value rose from 0.4 to 0.7 mg. per 100 cc. within this time. The urine urobilinogen level was still high four and one-half months later, the latest value being 10.3 mg. per 24 hours. The stool urobilinogen value at this time was 91 mg. per 24 hours. During a six-month period of observation of this man as an outpatient, there has been no evidence of hemolytic or other disease.

Comment

In this patient with diabetes mellitus and balanitis, a hemolytic anemia was observed while he was receiving nitrofurantoin. Evidence for this included severe hemoglobinuria, a significant urobilinogenuria, reticulocyte count elevation, a reduction in circulating red blood cells and hemoglobin, and a rise in serum bilirubin that was almost entirely of the indirect type. These values returned to normal when the use of nitrofurantoin was discontinued. The significance of the mild anemia present before the drug was given is obscure. Attempts to reproduce this phenomenon yielded inconclusive results. The observed elevations of the serum iron, stool urobilinogen, and serum bilirubin levels after the administration of a test dose were small in magnitude and within range of physiological or even technical variations. The elevated urine urobilinogen value after four months remains unexplained. The failure to demonstrate a positive Coombs test is not unusual, since cases of acquired hemolysis not due to autoimmune mechanisms may be "Coombs negative." [3]

It seems reasonable to conclude that the hemolytic anemia was related to the administration of nitrofurantoin, although this has not been unequivocally proved. Nevertheless, lack of similar episodes before the administration of the drug and during the six months since the bout of anemia support the possibility of a relationship of the anemia to the administration of nitrofurantoin. If the anemia is related to the drug, it must be an extremely rare occurrence, since no previous reports of this untoward reaction have appeared. The mechanism of hemolysis in this patient is obscure. It may be related to an unusual idiosyncrasy to nitrofurantoin much in the same manner as that reported occasionally with other drugs (such as phenlhydantoin derivatives [4] and sulfonamides [5]). It is also conceivable that there may be an intrinsic abnormality of the red blood cell in this patient analogous to the type of sensitivity in healthy Negroes to primaquine.[6] Such a defect might include an unusual susceptibility of enzyme systems involved in carbohydrate metabolism, other recent studies [7] have suggested that inherited abnormalities of red blood cell carbohydrate metabolism may be responsible for the principal hematological features of hereditary spherocytosis. It is of interest that Paul [8] has shown that citrate formation from oxalacete in testicular tissue under anaerobic conditions is inhibited by nitrofuran derivatives. Although the exact role of the nitrofuran derivatives in carbohydrate metabolism is still obscure, it is possible that this patient's hemolysis was due to the inhibition of red blood cell carbohydrate metabolism by nitrofurantoin.

Summary

A case of acute hemolytic anemia occurred in a patient receiving nitrofurantoin (Furadantin). No other known factor could be established as responsible for this phenomenon. The patient had never had any similar episodes in the past. Hemolysis subsided after the administration of the drug was discontinued and has not recurred during a six-month period of observation. It seemed reasonable to conclude that the hemolytic anemia was related to the administration of nitrofurantoin, although this was not proved unequivocally.

820 S. Damen Ave. (12) (Dr. Zimmerman).

References

1. Hasen, H. B., and Moore, T. D.: Nitrofurantoin: Study in Vitro and in Vivo in 100 Cases of Urinary Infection, J. A. M. A. **155**: 1470-1473 (Aug. 21) 1954.
2. Watson, C. J.; Schwartz, S.; Sborov, V., and Bertie E.: Studies of Urobilinogen: Simple Method for Quantitative Recording of Ehrlich Reaction as Carried Out with Urine and Feces, Am. J. Clin. Path. **14**: 605-615 (Dec.) 1944.
3. Dameshek, W.: Hemolytic Anemia: Direct and Indirect Indications, Pathogenic Mechanisms and Classifications, Am. J. Med. **18**: 315-325 (Feb.) 1955.
4. Best, W. R., and Paul, J. T.: Severe Hypoplastic Anemia Following Anticonvulsant Medication: Review of Literature and Report of Case, Am. J. Med. **8**: 124-130 (Jan.) 1950.
5. Kracke, R. R.: Effects of Sulfonamide Drugs on Blood, Am. J. Clin. Path. **14**: 191-199 (April) 1944.
6. Dern, R. J., and others: Hemolytic Effect of Primaquine: I. Localization of Drug-Induced Hemolytic Defect in Primaquine-Sensitive Individuals, J. Lab. & Clin. Med. **43**: 303-309 (Feb.) 1954.
7. Prankerd, T. A. J.; Altman, K. I., and Young, L. E.: Abnormalities of Carbohydrate Metabolism of Red Cells in Hereditary Sperocytosis, J. Clin. Invest. **33**: 957 (June) 1954.
8. Paul, M. F., and others: Inhibition by Furacin of Citrate Formation in Testis Preparations, J. Biol. Chem. **206**: 491-497 (Feb.) 1954.

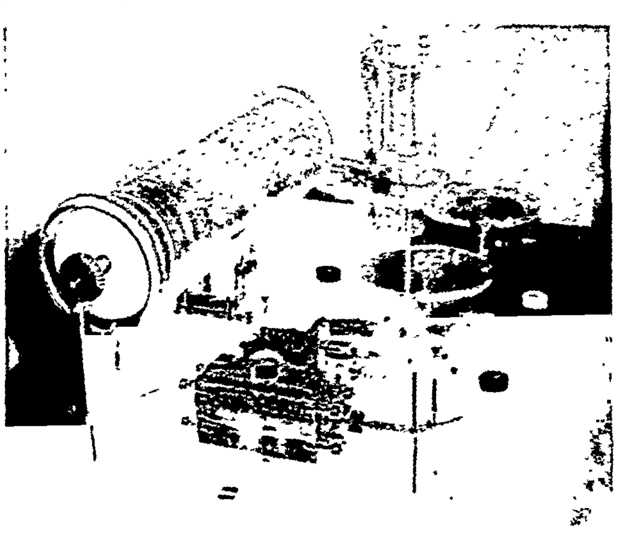
CERTAIN CLINICAL ASPECTS OF THE USE OF A PUMP OXYGENATOR

Earle B. Kay, M.D.
Henry A. Zimmerman, M.D.
Robert M. Berne, M.D.
Yoichi Hirose, M.D.
Richard D. Jones, A.B.
and
Frederick S. Cross, M.D., Cleveland

Various types of pump oxygenators are now being employed in the surgical correction of intracardiac anomalies. Certain basic physiological criteria will have to be satisfied with all such machines if the majority of such operations are to be successful. Only part of the responsibility for successful intracardiac surgery rests with the machine. The clinical management of the patient before, during, and after the operative procedure is equally important. Furthermore, new intracardiac surgical techniques have to be devised and perfected. Consequently, the problem of successful direct-vision open intracardiac surgery is threefold, and success is dependent upon the development of a reliable pump oxygenator that maintains the physiological requirements of the body, the clinical management of the patient, and the employment of a satisfactory surgical technique. The requirements of a pump oxygenator are that it must (1) provide the needs of the body for oxygen without the dangers of emboli or foaming, (2) not be overly traumatic to the components of the blood, (3) not interfere with the clotting mechanism of the blood, (4) maintain the body metabolites and electrolytes in equilibrium, and (5) not significantly alter the acid-base balance.

A rotating disk reservoir oxygenator with a Sigmamotor pump has been employed by us experimentally and clinically. Though trauma to the components of the blood, hemolysis, and interference with the clotting mechanism and bleeding tendency have not been a problem, a new pumping mechanism, in which hydraulic compression employed through a fluid medium is used, has been developed. This has been shown to be even less traumatic. The capacity of the oxygenator has also been increased to more than 4,000 cc. per minute for use in adults. Teflon (a tetrafluoroethylene resin preparation) disks have been found to be the least traumatic. The newly developed pump oxygenator is shown in the figure.

A fixed arterial output has not been maintained. Flow rates in the range of 40 to 80 cc. of blood per kilogram of body weight per minute have been employed (table 1). The flow rate is determined largely by the venous return and the level of the mean arterial pressure, which ranged from 40 to 80 mm. Hg during the bypasses. Heparin sodium in the dosage of 0.75 mg. per pound of body weight is employed. A minimum of 800 cc. of blood is required to prime the machine. An optimum of 1,400 cc., however, is used. The additional 600 cc. can be utilized for a reservoir. To allow time for proper regulation of the extracorporeal circulation, several minutes elapse between starting the pump oxygenator, clamping the venae cavae, and performing the cardiotomy.



Newly developed pump oxygenator incorporating large-capacity oxygenator reservoir and new pumping mechanism.

Eleven of the first 17 patients operated on had ventricular septal defects. Two of these patients had two openings, and a third had three defects. Three patients had a high-grade pulmonary stenosis. One patient had an infundibular stenosis and a subaortic stenosis, one an atrial septal defect, and another a ventricular septal defect associated with a third auricular chamber into which all the pulmonary veins except the right upper and the coronary sinus emptied. Eight of the patients had multiple defects, all but one correctable at the time of surgery. Temporary aortic occlusion was employed in two patients to prevent marked regurgitation of blood through the ventricular septal defect. Induced

---

From the medical and surgical services of St. Luke's Hospital and St. Vincent Charity Hospital and the surgical research laboratories of St. Luke's Hospital.

ventricular fibrillation was employed in one patient. Cardiac standstill by aortic occlusion and by the injection of potassium chloride has been employed experimentally. This appears to be of merit in reducing blood loss from regurgitation in occasional instances and in providing a dry field for operation. Ivalon (nonabsorbable polyvinyl) sponge with interrupted suture was employed in the closure of 7 of the 11 ventricular septal defects. Confidence in the pump oxygenator is such that operations are not hurried. An analysis of the clinical data obtained in the first 17 patients operated on with the use of this type of apparatus follows.

Hemolysis and Oxygen Saturation

Table 1 presents the increase in hemolysis, in milligrams per 100 cc., occurring during the operation. If one assumes a hemoglobin level of 200 mg. per 100 cc. of serum as being acceptable, then the increase in hemolysis occurring during these operative procedures has been quite minimal. An average increase over preoperative levels of 33.4 mg. per 100 cc. was noted. As one would expect, there was a tendency toward increased hemolysis associated with increase in flow rates and increase in duration of cardiac bypass. When Teflon-coated disks were employed, hemolysis was definitely less than when siliconized disks were used.

TABLE 1.—*Data on Increase in Hemolysis During Operation*

Patient's Weight, Kg.	Flow Rate, Cc./Kg.	Duration of Bypass, Min.	Hemolysis, Mg./100 Cc.		
			Before	After	Increase*
12.0	40	12	25.8	43.5	17.7
51.0	48	19	21.5	58.1	36.6
28.5	53	14	22.5	34.4	11.9
28.5	51	17	31.0	66.0	35.0
59.0	54	25	20.8	72.0	41.2
28.5	50	32	17.0	57.0	40.0
52.0	46	30	27.5	40.9	13.4
38.0	50	25	24.4	43.2	18.8
52.0	60	39	13.6	36.5	22.9
30.0	80	44	41.2	91.0	49.8
29.0	60	30	31.8	63.9	32.1
40.7	60	20	15.0	55.9	40.9
53.0	62	23	16.2	56.0	39.8
29.0	68	41	36.8	116.0	79.2
25.7	80	44	33.0	57.4	34.3
24.2	72	18	27.9	44.4	16.5
29.2	75	19	20.5	59.4	38.8

* Av. increase 33.4.

The oxygen saturation of the arterial blood in all cases ranged from 97 to 103%, while that of the venous blood ranged from 35 to 53%. The greater blood flows per kilogram were associated with higher percentages of venous oxygen saturation, which may be beneficial but are perhaps nullified by the increased trauma to the blood as evidenced by the greater degree of hemolysis.

Acid-Base Balance and Potassium Levels

Acidosis or alkalosis has not been a great problem. The pH, carbon dioxide content, and carbon dioxide-combining power of the arterial and venous blood are determined before, during, and after the cardiac bypass. Hyperventilation prior to the perfusion tends to cause a lowering of the carbon dioxide content in the range of 30 to 45 vol. %. However, a metabolic acidosis was observed during the bypass. This appears to correct itself with restoration of normal circulation. By the addition of 1 to 2% carbon dioxide to the oxygenator, the carbon dioxide content can be regulated (table 2).

Potassium levels were determined before and after the perfusion as an index of the red blood cell destruction and as an indication of whether toxic levels might be reached during the bypass. The average potassium concentration prior to the perfusion was 3.82 mEq. per liter as compared to 4.08 afterward. This is not a significant difference.

TABLE 2.—*pH and Carbon Dioxide Content of Arterial Blood Before, During, and After Operation*

pH			Carbon Dioxide Content, Vol. %			Carbon Dioxide Added to Oxygenator
Before	During	After	Before	During	After	
....	....	7.30	....	....	....	...
7.25	7.62	7.29	56.1	36.1	....	2.5
7.66	7.56	7.54	38.4	37.8	35.6	2.5
7.34	7.14	7.21	35.8	33.5	29.2	3.0
7.53	7.21	7.25	32.1	38.3	32.0	2.5
7.61	7.26	7.30	28.2	33.5	32.1	2.0
7.55	7.20	7.25	27.7	32.8	21.8	1.5
7.51	7.21	7.35	29.8	32.8	33.7	1.5
7.51	7.35	7.38	21.1	33.5	22.1	1.5
7.36	7.32	7.30	42.3	38.0	35.5	1.5
7.34	7.33	7.28	42.3	41.5	35.9	1.5
7.34	7.37	7.49	40.0	33.0	37.2	1.5
7.24	7.36	7.32	38.7	35.2	32.6	1.5
7.41	7.36	7.36	41.4	35.3	29.2	1.5
7.39	7.33	7.40	37.7	34.5	30.2	1.5

Cellular Components of Blood and Clotting Mechanism

Trauma to the red blood cells and white blood cells did not appear to be significant, and no consistent changes were produced by the pump perfusion system (table 3). There was platelet destruction in every instance; however, this did not occur to the extent of interfering with the clotting mechanism of the blood (table 4).

At the conclusion of the cardiac bypass one-half of the calculated dose of protamine sulfate was given, based on unit for unit heparin-protamine dosage. The clotting times ranged from 3 to 9 minutes in 13 patients and from 9 to 15 minutes in the other 4 immediately after the bypass. These became normal in the next two to three hours. A slow intravenous drip of citrated blood was given routinely postoperatively to correct for the

TABLE 3.—*Blood Components Before and After Operation*

White Blood Cells, Thousands/Cu. Mm.		Red Blood Cells, Millions/Cu. Mm.		Hemoglobin, Gm./100 Cc.		Hematocrit, %	
Before	After	Before	After	Before	After	Before	After
11.15	9.10	4.50	4.50	14.3	12.7	40	38
15.30	13.35	5.60	4.10	15.7	11.7	44	34
22.00	7.00	....	....	15.6	12.7	44	37
.....	.....	....	....	15.0	12.0	50	40
2.79	16.05	4.38	4.64	13.2	14.8	43	44
14.70	15.75	4.41	4.14	14.4	12.0	37	37
6.70	21.00	4.44	4.11	13.3	12.4	37	37
8.7	16.05	4.14	4.16	12.6	11.4	36	36
10.05	11.80	4.30	3.57	14.0	12.0	38	37
13.35	14.80	5.20	4.38	15.5	13.2	46	40
17.15	15.90	5.05	4.88	15.7	14.4	43	39
17.05	14.20	3.52	4.25	12.0	12.8	36	38
10.20	15.00	4.53	3.86	12.8	12.7	38	36
8.60	6.45	4.07	3.56	13.3	12.5	40	36
9.85	10.20	3.94	3.59	13.6	13.2	39	38
5.60	9.80	4.00	3.87	13.0	12.4	39	36
8.75	10.60	4.26	3.89	13.0	12.3	42	36

reduction in the red blood cell count during the procedure and the loss from thoractomy drainage. The amount was regulated by subsequent hemoglobin-hematocrit determinations and the weight of the patient. In only one patient was there what might be considered an excessive amount of postoperative bleeding. Extracorporeal circulation had been used in this patient for 44 minutes. There was 800 cc. of drainage from the left thoracotomy tube within the first six postoperative hours. The data on plasma fibrinogen level and clot lysis obtained in eight patients before and after the perfusion are correlated in table 4. As noted, the plasma fibrinogen level in each instance fell during the perfusion, but only to a slight degree. There was a tendency for samples of clots taken postoperatively in this small group of cases to lyse in less time than the preoperative clot samples.

Results

There were three deaths in the first 17 patients operated on: in the 4th, 6th, and 10th. None of the deaths was due to the employment of a pump oxygenator per se. The fourth patient died eight hours postoperatively after multiple cardiac standstills (nine in number). The reason for the cardiac arrest is not clear, but it appeared to be related to placing the enlarged heart and lungs back into the small thoracic cavity. The sixth patient died 11 hours postoperatively from cerebral edema from partial vena caval restriction during the course of the operation. This patient had been in the hospital for six weeks in congestive failure prior to operation. The 10th patient died 10 hours postoperatively from an anomalous defect not recognized at surgery. This patient had a ventricular septal defect and what appeared to be a large septum primum atrial septal defect. Bright red blood escaped from this orifice. At the lower margin, dark blood from the coronary sinus was noted. Digital examination of this opening allowed the finger to go into a chamber thought to be the left atrium and into the left pulmonary veins. At postmortem examination this dilated chamber, measuring 1.5 in. in diameter, was found to be a dilated coronary sinus into which all of the pulmonary veins, except the right upper, emptied. The remaining patients had a relatively uneventful recovery.

TABLE 4.—*Platelet Count, Fibrinogen Level, and Clot Lysis Before and After Operation*

Platelet Count*		Plasma Fibrinogen, Mg./100 Cc.		Clot Lysis, Hr.	
Before	After	Before	After	Before	After
402,500	177,500	264	221	48	16
425,000	200,000	305	217	14†	14†
227,500	80,000	242	167	15†	15†
202,500	92,500	205	190	41	16
275,000	160,000	276	256	15	18
247,500	172,500	301	238	42	15
230,000	132,000	280	233	18	18
292,500	127,500	244	242	113	17
290,000	167,000	260	234	48	15

* By phase microscopy.
† Test vitiated by excessive anticoagulant in specimen.

Summary

In the first group of patients (17) operated on with use of a rotating disk pump oxygenator, there were three deaths. These deaths were not due to the use of extracorporeal circulation per se but were more closely related to the severity of the operative risk and complexity of the congenital deformity.

10465 Carnegie Ave. (Dr. Kay).

This work was supported by a grant from the Cleveland Area Heart Association.

The data in table 4 were obtained by Dr. Oscar Ratnoff.

The pump oxygenator described is manufactured by the Solon Products Corporation, Solon, Ohio.

PEPTIC ULCER OF THE ESOPHAGUS AND ESOPHAGITIS IN GASTRIC-LINED ESOPHAGUS

Max L. Som, M.D.
and
Bernard S. Wolf, M.D., New York

In textbooks of pathology, chronic peptic ulcer of the esophagus has been described for many years as a rare condition of unknown etiology. In 1950, Barrett[1] pointed out that a congenital anomaly of the epithelium lining the lower esophagus was present in these cases and was a predisposing cause for the development of such an ulcer. In this anomaly, a variable length of the distal esophagus is lined by glandular or an atrophic type of gastric epithelium. A discrete chronic peptic ulcer in gastric-lined esophagus has been referred to as a "Barrett" ulcer by later authors.[2] The following case is an example of this congenital anomaly and demonstrates the occurrence not only of a chronic peptic ulcer but of peptic esophagitis as well.

Report of a Case

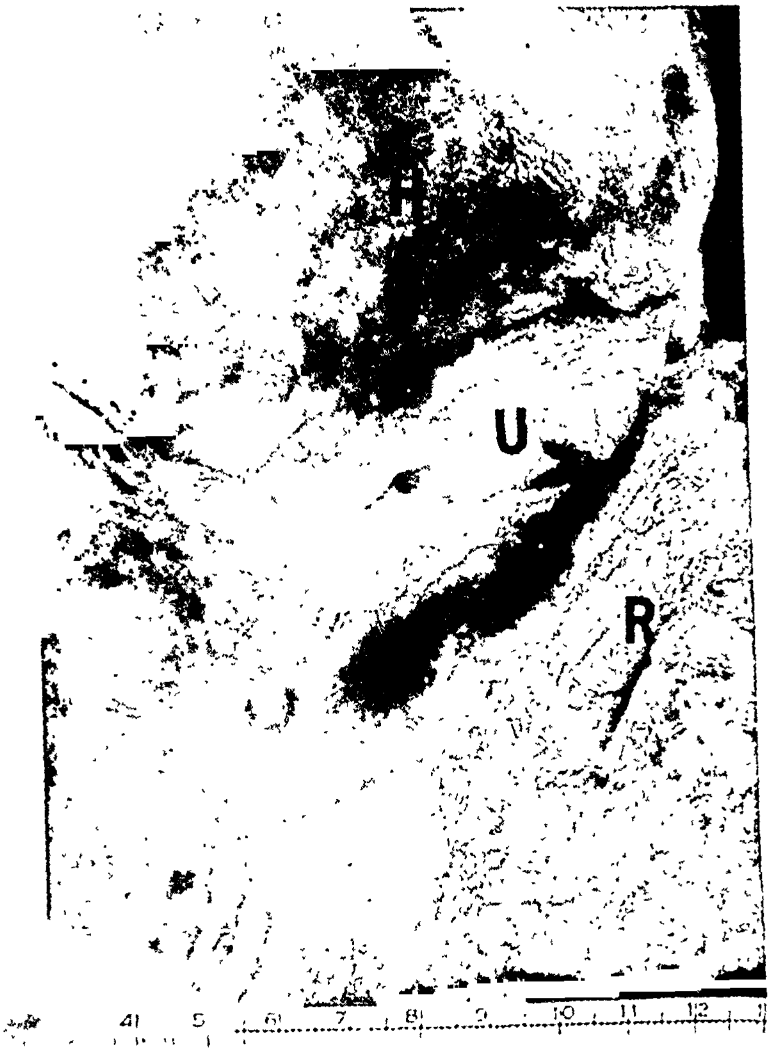
This patient was hospitalized for the first time in November, 1943, at the age of 75, with the complaints of dysphagia, a burning sensation in the xiphoid region, and pain radiating through to the back. Esophagoscopy showed narrowing 35 cm. from the upper incisor teeth that required dilatation with Jackson wax bougies. After dilatation, a 36 F. or 12-mm. esophagoscope was passed beyond the stenosis, and an ulceration covered with a whitish membrane was visualized immediately distal to the site of narrowing. At the distal margin of the ulceration, thickened nodular mucosa was seen and gastric rugae were identified. A biopsy specimen taken from the margin of the ulceration was reported as showing "unusually large cardiac glands with so-called erosion of the esophagus." The surface epithelium was highly cylindrical, mucus-producing, and had papillary folds and contained a broad layer of narrow glands lined by the same type of epithelium. Parietal cells could be recognized within these glands. Several areas were edematous and inflamed. After esophagoscopy, the patient was placed on therapy for ulcers, including anticholinergic medication. Dilatation was repeated in April, 1944. In June, 1944, esophagoscopy was repeated because of severe pain radiating to the back. A narrowing with a granular surface was again seen 35 cm. from the incisor teeth. Biopsy showed a picture similar to the previous one. Inflammatory changes were more marked and the surface epithelium more papillary.

For the next four years, dysphagia was controlled by the occasional passage of a Hurst mercury-weighted tube, 36 F., and by an ulcer regimen. Esophagoscopy was repeated in April, 1948, because of intense epigastric pain, dysphagia, and regurgitation of food. In contrast to the findings four years previously, when the narrowing was encountered 35 cm. from the incisor teeth, stenosis was met on this occasion at 30 cm. Proximal to

---

From the Department of Otolaryngology, Beth Israel Hospital, and the Department of Radiology, Mount Sinai Hospital.

the stenosis, there were severe inflammatory changes in the esophageal epithelium. The stenosis was dilatated, and the esophagoscope passed beyond it into the stomach, identified by the presence of rugae. Biopsy from the stenotic area showed inflamed gastric tissue. During the next year, dysphagia and pain persisted and there were several episodes of tarry stools. Transfusions were required because of marked anemia, with a hemoglobin level of 4.5 gm. per 100 cc. In May, 1949, esophagoscopy



ig. 1—Photograph of gross specimen. "U" marks closed-off perforated
icer immediately proximal to cardia. "R" indicates gastric rugae of
herniated portion of stomach. "H" indicates 5-cm. segment of esophagus
proximal to cardia, which was intensely reddened, eroded, and edematous
and on microscopy showed remnants of glandular epithelium. Portion of
esophagus at top was somewhat yellowish in color, also eroded, but
showed no evidence of glandular epithelium microscopically.

showed stenosis at 30 cm., with a granular surface below which there was a rather discrete ulceration on the posterior wall. Dilatation was possible only up to a 30 F. bougie. Biopsy again showed inflamed gastric tissue only. Feeding was done for 12 days through a nasogastric tube.

Seven months later, in February, 1950, because of recurrence of dysphagia and pain, esophagoscopy was done again. At 26 cm. from the incisor teeth, an ulcerated area was visualized beyond which there was a stricture 2 or 3 mm. in diameter. Dilatation to 30 F. was possible. A biopsy specimen taken proximal to the stricture showed inflamed cardiac glands. Esophagoscopy with dilatation was repeated in June, 1950, with similar findings. Esophagoscopy was done four times in the interval from March, 1951, to September, 1954, for relief of recurrent symptoms. On each occasion, stenosis at about 27 cm. from the incisor teeth was found. In 1953, a superficial ulceration covered with a whitish membrane, about 2 cm. in length, was seen proximal to the stricture. A biopsy specimen from the ulcerated area showed tissue containing peptic glands with subacute inflammation and erosion. On this occasion, it was noted that there was free reflux of acid gastric juice from the stomach into the esophagus.

In May, 1955, the patient required laparotomy for intestinal [illegible] Carcinomatosis due to a colonic carcinoma was [illegible] The patient died shortly thereafter. Postmortem examina[illegible] [illegible] the presence of a hiatus hernia (fig. 1). The junction of the tubular esophagus with the saccular stomach, i. e., the cardia, was abrupt and easily identified. Immediately proximal to this junction, a deep oval ulcer crater was found. The base of this crater was formed by fibrotic mediastinal tissue containing anthracotic lymph nodes. Around and proximal to the ulcer for a distance of 5 cm., the lining of the esophagus was intensely reddened and edematous. Proximal to this segment, the surface showed a yellowish color with a fairly abrupt line of demarcation from the intensely reddened area below. Microscopic examination (fig. 2) demonstrated that the mucosa in the 5-cm. segment of the most distal esophagus was diffusely eroded, with residual glandular or gastric epithelium. There was marked cellular infiltration and evidence of both acute and chronic inflammation. The epithelium proximal to this segment was also eroded but, in contrast to the findings in the more distal segment, showed no evidence of residual glands along the inflamed surface. Squamous epithelium was seen only in the uppermost portion of the esophagus.

Roentgen observations of the esophagus were made on several occasions. In 1944, a hiatus hernia with short esophagus was seen with a relatively narrowed, short transitional, probably ulcerated segment in the distal esophagus. The esophagus per se also appeared somewhat limited in distensibility and showed indistinct, irregular contours. In 1948 (fig. 3*A*), the hernia appeared more elongated, and a deep, pseudodiverticular ulcer crater was present a short distance above the hernial sac. A short, markedly narrowed segment was present below the crater, and a longer segment of limited distensibility with irregular mucosal pattern was present proximal to the crater. The esophagus more proximally was moderately dilated. In 1953 (fig. 3*B*), the hernial sac was more globular. Above it, there was a segment about 4 cm. in length with narrowing at both of its ends.

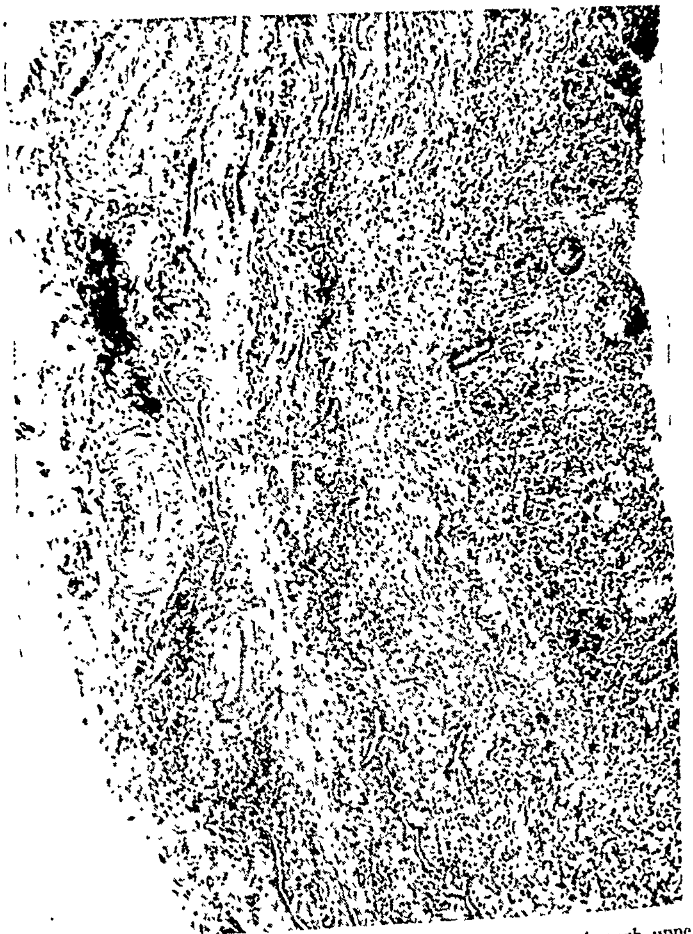


Fig. 2.—Photomicrograph of section of esophagus taken through upper
margin of segment "H" shown in figure 1. Residual gastric epithelium
with remnants of basal portions of tubular glands diminish proximally,
i. e. toward top of figure. Marked cellular infiltration, polymorphonuclear
and round cells, submucosal thickening, and thickening of vessel walls
were present. (Muscular layers stripped off in this section.)

The distal narrowing was short and about one-half the normal caliber. The proximal narrowing was longer, about 1.5 cm. in length, about one-third of the normal caliber, and irregular in contour, suggesting ulceration. The esophagus more proximally was moderately dilated.

Comment

Confusion in terminology has retarded progress in understanding inflammatory and ulcerative diseases of the esophagus.[3] The term gastric-lined esophagus, as used in this report, was suggested by Allison and Johnstone,[2] but Barrett[1] prefers to call the gastric-lined esophagus part of the stomach. Except for the nature of the lining epithelium, however, the gross and microscopic characteristics of the structure in question are those of esophagus. This glandular but atypical epithelium appears to be as susceptible to peptic digestion as esophageal squamous epithelium. The extension of gastric epithelium into the esophagus has also been referred to as heterotopic gastric epithelium.[1] Used in this fashion, heterotopic must be differentiated from "ectopic" gastric epithelium, which refers to isolated, discrete islands of gastric epithelium in the esophagus. Such islands are rare in the distal esophagus. If one considers the part in question stomach rather than esophagus, the congenital anomaly may also be designated as "congenitally short esophagus" or "congenitally short squamous esophagus,"[1] both confusing terms. It is of interest that, while the anomaly is congenital in nature, a chronic peptic ulcer of the esophagus usually does not appear until late in life. It is likely that production of an ulcer also requires the presence of regurgitation of acid gastric juices from the true stomach into the gastric-lined esophagus, i. e., the addition of an acquired sliding type of hiatus hernia with sphincter incompetence. Regurgitation of this type may also be the immediate cause of a diffuse peptic esophagitis of the gastric-lined segment—a Barrett esophagitis. Ulceration within the gastric-lined segment appears to occur preferentially at one or the other end of the segment and may cause severe bleeding as well as stricture formation. It should be noted that the recognition of the gastric nature of the lining epithelium of the distal esophagus may not be possible at esophagoscopy or on gross examination, since rugae may be completely absent. The opposite error may also occur, since the observation of folds resembling rugae within this segment may suggest that the esophagoscope lies within stomach rather than gastric-lined esophagus. This may lead to considerable confusion, e. g., during attempts at subsequent hernial repair or resection. The diagnosis of ulceration in gastric-lined esophagus may occasionally be suggested on the basis of roentgen findings if an intermediate, somewhat tubular structure with narrowing at its summit is demonstrated above a more typical-appearing sliding hernia[3] (fig. 3*B*). If an esophageal ulcer is unusually deep (fig. 3*A*) or located unusually high, the same suspicion should be entertained.

It is of interest that the esophagoscopic findings in the case reported may be interpreted as indicating progressive shortening of the esophagus in the interval from 1943 to 1945. It is uncertain, however, that the stricture found at each esophagoscopy actually represents the same site in the esophagus. It seems likely that shortening of 5 cm. did occur between November, 1943, and April, 1948, since the esophagoscopic notes indicate that gastric rugae were visualized distal to the stricture. It seems unlikely, however, that any remarkable shortening could have occurred after the ulcer proximal to the cardia had penetrated or formed a closed-off local perforation, as found at autopsy and suggested in the roentgen examination of 1948. It is possible that the stricture found at esophagoscopy after 1949, located 26 cm. from the incisor teeth, was a second more proximal stricture in the upper portion of the gastric-lined segment rather than the original stricture located at its distal end. This possibility is also suggested by the roentgen findings in 1953, which demonstrate two narrow segments. Incidentally, these findings as well as the findings at autopsy indicate that the case described is not an example of so-called ascending fibrosis of the esophagus, which occurs as a result of chronic peptic esophagitis in a normal or squamous-lined esophagus.

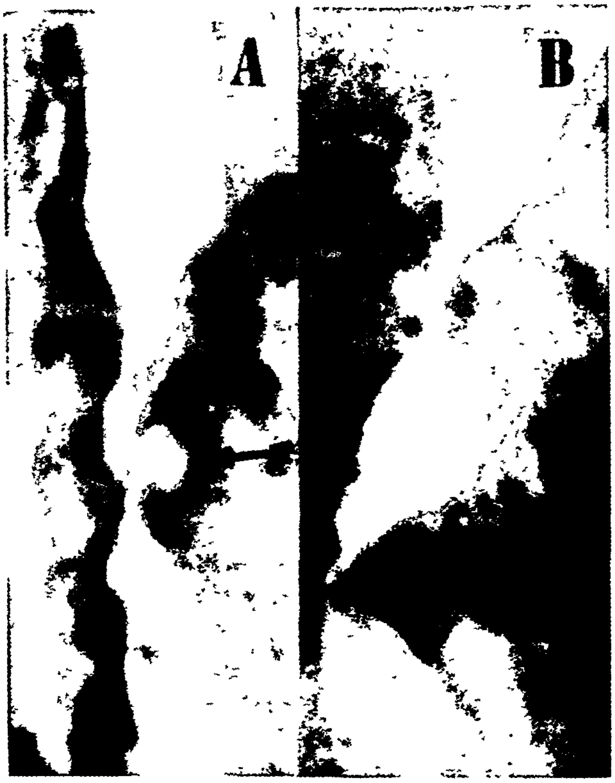


Fig. 3.—*A*, film taken in 1948, showing deep, pseudodiverticular ulcer crater (arrow) with short, markedly narrowed segment distally at apex of hernial sac. Proximal to the crater, esophagus is narrowed over longer segment, with funneling toward moderately dilated esophagus more proximally. The mucosal pattern in this narrowed segment was very irregular. Hernial sac may be somewhat longer than in 1944. *B*, film taken in 1953, showing hernial sac to have a globular configuration. Above it is a short, somewhat tubular, 4-cm. distensible segment, narrowed at both ends. *Distal* end (arrow) is presumed to be region of cardia at which, in 1944, a deep crater was filled. Narrowing at proximal end is about 1.5 cm. in length and irregular in contour, suggesting diffuse ulceration. Combination of typical sliding hernia and relatively tubular segment above it with narrowing at its summit—a double-sac appearance—is highly suggestive of gastric-lined esophagus with ulceration

Summary

It is now recognized that a predisposing cause of chronic peptic ulcer of the esophagus is a congenital anomaly of the epithelium lining the distal esophagus, namely, gastric-lined esophagus. In this anomaly, the lining epithelium over a variable distance is of an atypical gastric type rather than the usual squamous variety. This condition has also been called heterotopic gastric epithelium or a variety of congenitally short esophagus. Except for the epithelium, however, the other characteristics of the viscus in question are esophageal. A case is reported of this anomaly that illustrates the characteristic inflammatory complications, i. e., peptic ulcer and esophagitis of the gastric-lined segment, in association with an acquired hiatus hernia.

Fifth Avenue and 100th Street (Dr. Wolf).

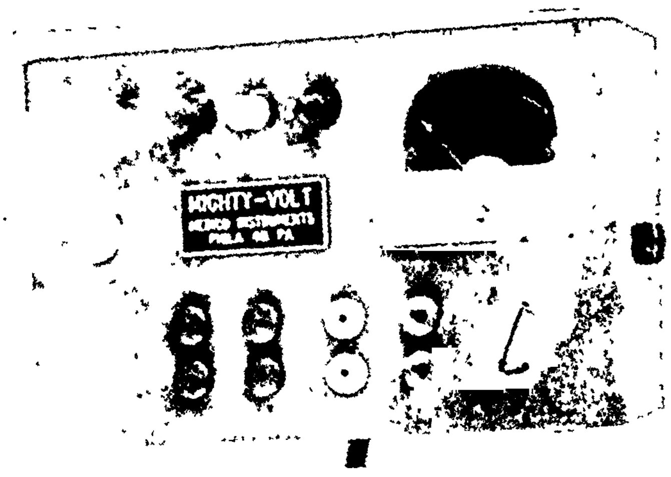
References

1. Barrett, N. R.: Chronic Peptic Ulcer of Oesophagus and 'Oesophagitis,' Brit. J. Surg. 38: 175-182 (Oct.) 1950.
2. Allison, P. R., and Johnstone, A. S.: Oesophagus Lined with Gastric Mucous Membrane, Thorax 8: 87-101 (June) 1953.
3. Wolf, B. S.; Marshak, R. H.; Som, M. L., and Winkelstein, A.: Peptic Esophagitis, Peptic Ulcer of Esophagus and Marginal Esophagogastric Ulceration, Gastroenterology 29: 744-766 (Nov.) 1955.
4. Peters, P. M.: Pathology of Severe Digestion Oesophagitis, Thorax 10: 269-286 (Dec.) 1955.

A MULTIPURPOSE TRANSFORMER UNIT

Samuel I. Askovitz, M.D.
and
Elmer L. Offenbacher, Ph.D., Philadelphia

Some manufacturers and distributors of diagnostic instruments would lead physicians to believe that each new electrical device requires its own specially designed voltage adapter or transformer. However, since most hand instruments operate on 1.5 to 12 volts and draw a current of from 0.2 to 2.5 amp., it seemed quite feasible to construct a single low-voltage supply that could serve all of the instruments the average practitioner might use in his office. The valuable features of a small portable transformer developed recently[1] have been combined with a number of new improvements, in order to provide a maximum of convenience and safety.



Multipurpose transformer unit.

The final unit is shown in the figure. Four sets of outlets are provided on the front panel, two pairs with an output of 3 volts or less, one pair for 6-volt instruments, and one pair for 12 volts. The outlet jacks are color-coded green, yellow, and red, respectively, in accordance with customary conventions. The limiting of the voltage at each pair of outlets minimizes the likelihood of instrument bulbs accidentally burning out. (The use of colored cord tips to match the recommended voltage of the instrument would be a further protection against connecting to incorrect outlets.) Two voltage-regulating rheostats are provided, the left-hand one for the two sets of green outlets and the right-hand knob to control the remaining front-panel outlets.

The push-button switch system was selected as a timesaving convenience. In order to turn on any of the four instruments attached to the front panel, one need merely push in the correspondingly colored push button above. This will put on the desired instrument and, at the same time, shut off any instrument previously in operation; also, it will turn on the pilot light, connect the meter to the outlets in use (to provide a continuous indication of the voltage being supplied to the instrument), and, in addition, turn on the small lamp illuminating the meter from within.

An accessory set of 2.5-volt outlets has been provided on the right-hand side of the unit, for those instruments that have their own rheostat on the handle. A bulb-testing socket is included with the unit for rapid testing of instrument or flashlight bulbs. Although a voltmeter is not essential to a transformer unit, it is desirable for several reasons: The voltage for any instrument may thereby be set at the optimum level (i. e., high enough to give proper brightness to the bulb, and yet not so high as to shorten the life of the bulb), and it allows one to set the voltage independently of variations in the local power supply. It is advisable to check the various voltage outlets periodically and to adjust the rheostats accordingly.

The basic two-coil transformer has the low-voltage outlets electrically separate from the incoming 110 volts, and the insulation has been found to withstand an applied potential of 2,000 volts safely. An internal fuse serves to prevent output overload above 3 amp. The instrument has not been submitted to Underwriters' Laboratories.

4900 N. Ninth St. (41) (Dr. Askovitz).

The transformer unit described was built, according to the authors' specifications, by Medico Instruments, Philadelphia 20.

References

1. Askovitz, S. I.: Several New and Improved Electronic Devices, J. Albert Einstein M. Center 2:173-178 (Aug.) 1954; Portable Transformers for Diagnostic Instruments, Am. J. Ophth. 38:563-564 (Oct.) 1954.

Test to Demonstrate Amount of Antibody.—The amount of antibody in a serum may be demonstrated *in several* ways. The simplest technic is to make serial dilutions of antiserum to each of which is added a given amount of antigen. An end point or titer is indicated by the last dilution in which agglutination occurs in the case of a particulate antigen or in which precipitation occurs with soluble antigens. Wu and Heidelberger have developed quantitative technics for the measurement of precipitable or agglutinable antibody. Another method to visualize interactions between antigen and antibody is precipitation in a semi-solid medium, generally agar or gelatin. This test is capable of showing the pressures of more than one antigen-antibody system. A visible and discrete opaque band which migrates through the agar or gelatin is indicative of the reaction between components of at least one system. The presence of more than one band indicates the presence of more than one antigen-antibody system.—William J. Kuhns. M.D., Types and *Distribution* of Antibodies, *The American Journal of Medicine*, February, 1956.

FACIAL NERVE PARALYSIS AFTER GENERAL ANESTHESIA

Jim E. Fuller, M.D.
and
D. Vernon Thomas, M.B., Rochester, N. Y.

Attention has frequently been drawn to the danger that exists of producing damage to peripheral nerves in the unconscious patient by stretching or by pressure.[1] Paralysis caused in this way has been reported involving the brachial plexus, the radial nerve, the ulnar nerve, and the superficial peroneal nerve. While a total of six cases of involvement of the facial nerve has been noted in Russia and in Germany,[2] the American and British literature appears to be devoid of reference to such a condition. For this reason it is felt that the following cases are of interest.

Report of Cases

CASE 1.—A 54-year-old woman was undergoing cholecystectomy; she was moderately obese and her neck was short. During the induction of nitrous oxide–oxygen–ether anesthesia, upper respiratory obstruction developed, presumably as the result of the tongue's falling back against the posterior pharyngeal wall. This was only partly corrected by insertion of a rubber oral airway, but it was fully relieved when the lower jaw was lifted forward by bilateral digital pressure applied behind the angles of the mandible. Thirty minutes after the beginning of anesthesia, an endotracheal tube was passed. When the patient recovered consciousness she was noticed to have a weakness of the left corner of the mouth, involving both the upper and the lower lips, and there was flaccidity of the left cheek. Control of food during chewing was impaired, and there was a definite asymmetry of the face. The disability gradually lessened, and after three months full function had returned.

CASE 2.—A 53-year-old man was being operated upon for inguinal herniorrhaphy; he was of heavy build and had a thick, short neck. Early in the induction of anesthesia with nitrous oxide, oxygen, and ether, obstruction of respiration at the pharyngeal level occurred. Because placement of a rubber oral airway failed to relieve the condition completely, forward digital pressure was applied behind the mandibular angles, and breathing was thereby improved. Ten minutes later laryngoscopy and intubation of the trachea were accomplished. The next day, while shaving, the patient noticed that when he opened his mouth the right corner became pulled toward the midline. On cursory inspection it was almost impossible to notice any defect, both speech and eating being normal. However, on careful examination a weakness of the right half of the lower lip was easily detected. Recovery was complete in three weeks.

Comment

In view of the fact that pharyngeal respiratory obstruction is a very common occurrence during anesthesia and that pressure behind the mandible is frequently employed to relieve it, it is surprising that the facial nerve is not more often damaged. The minor degree of weakness exhibited by our second patient suggests that it is not unlikely that minor paralyses go unnoticed by both the patient and his doctors. Furthermore, there is considerable variation in the branching and the course of the nerve,[3] and this may explain why it is rarely injured in this way.

The facial nerve leaves the skull by the stylomastoid foramen, whence it passes forward and outward to become superficial to the ramus of the mandible and enters the substance of the parotid gland. Here it divides into its branches, which proceed forward to supply the facial muscles. While the temporal and zygomatic branches incline upward, the buccal and (more especially) the mandibular branches turn downward, running over or behind the ramus of the mandible, and are therefore more susceptible to injury by pressure applied in this area. In addition to damage from direct pressure, it is possible that strong forward traction on the mandible may transmit a stretching force to the nerve or its branches.

Lisitsyn,[2a] who studied 20 dissections of the facial nerve, noted that anatomic variation occurred in three pertinent areas. 1. The facial nerve may have a trunk of varying length between the stylomastoid foramen and the point where it begins to branch and enter the parotid gland. It may give off its branches at different levels, either just as it emerges from the parotid gland or somewhat farther down. 2. The nerve has a variable relationship to the parotid gland, being either deep to it and covered by the gland, so that pressure injury is unlikely, or else lying superficially in the substance of the gland itself. 3. The mandibular branch (ramus marginalis mandibulae) has an inconstant relationship to the angle of the mandible. Usually it runs high, and no matter how far the jaw is pushed forward it is not brought to lie on the edge of the angle of the mandible. However, in some cases the mandibular branch occupies a low position and bends around the edge of the angle of the jaw so that any pressure applied in this area would compress the nerve branch against the bone.

While both the patients recovered in a relatively short time, return of function might have been considerably delayed had retromandibular pressure been maintained for several hours. One of the patients reported by Zäbisch [2b] recovered full function only after six months. This condition should be considered in the differential diagnosis of postoperative cerebrovascular accidents. Polovinkova [2c] records a case in which the neurologist made an erroneous diagnosis of hemiplegia due to cerebral embolism.

Summary

Two patients had partial facial paralysis after general anesthesia. This emphasizes the need for early tracheal intubation in patients whose airway can only be maintained by strong pressure applied to the lower jaw. These appear to be the first such cases reported in the English-language literature.

260 Crittenden Blvd. (20) (Dr. Thomas).

References

1. Clausen, E. G.. Postoperative ("Anesthetic") Paralysis of Brachial Plexus, Surgery 12:933-942 (Dec.) 1942. Denny-Brown, D., and Doherty, M. M.: Effects of Transient Stretching of Peripheral Nerves, Arch. Neurol. & Psych. 54:116-129 (Aug.) 1945. Raffan, A. W.: *Post-Operative Paralysis of Brachial Plexus*, Brit. M. J. 2:149 (July 15) 1950. Dhuner, K. G.. Nerve Injuries Following Operations. Survey of Cases Occurring During 6-Year Period, Anesthesiology 11:289-293 (May) 1950.

2. *(a)* Lisitsyn, M. S.: Postnarcotic Paresis of Branches of Facial Nerve Due to Pressure During Administration, Vestnik khir. 36:17-19, 1934. *(b)* Zäbisch, K.: Paralysis of Facial Nerve as Complication of General Anesthesia, Anaesthetist 2:141-142 (Aug.) 1953. *(c)* Polovinkova, E. P.: Paralysis of Inferior Branch of Facial Nerve Following Anesthesia, Sovet. khir. 10:124-126, 1935.

3. Anson, B. J.: Atlas of Human Anatomy, Philadelphia, W. B. Saunders Company, 1950, p. 37.

From the Division of Anesthesia, University of Rochester School of Medicine and Dentistry.

J.A.M.A., October 13, 1956

SPECIAL ARTICLE

MEDICAL AUDITING BY SCIENTIFIC METHODS

ILLUSTRATED BY MAJOR FEMALE PELVIC SURGERY

Paul A. Lembcke, M.P.H., M.D., Baltimore

The purpose of this article is to introduce scientific methods of medical auditing that can be used with common understanding by hospitals and doctors whose work is to be audited and by persons or agencies making audits. Methods for abstracting and classifying cases, criteria by which individual cases can be judged, and standards by which satisfactory performance can be measured are described and illustrated by actual experience. In the interest of brevity, the descriptions have been limited to a few kinds of female pelvic surgery, but similar methods for auditing other surgical operations and the diagnosis and treatment of various diseases will be described elsewhere.

Medical audit is defined as the evaluation of medical care in retrospect through analysis of clinical records. It does not relieve the hospital staff of the daily necessity of supervising, educating, and assisting its members in providing good professional care; in fact, by its exposure of shortcomings it emphasizes the need to control the quality of care at the time it is given. Although the principles and general methods are the same in both instances, it is desirable to distinguish between the internal audit, which should be carried on continuously by the hospital staff and which consists of the process of abstracting and classifying clinical records and evaluating the quality of medical care in individual cases, and an external audit, in which case an outside agency periodically tests the completeness and accuracy of the internal audit. In endorsing the idea of external audits by the Joint Commission on Accreditation of Hospitals, the San Francisco Medical Society noted a similarity between the functions of the commission's medical inspectors and the examiners of a banking authority, adding that: "The periodic visit of a bank examiner does not disturb the bank with its affairs in order."[1]

Historical Development

The medical audit has reached its present state of development through a long evolutionary process.[2] In the early stages the leaders in medicine and education tried to cope with the problems of commercialism and a general lack of medical skill through the then limited resources of the Council on Medical Education of the American Medical Association and the Association of American Medical Colleges. The basic fault in the early 1900's was that a majority of the 165 medical schools were profiteering enterprises that accepted poorly prepared students who often did not have even a high school education and that, after 24 or 30 months of lectures and cramming, poured 5,200 new doctors a year into a profession already overcrowded. The outstanding event in the drive for improvement was Abraham Flexner's famous survey for the Carnegie Foundation,[3] which played the major role in shifting medical education from diploma mills to universities and in reducing by one-half the number of medical schools and the ratio of graduates to the population.

The substantial reforms that immediately followed Flexner's survey influenced the leaders in surgery, where commercialism and lack of skill seemed more obvious and more damaging than in other branches of medicine, to hope that a similar survey would reform the hospitals and clean up surgical practice. This led first to the formation of the American College of Surgeons, which was "to elevate the standards of the profession, moral as well as intellectual, to foster research, and to educate the public up to the idea that there is a difference between the honest, conscientious, well-trained surgeon and the purely commercial operator."[4] It was thought originally that a study like Flexner's applied to hospitals would influence some great foundation to give financial support to hospital reform as the Rockefeller Foundation had given to improve the medical schools, but, whereas by 1910 Flexner had to survey only 155 schools, in 1919 there were 700 hospitals with over 100 beds and 2,000 of 25-to-99-bed capacity. Further, the Carnegie Foundation itself did not see fit to undertake the survey. It made grants of $30,000 in 1916 and $75,000 in 1920 to the American College of Surgeons for this purpose, but from that time until 1952 the cost of the hospital reform movement was paid by the surgeons.

The "hospital standardization program," as it was called, started with the intention of auditing professional care by the individual case method,[5] but it soon appeared that its resources were insufficient for the intensive program that would be necessary to develop the methods and provide the service for medical audits of the hospitals of North America, and its scope was limited accordingly to five manageable and basic aspects, namely: (1) medical staff organization, (2) qualifications for medical staff membership, (3) rules and policies governing professional work in the hospital, (4) medical records, and (5) diagnostic and therapeutic facilities.[6] These are factors without which it would be difficult to do good work but which of themselves do not necessarily insure good medical care.

In spite of its limitations, a great deal of good was accomplished by the hospital standardization program of the American College of Surgeons. At the same time, the development of the internship and residency approval programs of the American Medical Association, the development of the medical specialty boards, and the ventures in postgraduate education by the Bingham Associates Fund, the Commonwealth Fund, and a number of universities and professional organizations have contributed heavily to the betterment of hospitals and hospital care. When these activities are added to the improvements that have taken place in undergraduate medical education and the advances in medical

---

Associate Professor, Johns Hopkins University, School of Hygiene and Public Health, Division of Hospital Administration.

science resulting from basic and medical research, the accomplishments to date are most impressive. However, there is always need to be certain that these efforts are successful in transmitting to patients the almost miraculous benefits of modern medical knowledge; such is the purpose of the medical audit.

Over the years there has been a search for a few indexes that could be easily gleaned from hospital statistics and that would be reliable indications of the quality of medical care in hospital. For a time it seemed that total death rates, or those related to length of stay in hospital or to operations and anesthesia and type of case; figures on the percentage of normal tissue removed; or the agreement between preoperative and postoperative diagnoses might be useful. Indexes of this kind had been pioneered in earlier years by MacEachern at Vancouver (B. C.) General, Dillon at St. Vincent's in Los Angeles, Chapman at Cleveland's Mount Sinai Hospital, and, especially, Ward at Woman's Hospital, New York, and were being used until recently by Ponton, Klicka, and others.[2]

In 1946, I attempted to determine from similar indexes developed by the Commonwealth Fund staff[7] whether, and to what extent, the postgraduate medical education and advisory programs of the Council of Rochester Regional Hospitals were improving hospital and medical care in 18 member hospitals.[8] Special forms were prepared, a medical records manual was written, committees and study groups were organized to guide and forward the work, and a medical record librarian was employed to assist the hospitals in furnishing accurate and comparable data. The program attracted the attention of the Kellogg Foundation, which in 1949 adopted it with minor revisions for use by the Southwestern Michigan Hospital Council. Although the Council of Rochester Regional Hospitals has continued the original plan down to the present time, it was apparent as early as 1948 that the "Reports of Professional Activities," as these indexes were called, did not provide satisfactory answers. The various death rates were virtually meaningless because of variations in the proportion of different types of diseases and operations. There was no definite or constant relationship between death rates and the proportion of patients having reasonably complete records of history, physical examination, laboratory diagnosis, and consultation, the reason being that points important in some diseases were being obscured by lumping them with diseases in which such points were insignificant. Further, hospital care is undertaken only occasionally with the aim of preventing immediate death—hospital death rates rarely exceed 4%, regardless of the quality of care—whereas a majority of patients are being treated with such other aims as restoring function, preventing disability, or relieving pain.

Laboratory data on the percentage of normal tissue removed were not satisfactory, because pathology reports too often described essentially normal organs with euphemisms or anatomic terms that could be construed to disguise the fact. On the other hand, the figures usually failed to distinguish normal organs the removal of which was justified, such as a prolapsed uterus in an older woman or an appendix removed in the course of cholecystectomy. Another source of error or confusion was that not a few surgeons postponed making a written record of their preoperative observations, including at times even history and physical examination, until after the operation, in which case some of them perhaps inadvertently made the preoperative diagnosis correspond to the postoperative diagnosis or even to the pathology report.

Such anomalies were so frequent that, in a study undertaken in 1949 to discover what proportion of appendectomies done to relieve symptoms attributed to disease of the appendix were justified, I felt that if figures were to be comparable between one hospital and another it would be necessary to disregard the clinical diagnosis and pathology report and to use the mere fact of the primary appendectomy as an index. By this method, operations done in hospitals in and around a well-defined geographical area for which the population is known, but only those done on persons whose usual residence is in such area, are counted and the results expressed as "hospital area" incidence rates per 1,000 population resident in the area.[9] Although such rates do not permit comparison of one hospital with another where there are two or more in the community, nor evaluation of the work of individual physicians, they are very useful in checking the general reliability of hospital data obtained by individual case analysis, as well as in comparing one community with another.

When it came to analyzing individual cases, I concluded,[10] as did Myers[11] and Eisele,[12] that most of the indexes of quality used in the past are now out of date or otherwise erroneous because of a lack of research in this field, possibly attributable to undue emphasis on secrecy in the past when medical audits were made only for cause, where there was good reason to suspect that all was not well.

Current Methods

The situation has improved since the advent of the Joint Commission on Accreditation of Hospitals, whose inspections routinely include as much of an audit as is possible in the circumstances, although this phase of hospital accreditation is still greatly handicapped by the fact that few hospitals maintain an internal audit. There is rarely an opportunity for the commission's inspectors to do an external audit, i. e., to test the completeness and accuracy of a hospital's internal audit. Instead, they must deal directly with the clinical records, a time-consuming process that severely restricts the scope and depth of their audit. Another problem is that there are few objective criteria to guide the inspectors, who would need to be expert in all fields if their individual subjective opinions were to be accepted as authoritative.

When the shortcomings of the "Reports of Professional Activities" became apparent to them, the Southwestern Michigan Hospital Council group first experimented with individual audits by Dr. Wesley C. Eisele and later joined with the American College of Surgeons in developing a method whereby the hospital's medical record librarian prepares uniform abstracts of all records on forms that are sent to a statistical center for transfer to punch cards and sorting by machine to give a statistical analysis that will indicate what kinds of cases or what phases of patient care should be selected by the audit committee of the medical staff for their deliberations. Their analysis is in turn recorded on special sheets for machine processing.[13] It appears that under this plan each audit committee makes up its own criteria, which in these circumstances might vary considerably from those of inspectors for the Joint Commission on Accreditation of Hospitals, from those employed in other hospitals, from those used in different periods in the same hospital, and even from those used for similar cases considered by the same audit committee. For example, in the table on surgical performance statistics in appendectomy, it is inconsistent for hospital 5 to have about 88% of appendectomies justified when some 28% of the tissue removed was normal, or for hospitals 3 and 4 to have the same percentage of cases justified when hospital 3 has about 13% but hospital 4 has only 5% removal of normal tissue. In the same table hospitals 6 and 7 are represented as having virtually no normal tissue removed, a finding that I question since I have never encountered a figure lower than 17% in the best hospitals.

In developing the methodology that I am introducing here, I have attempted to avoid inconsistencies and have aimed to be scientific by employing written definitions, written criteria for justifying or criticizing specific actions, tests of the accuracy of pathology reports, and a comparison of the results obtained with standards derived from observations in control hospitals. These procedures can be used in conjunction with the clinical records as such or with any suitable method of abstracting the essential points. Unfortunately, the previously described abstracts for machine tabulation[13] would have to be changed somewhat to be used with the methods I propose because, with few exceptions, they merely indicate that a certain observation was made and do not state the result. For example, in pneumonia the statistical analysis shows whether chest x-ray examination was made but does not indicate the result and in appendectomy cases neither the white blood cell count nor the tissue diagnosis would be entered. Any system of abstracting an entire record indiscriminately is likely to be either too complicated or insufficiently informative. It is better to decide in advance for specific diseases or operations what data are necessary for evaluation and to limit the abstract accordingly.

Scope of Medical Audit

The medical care of a hospitalized patient usually presents a number of diagnostic and therapeutic features, some important and others relatively insignificant. One of the problems in establishing a procedure for the medical audit of a given disease or operation is to single out and concentrate on a few features that are essential to achievement of the desired end-result of hospital care. For example, a routine chest x-ray, important as it may be to the detection of unsuspected pulmonary and cardiac disease, would not be germane in the audit of a hysterectomy. The scope of the medical audit may be limited further by a lack of scientific knowledge on which criteria can be based. For example, our present state of knowledge may permit us to judge whether the precautions taken to avoid death or complications incidental to tonsillectomy were adequate, but we do not know enough to judge the larger issue of whether the operation should have been done at all. If more than one feature is essential to the proper management of a case, it is usually necessary to judge each one separately; e. g., a subtotal hysterectomy might be justified as to necessity by a pathology report of fibromyomas and criticized because the cervix was not removed or because biopsy of the cervix was not done.

Main Features of the Audit

The main features of the medical audit that have been found necessary and feasible include those listed below.

1. Arranging data into meaningful classifications; e. g., classifying major female pelvic surgery according to whether it may result in sterility or castration.
2. Verifying the statements in the clinical record by means of written confirmation, such as
   a. reports of pathology or x-ray departments, clinical laboratory, or electrocardiographic examination;
   b. report of a qualified consultant;
   c. observations made by another hospital, laboratory, or outside consultant;
   d. statement signed by the patient or proper representative, e. g., in sterilization cases; and
   e. nurses' notes, chiefly in respect to medicines and treatments.
3. *Establishing the accuracy of tissue diagnosis,* x-ray, and electrocardiographic and clinical laboratory examinations by submitting representative slides, films, etc., to other laboratories for independent interpretations.
4. *Comparing the verifiable facts with criteria established as being necessary or important in*
   a. confirming the clinical diagnosis, e. g., result of electrocardiogram in the diagnosis of myocardial infarction;
   b. justifying surgical operations as to their necessity, e. g., pathology report in primary oophorectomy;
   c. classifying surgical operations as to the proper extent, e. g., exploration of common bile duct in cholecystectomy patients with jaundice;
   d. providing proper chemotherapy, e. g., penicillin in acute rheumatic fever;
   e. determining whether hospitalization was necessary at all;
   f. judging whether death may have been preventable;
   g. justifying the length of stay in hospital;
   h. evaluating the safeguards employed in blood transfusion; and
   i. other aspects of generally similar character.
5. Comparing the degree of compliance with criteria, as measured by the methods described above, with a standard degree of compliance found to be characteristic of hospitals of acknowledged merit.

In addition to these five features, I have found it very useful to compute incidence rates for the community served by the hospital.

Development of Criteria

In developing criteria for evaluating the care of hospitalized patients, certain principles were observed that are believed to be generally applicable regardless of the type of case.

1. *Objectivity.*—Criteria should be stated in writing with sufficient precision and detail to make them relatively immune to varying interpretations by different individuals.
2. *Verifiability.*—Criteria should be so framed that points on which they rest can be verified by laboratory examination, consultation, or documentation.
3. *Uniformity.*—In view of the essential uniformity of the human body and its diseases, criteria should be independent of such factors as size or location of hospital, qualifications of the physician, or social and economic status of patient.

4. *Specificity.*—Criteria should be specific for each kind of disease or operation to be evaluated, and all significant and closely related diseases or operations in the same patient should be considered as a unit.

5. *Pertinence.*—To the greatest extent possible, criteria should be pertinent to the ultimate aim of the medical care being evaluated, and they should be based on results rather than intentions (The latter point was commented on early in the history of hospital and surgical practice reform as "the tragedy of the man who has the best intentions and the best character and a fair equipment for his work, but who has not a thorough equipment, and who cannot do the thing he starts to do in the best possible way."[14])

6. *Acceptability.*—Criteria should conform with generally accepted standards of good quality as set forth in leading textbooks and articles based on scientific study.

The first step in developing criteria has been the preparation of written definitions and rules from the information available in the current medical literature. Considerable emphasis has been placed on textbooks as expressing conservative medical opinion generally representative of the theory and practice accepted by a majority of competent physicians. Where they are available, articles based on research bearing directly on the medical audit have been used, e. g., Doyle's articles on unnecessary oophorectomies and hysterectomies.[15] Additional steps have consisted of testing the criteria on several hundred cases to find out whether the necessary data are or can be recorded regularly, to learn whether compliance is feasible, and to judge the effect of the criteria on such important objectives as discovery of cancer or reduction in mortality.

The sources consulted on female pelvic surgery included textbooks by Te Linde,[16] the Novaks,[17] Lowrie,[18] Curtis and Huffman,[19] and Wharton.[20] More weight was given to Doyle's comprehensive and pointed articles on unnecessary oophorectomies and unnecessary hysterectomies [15] than to any other single source, since his studies were directed toward the development of criteria. Useful material was found in many other places, also, such as in the work of Reich,[21] Abel,[22] and Novak [23] and in other articles of general educational intent.[24] The occurrence of uterine and ovarian cancer, estimated by Randall, Gerhardt, and others,[25] and of coronary disease in women who have had oophorectomies, estimated by Katz, Pick, and Stamler,[26] was considered also.

TABLE 1.—*Classification of Female Pelvic Operations*

1 Hysterectomy with castrating oophorectomy (both ovaries or only remaining ovary removed)
2 Castrating oophorectomy without hysterectomy
3 Hysterectomy with noncastrating oophorectomy (one ovary removed; all or part of other ovary remains)
4 Sterilizing tubal surgery with noncastrating oophorectomy
5 Hysterectomy without oophorectomy (ovary or ovaries, if present, left intact or subjected to no more than biopsy or partial resection)
6 Sterilizing tubal surgery without oophorectomy (ligation, sclerosis, section, and partial or total excision of one or both tubes so that there is no communication between uterus and ovary)
7 Radiation therapy
8 Myomectomy (abdominal route only)
9 Hysterotomy (cesarean section excluded)
10 Noncastrating oophorectomy without hysterectomy or sterilizing tubal surgery
11 Nonsterilizing tubal surgery without oophorectomy
12 Plastic tubal surgery (anatomic communication between uterus and ovary preserved by salpingotomy or reestablished by plastic operation)
13 Uterine suspension
14 Exploratory laparotomy for suspected female pelvic disease (includes partial ovarian resection)
15 Pelvic repair (not associated with hysterectomy or uterine suspension)
16 Uterine curettage
17. Dilatation of cervix (except in conjunction with uterine curettage, cervical operation, or Rubin's test)
18 Cauterization of cervix (except in conjunction with conization or excision of local lesion, excision of stump, or amputation of cervix)
19 Cervical biopsy, conization, or excision of local lesion
20 Total excision of cervix (includes amputation)
21 Completion of incomplete abortion (includes removal of retained secundines following delivery at term)
22 Therapeutic abortion
23 First cesarean section
24 Repeat cesarean section

Integration of Multiple Operations

The problem of multiple operations arises in a large proportion of cases of female pelvic surgery. Some of these operations, oophorectomy and homolateral salpingectomy, for example, are clearly related and can be considered as a unit, but other combinations, such as uterine suspension and oophorectomy, require special classification. To deal with this problem operations have been grouped as shown in table 1, under headings that have been found meaningful in the medical audit. In making these groupings, considerable weight was given to the fact that unnecessary surgery is a big factor in this field and leading roles were assigned to operations resulting in castration or sterilization. Each operation or operation group has been classified in detail in appendix A. The description of hysterectomy given below is an example of the degree of detail needed for precise classification by medical record librarians or clerks to whom this task may be entrusted.

TABLE 2.—*Consultation and Documentation Requirements in Female Pelvic Surgery*

Consultation	Documentation	Description of Primary Operation
Yes*	...	Hysterectomy for uterine descensus
Yes	Yes	Hysterectomy for sterilization
...	Yes	Castrating oophorectomy for breast cancer
Yes	Yes	Tubal surgery for sterilization
..	Yes	Plastic repair of fallopian tubes to relieve sterility
Yes	..	Uterine suspension for significant pelvic relaxation or relief of sterility
...	Yes	Hysterectomy for previously diagnosed and treated cancer of uterus, ovary, or tube

---

* In premenopausal patients aged 35 through 49 yr Hysterectomy for uterine descensus under age 35 is not considered justified, regardless of consultation, unless patient has been previously sterilized or the case has been documented as for sterilization

HYSTERECTOMY. Not analyzed separately if concurrent with cesarean section. According to whether oophorectomy was done, hysterectomies fall into the following main groups.

Group 1. Hysterectomy with castrating oophorectomy (both ovaries or only remaining ovary removed).

Group 3. Hysterectomy with noncastrating oophorectomy (one ovary removed; all or part of other ovary remained).

Group 5. Hysterectomy without oophorectomy (ovary or ovaries, if present, left intact or subjected to no more than biopsy or partial resection).

Tubal surgery, exploratory laparotomy, partial ovarian resection, pelvic repair, uterine curettage, cervical operation in total hysterectomy, and appendectomy are analyzed as part of the hysterectomy.

Operations analyzed separately although done concurrently are cervical operation in subtotal hysterectomy and completion of incomplete abortion.

Consultation and Documentation

Many kinds of operation can be judged as to necessity by preoperative x-ray study or by pathology reports of the presence or absence of disease in the tissues removed, but where diagnosis cannot be made by these means it may be necessary to turn to documentation or consultation. The requirements for [illegible] of female pelvic surgery listed in [illegible] are th[illegible] are generally accepted at the [illegible] ne. H[illegible] from the tone of [illegible] emphasizing [illegible] myoma does not mean that a hysterectomy must be done forthwith,[27] it seems possible or even likely that in the future consultation and the patient's request for sterilization will be required where hysterectomy for nonmalignant disease is contemplated in patients under age 50. Also, if the suspicion that loss of ovarian function increases the risk of fatal coronary disease is borne out,[28] castrating oophorectomy will be undertaken only after a consultant has assisted in appraising the factors for and against castration.

Documentation and consultation in sterilization and therapeutic abortion cases should conform to the laws of the state and, as a rule, should consist of a request signed by the patient and her husband, and the recommendation of two physicians other than the surgeon. *In cases of oophorectomy for palliation of breast cancer or hysterectomy for previously diagnosed cancer of uterus, ovary, or tube, documentation, preferably in the form of a laboratory report, is needed.* Plastic repair of fallopian tubes should be supported by a record of unsuccessful Rubin's tests. Consultation is required if uterine suspension is to be done for pelvic relaxation or attempted relief of sterility. Surgical consultation should include examination of the patient, with a written record of the findings and recommendations of a physician who is himself qualified under the rules of the hospital to perform the contemplated operation.

Justification for Female Pelvic Surgery as to Necessity

In female pelvic surgery the chief problem of the medical audit is to decide whether the operation was justified. Although some operations may be criticized because they are not sufficiently extensive, the usual criticism is that they should not have been done at all or that too much tissue was removed. It should be kept in mind that the medical audit is a retrospective analysis in which the medical auditor is judging events after they have taken place and after such significant information as the pathology report is at hand. For this reason, the criteria are not to be construed as preoperative indications. They may correspond in a degree, perhaps, but they are not appropriate for preoperative use. Also, it should be realized that criteria may change from time to time as medical knowledge and research indicate.

The criteria that apply to operations on the uterus, ovaries, or fallopian tubes that result in castration, sterilization, or both are presented in appendix B. However, the criteria for justified hysterectomy are given as an example.

HYSTERECTOMY. Removal of the uterus is considered justified by the following criteria, provided *that concurrent oophorectomy, if any, is also justified.*

Intrinsic Disease of the Uterus.

1. Malignant neoplasm of corpus uteri, primary or secondary, any stage.
2. Early cancer of cervix, International Classification 0 and 1.
3. Palliative treatment of cancer of cervix, International Classification 2, 3, or 4, following radiation.
4. Chorioepithelioma.
5. Benign neoplasms such as fibromyoma or leiomyoma.
6. Adenomyosis, or endometriosis of the uterus.
7. Rupture.
8. Pyometra.

In the Absence of Uterine Disease.

1. In the course of other justified abdominal operation, when the menopause or age 50 has been reached; or when ovaries or tubes have been removed or so treated that conception is no longer possible.
2. Where necessary to permit adequate resection of malignancy of other organs.
3. Elective sterilization where medical and legal conditions have been fulfilled (may include pelvic relaxation in patients under age 35, or intractable *menorrhagia, etc.*).
4. For relief of significant pelvic relaxations resulting in uterine descensus (*procidentia, prolapse*), cystocele, or rectocele in patients aged 35 or over, or in younger patients who have previously been sterilized artificially.

Not Justified as to Necessity. Some of the common conditions that are at times advanced as reasons for hysterectomy but that are not considered justified for the purposes of the medical audit are chronic cervicitis, pelvic inflammatory disease, fibrosis, endometrial hyperplasia, suspected malignancy, so-called premalignant conditions of cervix or endometrium, endometrial polyp, cervical polyp, lacerated cervix, retroposition of uterus, "clinical" endometriosis.

Standard for Compliance with Criteria. Eighty per cent, considering all hysterectomies together, those with and those without concurrent oophorectomy.

Clinical Judgment.—The criteria have been made as specific as possible, so that various people applying them independently may obtain the same results. Moreover, for the sake of objectivity, without which medical audits can have only limited application and little or no comparability when done at different times or by different persons, the element known as clinical judgment has been subordinated in a certain degree and in a specific way to verifiable facts. For example, in the course of a hysterectomy for uterine bleeding due to fibromyomas in a woman 36 years old, surgeon A might judge that despite his best efforts the blood supply of one of the patient's normal ovaries had been sufficiently impaired to make him fear that if the ovary were left in place it would degenerate and perhaps cause symptoms that would require its removal later on. His clinical judgment would tell him to remove the ovary at the time. However, surgeon B might judge an identical situation differently, believing the ovary would continue to function without symptoms. Surgeon C might be so skillful that this problem would not arise in his surgical management of a similar case. It is impossible on objective grounds to accept the judgment of surgeon A as justifying the oophorectomy. According to objective criteria, the operation would be criticized because the ovary showed no disease.

The element of surgical judgment is recognized by allowing a certain tolerance within which factors of judgment and uncertainty are not criticized. Thus removal of ovaries not showing definite disease will be attributed to surgical technique and clinical judgment in 25% of cases, i. e., compliance with the objective criteria is required in only 75% of noncastrating oophorectomies. This concept of tolerance of a certain percentage of cases not meeting objective criteria has been applied to virtually every operation.

Justification as to Other Aspects

Criteria by which various operations may be evaluated as to completeness and certain diagnostic aspects are set forth in appendix B. An illustration follows.

Hysterectomy is considered complete only if the cervix is also removed, except where consultation before or during operation confirmed the clinical impression that the patient did not present a sufficiently good surgical risk to warrent the complete operation, provided that the presence or absence of cancer in the cervix was established by biopsy. Standard compliance is 90%.

The operations are also analyzed as to whether uterine curettage and cervical biopsy were done at the time of, or in the six months preceding, operation and whether examination under anesthesia was done with, or immediately preceding, operation. Standard compliance is 50% for uterine curettage, 15 for cervical biopsy, and 75 for examination under anesthesia. Each of these aspects is related to the ultimate goal of first-rate surgery, but because each has a different degree of importance they are considered separately.

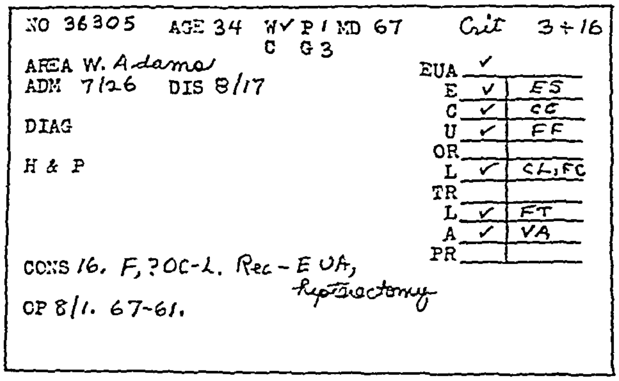
Methods

Time and money could be saved in medical audits if a sample of records would produce all of the necessary information. However, sampling has not been found adequate, partly because the total number of operations must be divided into a number of small groups that have different criteria for evaluation (there are 24 in the female pelvic operations listed in table 1); partly because audits made at short intervals, quarterly if possible, are most apt to realize the maximum benefit; and finally because the work of each physician needs to be analyzed separately. Therefore, it has been found desirable to analyze every case, even in large, active hospitals. However, in determining "hospital area" or community incidence rates, sampling may be feasible, making it possible to gain a good idea of the situation in large population groups without inordinate cost.

A first step in the medical audit is to insure that few if any records will escape study because they have been held out of the files to be completed, for research, committee action, or any other reason. Therefore, about 200 recent cases should be checked by systematically matching a permanent index or register, preferably a bound volume listing cases chronologically, such as an admission register, against records in the files. For the audit of sterilizing and castrating female pelvic surgery, an up-to-date record such as the operating room book should be used as an index and all records for the types of surgery to be studied should be pulled from the files and grouped as described in table 1 and appendix A.

An abstract of each record is then prepared. Although much more elaborate forms may be used, 3 by 5 in. cards arranged as in figure 1 have been found adequate for the abstract and coding. Cards that can be punched in the margin to facilitate sorting may eventually repay the additional initial cost. In any event, cards should be used in preference to lists, because cards can easily be arranged and rearranged into various combinations, for example, by disease group or by surgeon. Incidentally, the card is almost identical with that recommended 40 years ago.[28] Only a few points are essential. The hospital case number (NO) is recorded to avoid duplication and to permit ready reference if it is necessary to consult the record again. The patient's name is not entered. Age is essential because some criteria change at certain ages. Race or color (W, C) is entered because the attitude of certain hospitals and physicians may be different for white and colored. Place of usual residence (AREA) may indicate whether cases from a distance more often present unusual problems, and it is used for "hospital area" or community incidence studies. Dates of admission (ADM) and discharge (DIS) are needed to delineate trends and to evaluate the length of stay.

The clinical diagnosis need be entered only in the cases listed in table 2. The preoperative diagnosis (DIAG) is taken from admission note, history, or operative sheet, whichever gives the clearest evidence of having been recorded prior to operation; if it does not seem clear, appropriate selections from the history and physical examination (H&P) may be entered as substitutes or supplements. This is a convenient place in which to record documentation. Consultation (CONS) calls for identification of the consultant and a brief note of his findings and recommendations. There should be at hand an up-to-date list of medical staff members with their privileges.



NO 36305 AGE 34 W✓ P 1 MD 67 Crit 3÷16
C G 3

AREA W. Adams

ADM 7/26 DIS 8/17

DIAG

H & P

CONS 16. F, ?OC-L. Rec - EUA, hysterectomy

OP 8/1. 67-61.

EUA	✓	
E	✓	ES
C	✓	CC
U	✓	FF
OR		
L	✓	CL, FC
TR		
L	✓	FT
A	✓	VA
PR		

Fig. 1.—Abstract card for medical audit of female pelvic surgery. NO, hospital case number, W, C, race or color, P, G, pregnancies and deliveries, MD, identity of surgeon; AREA, place of usual residence; ADM, DIS, dates of admission and discharge DIAG, preoperative diagnosis, H & P, history and physical examination, CONS, consultation, OP, operation, EUA, examination under anesthesia, E, endometrium; C, cervix uteri, U, corpus uteri, OR, right ovary, and L, left; TR, right tube, and L, left, A, appendix, and PR, pelvic repair

Operative procedure is indicated by a check mark to the left of the vertical line, in the space corresponding to the procedure: examination under anesthesia (EUA); pelvic repair (PR): or the tissue or organ: endometrium (E), cervix uteri (C), corpus uteri (U), ovary (O), tube (T), appendix (A). Previous operation on or removal of an organ or structure is noted to the right of the line; this is of great importance in classifying operations on tube or ovary. The pathology report is recorded in the space to the right of the vertical line, employing appropriate abbreviations. Although it may be interesting to note the size of a fibromyoma or ovarian cyst, size is not recorded due to its relative inaccuracy. Complications and death are entered. The identity of the surgeon (MD) is recorded in code, which ideally should be changed periodically to prevent possible bias by the reviewer. Entries for previous pregnancies and deliveries (P, G) are required only in operations to relieve sterility, but I like to record them routinely. After "OP" one may wish to record date, the identity of the assistants at operation, the method of anesthesia, and the preoperative assessment of surgical risk. A somewhat different card is used for cesarean sections.

Presentation of Data

From the case abstracts, statistical tables are prepared for the medical audit committee, the joint liaison committee (several members of the trustees, administration, and medical staff), and other groups if necessary. Salient features of the cases are summarized by time periods to show the progress made toward a standard degree of compliance with criteria. For example, table 3 presents for nine 13-week periods the number of cases of hysterectomy without oophorectomy that were justified, subdivided into those where more extensive surgery would have been justified and those where the operation was suitable as done, and the number of criticized cases, subdivided into those where less extensive surgery would have been justified and those where no surgery was justified according to the criteria employed. It shows whether hysterectomy was vaginal or abdominal and the cases where the cervix was left in place. The operations are also classified as to whether uterine curettage, cervical biopsy, and examination under anesthesia were done, and the number of deaths is shown.

TABLE 3.—*Incidence and Trend of Hysterectomy Without Oophorectomy, Extent and Type of Hysterectomy, Frequency of Certain Preoperative Diagnostic Procedures, and Deaths*

	Control Hospitals		Study Hospital: Consecutive 13-Wk. Periods								
			Preaudit		Medical Audit in Effect						
Operation	T-1	T-2	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
Total justified	32	42	32	33	34	34	37	57	29	43	36
Castrating oophorectomy also would have been justified	11	10	13	10	12	18	17	19	14	14	12
Operation suitable as done	21	32	19	23	22	16	20	38	15	29	24
Total criticized	9	5	26	20	6	3	7	3	2	2	1
Lesser surgery would have been justified as shown below: Nonsterilizing tubal surgery	0	0	0	0	0	0	0	0	0	1	0
Pelvic repair, patient under 35	4	2	6	5	2	1	1	0	0	0	0
No operation justified according to medical audit criteria											
Cancer of cervix IC2, 3 or 4 without prior radiation	0	0	0	0	0	0	0	0	0	0	0
No significant pelvic pathology	5	2	19	15	3	2	5	3	2	1	1
Pregnant uterus removed	0	1	1	0	1	0	1	0	0	0	0
Grand Total	41	47	58	53	40	37	44	60	31	45	37
% justified	78	89	55	62	83	92	84	95	94	96	97
Extent and Type of Hysterectomy											
Total, vaginal	22	28	3	2	6	10	9	11	13	10	7
Total, abdominal	16	18	34	36	25	21	31	34	15	29	27
Subtotal, abdominal											
No.	3	1	21	15	9	6	4	15	3	6	3
%	7	2	36	28	22	16	9	25	9	13	8
Preoperative Diagnostic Procedures											
Uterine curettage											
No.	10	30	7	6	8	5	22	19	9	24	14
%	24	64	12	11	20	14	50	32	29	53	38
Cervical biopsy											
No.	12	2	1	4	0	3	3	7	1	3	3
%	29	4	2	8	0	8	7	12	3	7	8
Examination under anesthesia											
No.	37	*	*	*	*	*	19	21	10	19	14
%	78	*	*	*	*	*	45	35	32	42	38
Deaths	0	0	1	0	0	1	0	0	0	0	0

*Data not obtained.

A list of cases such as shown in table 4 substantiates the statistical table. These one-or-two-line summaries constitute an important part of the internal medical audit and are helpful to the hospital's medical audit committee and in the external audit.

Justification for Operations Resulting in Castration or Sterilization as to Necessity

Table 5 shows the total number of operations that resulted in castration or sterilization, in a hospital subjected to medical audit and in two teaching hospitals used as controls, and the number and percentage of operations that were justified according to the criteria. The cases from the teaching hospitals were of consecutive, unselected white patients operated on in late 1952 and early 1953. Nearly all of the cases in the hospital that was audited, the study hospital, were of white patients. The operations in the first and second 13-week periods were done before the medical audit was commenced; however, another area hospital used by many members of the study hospital staff was being audited during the first and second periods.

When the criteria described in this article were applied to the study hospital, the total number of operations declined markedly, from a level of about 230 per period in the preaudit era to an average of 130 in the third and fourth periods during which the medical staff knew that a medical audit was under way but before the criteria had been announced. There was a further reduction to an average of about 80 cases after the

TABLE 4.—*Illustrative Cases of Hysterectomy Without Oophorectomy*

				Consultation and Recommendation									
					Operation Recommended			Operation					
Case No.	Surgeon	Age	Children	M.D.	Hysterectomy	Pelvic Repair	Other	Route	Total	Curettage	Biopsy of Cervix	Examination Under Anesthesia	Pathology Report, Pelvic Relaxations, and Other Data
	Seemed Justified: Routine Oophorectomy Also Would Have Been Justified by Patient's Age												
644	12	55	3	....	....	....	....	Vaginal	Yes	Yes	No	Yes	Leiomyomata uteri
724	35	60	4	33	Yes	Yes	No	Vaginal	Yes	Yes	No	No	Fibromyomata uteri (perineal repair)
209	50	58	0	....	....	....	....	Abdominal	Yes	Yes	Previous	Yes	Adenocarcinoma of endometrium, post-irradiation
	Seemed Justified: Operation Suitable as Done												
726	12	36	1	80	Yes	No	No	Abdominal	Yes	Previous	No	Yes	Fibromyoma
481	20	42	2	61	Yes	Yes	No	Vaginal	Yes	Yes	No	No	(Rectocele and perineal repair)
295	40	38	2	39	Yes	No	No	Abdominal	Yes	Yes	Yes	No	Parovarian cyst (tubal sterilization after 2nd cesarean, 7 yrs. ago)
	Criticized: Pelvic Repair Only Would Have Been Justified												
654	50	28	4	33	Yes	Yes	No	Vaginal	Yes	No	No	Yes	(Rectocele, cystocele, perineal repair)
	Criticized: No Significant Pelvic Pathology												
950	20	38	2	34	Yes	No	No	Abdominal	No	Previous	No	No	No uterine pathology
561	61	38	0	....	....	....	....	Abdominal	Yes	No	No	Yes	No uterine pathology; bilateral hydrosalpinx
281	61	29	0	33	No	No	Study	Abdominal	Yes	No	No	No	No uterine pathology; chronic salpingitis

effects of the audit were felt more fully. In this one hospital there was a reduction of some 600 major operations per year. During the study the percentage of operations justified increased steadily from preaudit figures of about 30% to an average of more than 80%.

TABLE 5—*Total Operations on Uterus, Ovary, and Tubes That Resulted in Castration or Sterilization*[*]

	Control Hospitals		Study Hospital: Consecutive 13-Wk Periods								
			Preaudit		Medical Audit in Effect						
Operation	T 1	T 2	1st	2nd	3rd	4th	5th	6th	7th	8th	9th
			Total No of Operations								
1 Castrating oophorectomy and hysterectomy	38	30	119	137	63	59	34	25	33	23	21
2 Castrating oophorectomy only	2	0	8	7	7	7	1	7	2	7	3
3 Hysterectomy and non castrating oophorectomy	11	7	37	34	23	17	11	4	10	3	9
4 Tubal surgery and non-castrating oophorectomy	0	1	3	1	3	2	0	0	0	1	1
5 Hysterectomy only	41	47	57	53	40	37	43	60	31	44	37
6 Tubal surgery only	0	1	4	2	2	0	0	5	7	4	6
Total	92	86	228	234	138	122	92	104	83	83	79
			No of Operations Justified								
1 Castrating oophorectomy and hysterectomy	28	24	26	35	22	24	18	18	21	19	12
2 Castrating oophorectomy only	2	0	3	4	1	5	0	6	2	6	3
3 Hysterectomy and non castrating oophorectomy	5	1	3	6	5	3	6	3	2	2	6
4 Tubal surgery and non castrating oophorectomy	0	1	0	0	0	1	0	0	0	0	0
5 Hysterectomy only	31	42	31	33	34	36	36	57	29	42	35
6 Tubal surgery only	0	1	1	0	0	0	3	4	7	4	6
Total	66	69	66	78	62	69	63	87	61	73	62
			% of Operations Justified								
1 Castrating oophorectomy and hysterectomy	74	76	22	26	35	41	53	72	64	83	58
2 Castrating oophorectomy only	100	.	38	57	14	71		86	100	86	100
3 Hysterectomy and non-castrating oophorectomy	45	14	8	18	22	18	55	43	20	67	67
4 Tubal surgery and non-castrating oophorectomy	..	100	0	0	0	50	..	..	..	0	0
5 Hysterectomy only	78	89	54	62	85	97	84	95	94	96	95
6 Tubal surgery only	..	100	25	0	0		100	80	100	100	100
Total	72	80	29	33	45	57	68	84	74	89	81

[*] Results in hospital subjected to medical audit and in two teaching hospitals that served as controls

A striking reduction in criticized operations took place, from 162 and 156 in the preaudit periods to an average of 16 in the four most recent periods. There was some fluctuation in the number of justified operations, but they held fairly steady between 61 and 87 per period, which presumably represents a rather constant need.

Standard for Percentage Justified.—At the beginning of the audit, when only 30% of operations in the study hospital were considered justified, it seemed almost hopeless to expect 80% compliance with the criteria, a standard that had been set by calculating from Doyle's article [15b] an average of 82% for the four best hospitals in his series of 35 nongovernmental hospitals. Of the hospitals used as controls, teaching hospital 2 had 80% of its 86 cases justified, but in teaching hospital 1 only 72% of the 92 cases complied. The criteria had been applied to the controls exactly as in the preaudit periods in the study hospital, i. e., all operations had taken place long before a medical audit or any mention of criteria and thus represented what surgeons were doing without specific guidance. There was a tendency in the teaching hospitals to sterilize by hysterectomy without documentation and to remove the uterus incidental to pelvic repair in women under age 35 if they had two or three children; otherwise the controls would have complied in well over 80% of cases. Taking all factors into consideration, a standard of 80% seemed reasonable, and experience with the audit has shown that over a period of time a standard of 80% can be attained in any hospital without reducing the number of sterilizing and castrating operations clinically necessary and justifiable by significant pelvic pathology.

Analysis of the Work of Individual Physicians

Nearly 40 different surgeons performed these operations in one or another of the periods studied, but in any one period the figure would be between 25 and 30. In the preaudit periods only five active surgeons had *70% or more of their cases justified, but after the audit* was commenced the situation was progressively reversed, until by the sixth period, during which 26 surgeons were active, 21 had at least 70% of their cases justified. This change occurred without drastic disciplinary measures such as suspension or dismissal from the medical staff. A joint liaison committee representing the governing board, medical staff, and administration reviewed quarterly statistical summaries of the medical audit. The identity of the various surgeons *was not divulged to this group as a whole, but the* president of the medical staff, assisted by the physician members of the joint liaison committee, interviewed the surgeons with poor individual records and sought their compliance. Near the end of the fourth period the criteria and standards were printed and distributed to *the staff and further improvement occurred.*

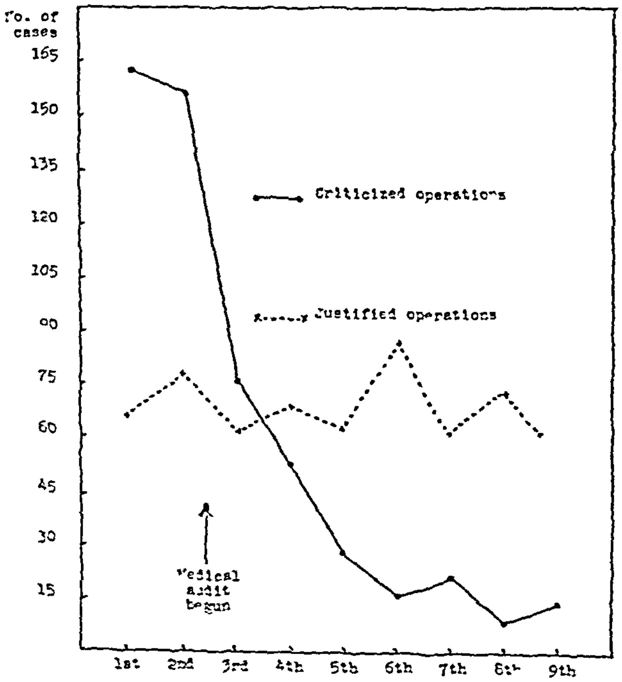


Fig 2—Trend in justified and criticized operations that resulted in castration or sterilization during nine consecutive 13-week periods.

Age Distribution

Corresponding to the reduction in number of operations, there was a marked shift away from the younger age groups, as illustrated in table 6 for a preaudit period and an audit period. There were decreases of 36 operations in persons under age 30, of 61 in the age group 30-39, and of 24 at ages 40-49. The number of operations at ages 50 and over remained about the same.

Mortality

Mortality includes all deaths during or following operation and while the patient is still in the hospital, unless death is due to a wholly extraneous cause. In the study hospital there was one death in 462 operations in the 26-week preaudit period, a case fatality rate of 0.22%. This was a case of cardiac arrest on the operating table, apparently due to anesthesia and operation. A 0.29% rate in the 698 operations in the 91-week audit period was due to one death occurring 23 days after operation, caused by bronchopneumonia following pulmonary infarction on the 8th day, and a second death due to pulmonary infarctions on the 12th and 22nd postoperative days. These case fatality rates are well within the expected 0.4% for major operations of this type.[29]

TABLE 6.—*Age Distribution for Castrating and Sterilizing Operations, Preaudit (First Period) and After Audit in Effect (Sixth Period)*

	Preaudit		Audit in Effect	
Age Groups	No. of Cases	% of Total	No. of Cases	% of Total
20-29	38	17	2	2
30-39	88	39	27	26
40-49	62	27	38	36
50-59	28	12	22	21
60-69	11	5	11	11
70 & over	1	..	4	4
Total	228	100	104	100

A shortcoming of case fatality rates is that they do not distinguish between needless and justified operations; thus three deaths in 300 needless operations and two deaths in 200 justified operations, a total of five deaths in 500 operations, give a 1% case fatality rate, but, if the 300 needless operations are not done, the case fatality rate is still 1% due to two deaths in 200 justified operations. A preferred method is to assume a fairly constant, genuine need for operations of this kind and to calculate mortality in terms of time periods. By this method, the mortality expressed on an annual basis was 2.0 in the preaudit period but only 1.1 in the audit period.

Comparability of Laboratory Reports

Where laboratory reports are relied upon heavily, as in the medical audit of female pelvic surgery, it is necessary to be sure that the tissue diagnoses and terminology are comparable with those in other hospitals. A method sometimes employed is to send "unknowns" to the laboratory to be checked, but I have observed that in such circumstances the laboratory may use much more care than in routine examinations. The question to be answered is not whether the laboratory is capable of achieving accuracy through special effort but whether its routine work is reliable. The latter is best determined by checking the tissue diagnoses made previously.

After consulting the American College of Pathology and the American Society of Clinical Pathologists as to procedure, six slides were drawn at random from each category, such as cancer of the cervix, fibromyoma of the uterus, and follicular cyst of the ovary. These were submitted to two pathologists in other communities who gave their interpretations without knowing the findings of others. The chief discoveries were that the diagnosis of early cancer of the cervix, and of endometriosis, often was not confirmed and that the true incidence of endometrial hyperplasia, which was being diagnosed in 60 to 65% of all uterine curettages, was only 5 to 8%. Further, it was learned that the use of misleading terms such precancerous or massive degeneration at times led to the removal of a normal uterus or ovary and that frozen section examination for rush diagnosis in the course of an operation was frequently unreliable.

The most important feature of this kind of study, which will be reported more fully elsewhere, is that it tests routine performance rather than capabilities that may not be used except in special circumstances. As employed in the medical audit, it has brought to light and helped correct errors and bias in reporting or implying the presence of significant pathological changes where none existed. Only rarely did it reveal the presence of cancer or other findings that had been missed.

Community Incidence

The local medical society and the state health department generously assisted in making a broad study of the incidence of several kinds of surgical operations on residents of the city, the medical society being especially helpful in influencing all hospitals in and near the city to make their records available for study and the health department in helping collect statistics covering the 26 weeks just prior to the first period and the 26 weeks of the third and fourth periods shown in tables 3 and 5. Before any audit was undertaken the city's resident rate was 3.7 hysterectomies per 1,000 white population per year. A year later, in the third and fourth periods, after a medical audit had reached an advanced stage at one hospital and was getting under way at another hospital in the city, the hysterectomy rate expressed on an annual basis was only 2.1 per 1,000. As a result of this study it was clear that the observed reduction in criticized cases in the study hospital was real and not due to such operations merely being shifted to other hospitals.

Summary

The purpose of medical auditing is to make certain that the full benefits of medical knowledge are being applied effectively to the needs of patients. A medical audit employing objective criteria is an important addition to such methods of insuring good medical care as the hospital standardization program carried on for many years by the American College of Surgeons and now continued by the Joint Commission on Accreditation of Hospitals in broadened and intensified form, the American Medical Association's programs for accreditation of medical schools and the approval of internships and residencies, and the activities of the American Hospital Association and regional organizations of hospitals. The special merit of the medical audit procedure described herein is that, whereas most hospital approval programs have assessed the capability of the hospital and staff to do good work but have not tested the work itself, this procedure employs scientific methods that attempt to measure and evaluate the actual care given to patients.

The medical audit is an evaluation of medical care in retrospect through analysis of clinical records. Audits may be termed internal when they are done by the hospital itself and external when performed by an independent agency. Every hospital should maintain an internal audit, in which case an external audit by an agency such as the Joint Commission on Accreditation of Hospitals need consist only of testing the accuracy and completeness of the internal audit. The effectiveness of such an arrangement depends on the use of the same definitions, criteria, and standards throughout, so that there will be common understanding by those whose work is audited and those who make the audits To place medical auditing on a scientific basis it is necessary to (1) employ uniform definitions for classifying diagnosis and treatment, (2) verify statements in the clinical record by means of written reports of laboratory examination or of consultation, or by other forms of documentation, (3) determine whether the pathology, x-ray, and other clinical laboratory reports on which many of the criteria are based are comparable in accuracy and terminology with those of control hospitals, (4) judge results according to objective criteria, and (5) measure the degree of compliance with criteria against standards derived from observations in control hospitals. The application of these methods to major female pelvic surgery has shown that they can be highly effective in bringing to light and helping to correct situations where the type of operation is unsuitable or the diagnostic study is inadequate and especially where the number of operations is excessive

615 N. Wolfe St. (5).

Owing to space limitations, appendixes A and B have been omitted from THE JOURNAL and will appear in the author's reprints

References

1 Needed A Firm Hand to Eliminate Abuses Letter from E J *Morrissey, President, San Francisco Medical Society, to American College* of Surgeons, Nov 12, 1953, Hospitals **28**: 100-101 (March) 1954

2 Lembcke, P A Evolution of Medical Audit Bull Am Coll Surgeons, to be published

3 Flexner, A. Medical Education in United States and Canada *Report to Carnegie Foundation for Advancement of Teaching with Introduction* by Henry D Pritchett, New York, D B Updike, the Merrymount Press, 1910

4 Finney, J. M T President's Address, read before the American College of Surgeons, Nov 13, 1913, cited in bulletin 1, Chicago, American College of Surgeons, 1916

5 Committee on Standardization of Hospitals, Clinical Congress of Surgeons of North America Suggested End Result System, Surg Gynec. & Obst (supp) **18**: 9-12, 1914 Bowman, J G Hospital Standardization, Bull Am Coll Surgeons *(no 3) 4: 3-9 (Oct) 1919*

6 Manual of Hospital Standardization, Chicago, American College of Surgeons, 1946, p 6

7 Southmayd, H J., and Smith, G Small Community Hospitals, New York, Commonwealth Fund, Division of Publications, 1944, *appendix E*, pp 159-164

8 Regional Hospital Plan—Second Year's Experience, edited by P. A Lembcke, Rochester, N Y., Council of Rochester Regional Hospitals, 1947, pp 27-29

9 Lembcke, P A Measuring Quality of Medical Care Through Vital Statistics Based on Hospital Service Areas 1 Comparative Study of Appendectomy Rates, Am J Pub Health **42**: 276-286 (March) 1952

10 Lembcke, P A Professional Audit, read before the Medical Record Librarians Section, United Hospital Fund, New York, Jan 19, 1954

11 Myers, R S Hospital Statistics Don't Tell the Truth, Mod Hosp **83**: 53-54 (July) 1954

12 Eisele, C W. Opinions Are No Basis for Objective Analysis, Mod Hosp **83**: 64 (July) 1954

13 Myers R S, Slee, V N, and Hoffmann, R G Medical Audit, Mod Hosp **85**: 77-83 (Sept) 1955

14 Wetherill H G Plea for Higher Hospital Efficiency and Standardization, Surg Gynec & Obst 20:705-707 (June) 1915

15 (*a*) Doyle, J C Unnecessary Ovariectomies *Study Based on* Removal of 704 Normal Ovaries from 546 Patients, J A M A **148**: 1105 1111 (March 29) 1952, (*b*) Unnecessary Hysterectomies Study of 6,248 Operations in 35 Hospitals During 1948, ibid 151·360-365 (Jan 31) 1953

16 Te Linde, R W Operative Gynecology, Philadelphia, J B Lippincott Company, 1946

17 Novak, E, and Novak, E R Textbook of Gynecology, ed 4, Baltimore, Williams & Wilkins Company, 1952 Novak, E Gynecologic and Obstetric Pathology, with Clinical and Endocrine Relations, ed 2, Philadelphia, W B Saunders Company, 1947

18 Lowrie, R J Gynecology Diseases and Minor Surgery, Springfield, Ill, Charles C Thomas, Publisher, 1952

19 Curtis, A H, and Huffman, J W Textbook of Gynecology, ed 6, Philadelphia, W B Saunders Company, 1950

20 Wharton, L R Gynecology with Section on Female Urology, ed 2, Philadelphia, W B Saunders Company, 1947

21 Reich, W J, Rubenstein, M W, Nechtow, M J, and Reich, J B Diagnosis and Management of Abnormal Uterine Bleeding, J A M A **152**: 1679-1682 (Aug 29) 1953

22 Abel, S Reevaluation of Common Uterine Operations, J. A M A **148**: 1111-1115 (March 29) 1952

23 Novak, E Application of *Physiologic and Pathologic Principles to Surgery of Ovary*, J A M A **146**: *881-885 (July 7) 1951*

24 Repair of *Cystocele and Rectocele*, Queries and Minor Notes, J A M A **152**: 1582 (Aug 15) 1953 Functional Uterine Bleeding (*Pfizer Spectrum*), ibid **153**: 24-26 (Oct 10) 1953 Crane, A R Ovarian Tumors—Classification and Photographs, Sharpe & Dohme Seminar (no 2) **15**: 13-19 (*Summer*) 1953, (no 3) **15**: 11-17 (Fall) 1953

25 Randall, C L, Gerhardt, P R, Handy, V H, and Kraus, A S Probability of Occurence of More Common Types of Gynecologic Malignancy, Am J Obst & Gynec 68 1378 1390 (Nov) 1954

26 Katz, L N, Pick, R, and Stamler, J Atherosclerosis, Mod Concepts Cardiovas Dis **23**: 239-242 (Sept) 1954

27 Uterine Fibroids, editorial, J A M A 156 1404 (Dec 11) 1954

28 Codman, E A Product *of a Hospital, Surg* Gynec & Obst **18**: 491-496 (April) 1914 Standard of Efficiency for First Hospital Survey *of the College, Bull Am Coll Surgeons* (no 3) **3**: 3 (March) 1916

29 Improved Outlook for Surgical Patients, Statist Bull Metrop Life Insur Co **35**: 1-4 (Nov) 1954

Diabetes, the Pituitary and the Adrenals.—With regard to the adrenal cortex, there are three types of diabetes seen clinically. The first is that which begins with pituitary hyperactivity such as in cases of pituitary tumor, excess adrenal stimulation, and Cushing's disease. The second is that seen in Cushing's syndrome or after excess exogenous cortisone. It appears to be identical with the first type except that it originates in the adrenal itself In most of these, the diabetes is reversible. The third type which up to the present is rare is that of an aldosterone-producing tumor. I have observed three patients having proven aldosterone-producing tumors. Apparently in these patients diabetes is reversible, but there is no clear evidence of control of aldosterone production by pituitary function. As to the adrenal medulla, pheochromocytoma is not infrequently associated with diabetes which is almost always cured . . after removal of the tumor. The excess production of adrenalin or noradrenalin seems to bear no relation to pituitary function Such a preamble is all by way of saying that pituitary hormones and hormones related to pituitary and adrenal function are only parts of a total complex having intimate connection with hyperglycemia and with some instances of disease which we at present classify as diabetes mellitus The pituitary hormones which we think of as intimately connected with the cause and persistence of some cases of human diabetes are. 1. growth hormone, as in acromegaly, 2. excess ACTH, as in the rare instances of pituitary tumor with Cushing's disease, and possibly 3 another factor which we might call "the Con factor" bearing on hexokinase activity and which may be neither ACTH nor growth hormone.—E. P. McCullagh, M D, Diabetogenic Action of the Pituitary, *Diabetes*, May-June, 1956

THE UNITED STATES MEDICAL MISSION ON MICROBIOLOGY AND EPIDEMIOLOGY TO THE SOVIET UNION

Colin M. MacLeod, M.D., New York
Karl F. Meyer, M.D., San Francisco
John R. Paul, M.D., New Haven, Conn.
Michael B. Shimkin, M.D., Bethesda, Md.
and
Richard E. Shope, M.D., New York

This report is a digest of some of the facts learned and impressions gained in the course of a recent visit to the Soviet Union. The visit was carried out in February and March, 1956, by us. It was sponsored by the Public Health Service of the Department of Health, Education, and Welfare, with the approval of the Department of State. Its purpose was to effect an exchange of scientific and technical information in several medical fields, but particularly in that of general and applied microbiology. Such missions between the United States and the Soviet Union were carried out during World War II, but were then interrupted. In the light of the changed international situation, as reflected in the Geneva conferences in 1955, it has now been decided that such exchanges should be resumed.

To initiate exchanges in the medical field, a Soviet medical mission came to the United States on Jan. 18, 1956. The interest of its members was primarily in poliomyelitis and other aspects of virology. This group included Prof. M. P. Chumakov, Prof. M. K. Voroshilova, and Dr. L. I. Lukin of the Institute for the Study of Poliomyelitis in Moscow, and Prof. A. A. Smorodintzev of the Institute of Experimental Medicine in Leningrad. They spent 35 days in the United States and visited laboratories in Boston; New York; New Haven, Conn.; Baltimore; Pittsburgh; Cincinnati; Cleveland; Minneapolis; and Bethesda, Md.

The United States mission, which was similarly concerned with microbiology and epidemiology, was in the Soviet Union between Feb. 27 and March 28 and met over 200 Soviet medical scientists in 25 research and educational institutions in Moscow, Leningrad, Kharkov, Kiev, Rostov-on-Don, and Sukhumi. (The mission wishes to express its gratitude for courtesy shown it by many Soviet scientists, especially Prof. V. M. Zhdanov, Deputy Minister of Health, who arranged the program, and Mr. L. N. Mekhedov, who was assigned to the mission as its interpreter and guide.) Conferences were held at the research institutes, and included visits to the laboratories and observations of the facilities for research. Special meetings were also held to discuss medical research organization, medical education, and the production and distribution of biological and other medicinal preparations.

The members of the mission learned that Soviet medical research is organized under a system of research institutes, the staffs of which vary in size from approximately 100 to 1,000 individuals, of whom about one-third are of professional rank. There are some 300 medical research institutes in the Soviet Union, with great centralization in Moscow, Leningrad, and Kiev. The institutes operate under three administrative systems: the Academy of Medical Sciences, USSR; the Ministry of Health, USSR; and the constituent republics of the Soviet Union. The academy institutes accentuate basic research, and the ministry institutes emphasize practical or applied research, including the production of vaccines and other biologicals, while the institutes under the republics are primarily concerned with local problems. The medical research programs are correlated by the Medical Research Council of the Ministry of Health, whose chairman is Prof. N. I. Graschenkov. The Academy of Medical Sciences has recently formulated its five-year plan in medical research for 1956-1960.

Highlights of Mission Reports

From the individual reports submitted by the members of the United States mission, the following highlights of particular interest have been selected.

Public Health.—According to the official report of the Minister of Health, M. K. Kovrigina, the public health situation in the Soviet Union is satisfactory. Cardiovascular disease and malignant neoplasms are stated to be the first two causes of death. Prof. L. V. Gromashevsky of the Institute of Epidemiology and Microbiology in Kiev, one of the outstanding epidemiologists of the Soviet Union, states that, in the Russian Republic (RSFSR) and Ukraine, no cholera has been seen since 1925 and that plague and Shigella dysentery have also disappeared. There was considerable reticence on the part of Soviet officials when it came to mentioning exact figures regarding the prevalence of specific diseases. This may have been due in part to the fact that no census of the population has been taken since 1939 and that population figures and morbidity rates are not public information. (A few official figures on the Soviet Union have been issued recently in a publication of the Central Statistical Administration of the Council of Ministers, "The National Economy of the USSR: A Statistical Compilation," Moscow, 1956. The estimated 1956 population of the USSR is given as 200,200,000. In 1955 the birth rate was 25.6 and the death rate 8.4 per 1,000. There were 2,627,000 civilian workers employed in public health, of whom 85% were women; of this total, 334,000 were physicians and dentists. There was a total of 1,290,000 hospital beds.) However, the following information was obtained:

In Leningrad, the diphtheria rate is 1.1 per 10,000. There were 235 cases of poliomyelitis in Leningrad during August-September, 1955; a similar outbreak was reported in 1947. Rheumatic heart disease is definitely a problem. Venereal disease and tuberculosis are stated to be "definitely lower" than during the war. In Kharkov, a metropolitan area of about 880,000 population, 22,000 cases of tuberculosis are registered. Rheumatic heart disease is the first cause of death

---

Professor of Microbiology, New York University College of Medicine (Dr. MacLeod); Director, G. W. Hooper Foundation, University of California Medical Center (Dr. Meyer); Professor of Preventive Medicine, Yale University School of Medicine (Dr. Paul); Chief, Epidemiology and Biology Branch, National Cancer Institute (Dr. Shimkin); and Member, the Rockefeller Institute for Research (Dr. Shope).

among children under 14. There are 100-150 cases of diphtheria per year, with one or two deaths. In Kiev, there were 14 cases of malaria of local origin last year. The incidence of typhoid is "less than 1 in 10,000." Leptospirosis is seen sporadically, perhaps 10 cases per year, outside of those occurring during harvest season, which may account for an additional 200 cases per year in the Ukraine.

Development of Vaccines.—Preventive medicine continues to have high priority in Soviet medicine, and there are extensive programs for the control of infectious diseases. Soviet investigators have developed several vaccines composed of living attenuated microorganisms that are stated to be widely used and to have considerable effectiveness.

The vaccine against tularemia, developed by Prof. N. G. Olsufiev of the Central Institute of Epidemiology and Microbiology (Gamaleya), Moscow, is a freeze-dried culture of attenuated tularemia organisms. It is applied percutaneously and induces an immunity that is stated to persist at an effective level for five to six years. Samples of the vaccine were made available to the mission. Prof. P. A. Vershilova, the present director of the Gamaleya Institute, has developed a living attenuated brucellosis vaccine from a strain-19 culture. It is given subcutaneously, in single doses of 150 million organisms, and a good immunity is stated to last for at least a year. Reimmunization, or immunization in individuals showing a positive skin reaction to a test dose, is effected by the percutaneous route.

Soviet investigators also continue their interest in developing an effective influenza vaccine, and such work is being carried out by Professors M. V. Zhdanov, A. A. Smorodintzev, and V. D. Soloviev. The viruses are attenuated by growth on eggs. Apparently they are useful for immunization only if they maintain the capacity to grow on human embryo lung tissue culture. The live attenuated virus strains are incorporated into a polyvalent vaccine that is administered intranasally by spraying. Zhdanov stated that 10 to 12 million people have received this preparation, which is considered safe for anyone over 5 years of age, and that it gives immunity for approximately one year. Its annual administration, usually in October, is considered a routine procedure among certain population groups.

Research in Infectious Diseases.—Soviet investigations of the etiology, transmission, and control of infectious diseases are extensive and important. The Zoology Institute in Leningrad, under Prof. E. N. Pavlovsky, is one of the world's centers of entomology and ecology. Workers there have conducted systematic surveys on animal reservoirs and insect vectors of infectious agents, particularly those of economic importance to medicine and agriculture. Pavlovsky believes that foci of infections are of characteristic topographic, climatic, vegetative, and ecologic make-up and that, if an area combines the appropriate features, it may be expected that a particular infection exists there. The term "landscape epidemiology" has been applied to studies of this type, which are of use in predicting the infection potentials of previously unstudied areas.

Prof. M. P. Chumakov has studied a group of new endemic virus diseases for which the general name "virus hemorrhagic fevers" has been proposed. These are Crimean tick-borne hemorrhagic fever, Omsk hemorrhagic fever, and hemorrhagic nephrosonephritis, which bears extremely close clinical resemblance to the Far Eastern hemorrhagic fever that was extensively studied by American investigators during the Korean war. The virus of Omsk hemorrhagic fever, also tick transmitted, is antigenically related to the spring-summer encephalitis virus. For its prevention, Formalin-killed virus vaccine made from infected mouse brain has been used with success. Transmission of the agent causing nephrosonephritis has not been successful in laboratory animals up to the present time. The virus causing Crimean hemorrhagic fever is infectious for monkeys; no protective vaccine has been prepared as yet.

Prof. P. F. Zdodrovsky of the Gamaleya Institute in Moscow, and one of the eminent Soviet scientists in the field of viruses and rickettsioses, feels that Siberian tick fever is serologically identical with Rocky Mountain spotted fever. He stated that Q fever was very prevalent in the Soviet Union and that an effective inactivated egg-grown vaccine has been developed to combat it.

An interesting new clinical entity was described; it is called two-wave milk fever because of its characteristic diphasic febrile course. Goats, infected as a result of tick bite, develop viremia and hemorrhages into the udder, with resultant virus contamination of the milk and transmission of the virus to persons ingesting such milk. There is considerable evidence that this clinical form of encephalitis is due to the same virus that causes the tick-borne Russian spring-summer encephalitis. It appears to be an example of a neurotropic virus infection being spread by ingestion of milk. A small outbreak of the disease was seen recently in the Moscow region.

Cancer Research.—In the field of cancer research, the studies of Prof. Lev. A. Zilber on the virus aspects of cancer and his detection of apparently unique tumor antigens by guinea pig anaphylaxis reaction are noteworthy. Red blood cell absorption techniques are reported to dissociate the virus and the specific tumor protein in the case of the rabbit papilloma, suggesting that the tumor protein is distinct from the viral antigen. The program in the experimental chemotherapy of cancer, under Prof. L. F. Larionov at the Inst.tute of Experimental Pathology and Therapy of Cancer, is proceeding along the same general lines as in the United States. Main emphasis is in the direction of combining alkylating groups with amino acids and their analogues. Sarcolysine is an addition to the family of alkylating agents, showing an effect on a proportion of disseminated seminoma of the testis in man.

Experiments on Primates.—The medical Biological Station at Sukhumi is the Soviet primate station. It was founded 30 years ago, and the majority of its 600 rhesus monkeys are third-generation to fifth-generation inhabitants. There are 150 annual additions, and it is planned to increase the colony to 1,500 primates. The claimed successful induction of hypertension and coronary occlusion in monkeys placed under psychological stress is of special interest, although experiments have been performed on only a few animals, and there has been difficulty in repeating them. Benign and malignant neoplasms have been observed to occur in older monkeys, including single cases of cancer of the kidney and of the female breast, granulosa-cell tumor of the ovary, and sarcoma of the scalp. Osteogenic sarcomas have been induced after intramedullary introduction of methylcholanthrene and of radium.

Exchange of Materials.—The exchange of missions resulted in an exchange of materials as well as of information. The United States mission received from the Ministry of Health of the USSR 36 items of biological material, including live tularemia and brucella vaccines, five hemorrhagic fever virus strains, and 16 strains of influenza virus recovered in the Soviet Union. Over 150 books, pamphlets, and other printed items were also made available as well as especially compiled published and unpublished instructions for the preparation, control, and use of 18 biological products.

Conclusions

With regard to medical research, it is the opinion of the mission that the leading figures of Soviet medical science would command the same relative position in other countries. The mission met many talented, original workers who are well acquainted with modern techniques and instrumentation. Soviet research workers seem to be well supported with facilities and technical assistants. Within their sphere of research interest, they appear to have considerable freedom to initiate and to conduct their investigations. The research institutes are modestly but satisfactorily equipped, and the items in them of Soviet make are of recent manufacture. Great efforts are being made to build up the supply of laboratory equipment.

In general, the directions of Soviet medical research are similar to those being followed in the United States. In areas such as experimental immunology, hypersensitivity, and microbial genetics, there appears to be little emphasis, and tissue culture techniques are just beginning to be developed. In a few instances approaches and concepts are novel and are deserving of fuller consideration and investigation. Soviet scientists are well acquainted with the work and results of non-Soviet scientists. All research institutes have excellent representative journals and books from America and other countries, and their review collections include abstracts of contributions from all countries. Books and journals considered by them to be of importance are translated and published in Russian.

It is our opinion that medical scientists of the United States would profit from a better knowledge and understanding of the progress and the results of medical research in the Soviet Union. Appropriate steps are recommended to develop channels of communication between the medical scientists of the two countries by exchange of literature, materials, and personnel. The development of centers for the evaluation of Soviet medical research and the wide dissemination of the information among American scientists would be very useful.

National Institutes of Health, Bethesda 14, Md. (Dr. Shimkin).

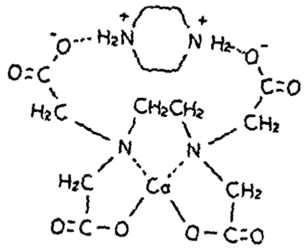
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.

H. D. Kautz, M.D., *Secretary*

Piperazine Calcium Edathamil.—A chelated compound produced by reacting edathamil with calcium carbonate and piperazine.—The structural formula of piperazine calcium edathamil may be represented as follows:



Actions and Uses.—Piperazine calcium edathamil is proposed for the treatment of pinworms (Enterobius vermicularis) and roundworms (Ascaris lumbricoides) on the basis of its piperazine content. Large amounts of the chelated compound are relatively nontoxic to laboratory animals. Likewise, there have been no reports of toxic reactions to date after administration of therapeutic doses to man. On the basis of limited clinical experience, it would appear that the chelated form is of the same order of effectiveness as the citrate and tartrate salts of piperazine. (See the monograph on piperazine citrate.)

Dosage.—Piperazine calcium edathamil is administered orally. Dosage is expressed in terms of the hydrous base, piperazine hexahydrate. The proposed dosage for pinworms in children or adults is 75 mg. per kilogram of body weight per day, administered at one time or in two divided doses for a period of 15 days. Dosage for smaller children and infants is reduced according to weight. For roundworms, a one-day course of treatment consisting of 100 mg. per kilogram of body weight is proposed. Further clinical evidence is necessary to establish the lowest optimum dosage of piperazine calcium edathamil.

Preparations for use as stated for the foregoing drug are marketed under the following name: Perin.

Endo Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of piperazine calcium edathamil.

Refractive Errors in Diabetics.—Sudden changes in refractive errors should make one suspect the presence of diabetes. As the blood sugar concentration varies, the refractive state of the eye may change from hyperopia to myopia and vice versa. These changes, according to Duke-Elder, have been attributed to fluid entering the lens osmotically, causing myopia. Under treatment, the condition is reversed so that the fluid drains from the lens, causing hyperopia. Therefore, regardless of the cause, sudden changes in refractive errors call for a blood sugar examination or at least a urinalysis.—L. W. Statti, M.D., Ophthalmic Problems in Diabetes, *Geriatrics,* June, 1956.

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following comments have been prepared at the request of the Council.

Eugene H. Stevenson, M.S.
Acting Secretary.

MATERNAL FACTORS IN HYPOCHROMIC ANEMIA OF INFANCY

Calvin W. Woodruff, M.D., Nashville, Tenn.

The relative importance of maternal iron deficiency as a predisposing factor in the development of hypochromic anemia (nutritional or iron deficiency anemia) in infants is difficult to evaluate. Several recent studies of iron metabolism provide pertinent evidence.

The stores of iron in the developing fetus are derived entirely from the maternal supply of this element by the transfer of iron across the placental membranes. The iron content of fetuses of varying weights has been reinvestigated by Widdowson and Spray,[1] who found that the iron concentration in the fetus remains constant throughout intrauterine life. The concentration averages about 7.5 mg. per 100 gm. of fetal weight. The liver and spleen contain less than 19% of the total fetal iron. The quantitative importance of the transfer of iron to the fetus during the last trimester of pregnancy depends upon the greater absolute growth during this period.

During the latter half of pregnancy, this transfer of iron to the fetus is reflected by an increased absorption of iron by the mother as measured by the administration of radioactive iron (Fe^{59}).[2] Approximately 10% of the tracer dose appeared in the circulation of infants born to mothers so studied. In a group of nonanemic infants, another observer noted that transplacental Fe^{59} was not diluted by dietary iron until the infant was 3 to 4 months old.[3] In a few instances there was evidence suggesting that transplacentally acquired iron not present in hemoglobin at the time of birth was used for hemoglobin synthesis later in infancy; however, such supplies were judged to be small in relation to the amounts of iron contained in circulating hemoglobin. The conclusion that the iron available to the newborn infant for formation of hemoglobin is present preponderantly in the circulating hemoglobin at birth is supported by this and other recent evidence.[4] Full-term infants born to nonanemic mothers normally receive supplies of iron during intrauterine life adequate to meet their requirements for at least three to four months. The smaller birth weight and more rapid growth of premature infants result in acceleration of this same sequence of events, with earlier exhaustion of their transplacental supplies of iron.

Much less is known concerning the placental transfer of iron when the mother has iron deficiency with hypochromic anemia of such severity that confusion with the physiological fluctuations of hemoglobin concentration during the latter months of pregnancy is unlikely. The study of Strauss [5] was based on unquestionably anemic mothers. The infants born to these anemic mothers (hemoglobin concentration less than 7 gm. per 100 ml. of blood) had normal hemoglobin levels at birth but had developed hypochromic anemia when they were reexamined at one year of age. A comparable group of infants born to nonanemic mothers and with similar feeding histories did not develop anemia. When iron was administered before delivery to three mothers deficient in iron, it prevented the development of anemia in their infants. Severely anemic mothers, then, seem to provide their infants with less iron than do normal mothers. No difference in the incidence of hypochromic anemia was apparent in the infants of mothers whose hemoglobin concentrations during pregnancy fell near the extremes of normal variation.[6] In other words, the physiological variations in hemoglobin concentration in pregnant women do not indicate an inadequate transfer of iron to the fetus as judged by this criterion.

Maternal iron depletion is an etiological factor in the development of hypochromic anemia of infancy. The available evidence indicates that such depletion would be manifested by a severe, untreated hypochromic anemia in the mother. Maternal iron deficiency, as reflected by severe anemia, is not a common predisposing factor in iron deficiency anemia in infants in the United States at the present time; its importance in other parts of the world cannot be assessed accurately. The iron nutriture of the infant is determined by many factors such as birth weight, perinatal hemorrhage from the infant's circulation, deprivation of placental blood, maternal iron deficiency, and such postnatal factors as dietary intake and growth rate.[7] The importance of maternal iron deficiency as a cause of nutritional anemia of infancy should not be forgotten, despite the fact that the other factors mentioned are found more frequently, particularly a low dietary intake of iron during infancy.

References

1. Widdowson, E. M., and Spray, C. M. Chemical Development in Utero, Arch. Dis. Childhood 26: 205-214 (June) 1951.
2. Hahn, P. F., and others. Iron Metabolism in Human Pregnancy as Studied with the Radioactive Isotope, Fe^{59}, Am. J. Obst. & Gynec. 61: 477-486 (March) 1951.
3. Smith, C. A., and others. Persistence and Utilization of Maternal Iron for Blood Formation During Infancy, J. Clin. Invest. 34: 1391-1402 (Sept.) 1955.
4. Josephs, H. W.: Iron Metabolism and Hypochromic Anemia of Infancy, Medicine 32: 125-213 (May) 1953.
5. Strauss, M. B. Anemia of Infancy from Maternal Iron Deficiency in Pregnancy, J. Clin. Invest. 12: 345-353 (March) 1933.
6. Woodruff, C. W., and Bridgeforth, E. B.: Relationship Between the Hemogram of Infant and That of Mother During Pregnancy, Pediatrics 12: 681-685 (Dec.) 1953.
7. Sturgeon, P.: Iron Metabolism: A Review with Special Consideration of Iron Requirements During Normal Infancy, Pediatrics 18: 267-298 (Aug.) 1956.

From the Department of Pediatrics and Division of Nutrition, Vanderbilt University School of Medicine.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees
Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.
Assistant Editor . . . . . . WAYNE G. BRANDSTADT, M.D.

Subscription price . . *Fifteen dollars per annum in advance*
Cable Address . . . . "Medic, Chicago"

ABUSE OF BARBITURATES

GUEST EDITORIAL

Harris Isbell, M.D.

Like other drugs that have powerful depressant effects on the central nervous system, the barbiturates are subject to uncontrolled and improper use by maladjusted persons. Such misuse takes many forms. The barbiturates may be used in suicidal attempts, they may be taken to reinforce the effects of alcohol, or they may be used as antidotes for central nervous system stimulants, such as the amphetamines. Finally, long-continued ingestion of large amounts of these drugs leads to the development of "true addiction" manifested by convulsions and a delirium after sudden withdrawal of barbiturates.

The clinical symptomatology of barbiturate intoxication is strikingly similar to that of intoxication with alcohol.[1] Persons who have ingested large doses of barbiturates show difficulty in thinking, impairment of ego controls, poor judgment, emotional instability, and, at times, a toxic psychosis. The neurological signs in both acute and chronic barbiturate intoxication include nystagmus, dysarthria, and ataxia in gait and station. Obviously, persons who are moderately to severely intoxicated with barbiturates are menaces, not only to themselves but to other persons. It was long thought that barbiturates were not addicting. However, in 1928 Pohlisch[2] clearly described the symptoms that follow withdrawal of barbiturates. Later, Dunning,[3] Kalinowsky,[4] and others in the United States noted the appearance of convulsions after discontinuation of use of barbiturates in chronically intoxicated persons. Seevers and Tatum[5] observed convulsions after withdrawal of sodium barbital from chronically intoxicated dogs, and Fraser and Isbell[6] noted not only convulsions but also a "canine" delirium.

In recent years the clinical symptomatology of chronic barbiturate intoxication and withdrawal has been clearly delineated.[7] It is now known that if barbiturates are withdrawn from persons who are ingesting as much as 0.8 gm. or more of pentobarbital or secobarbital daily, weakness, tremor, and anxiety occur in all cases; 75% of patients will have one or more convulsions; and 60% will develop a toxic psychosis closely resembling delirium tremens. Even death has been reported during abstinence from barbiturates in a strongly addicted patient.[8] Although anxiety, tremor, and weakness frequently follow withdrawal of pentobarbital or secobarbital from persons who have been ingesting 0.6 gm. daily, the more severe symptoms of convulsions and delirium rarely occur. Symptoms after withdrawal of these barbiturates from patients who have been ingesting 0.4 gm. or less daily are minor in nature. Quantitative aspects of the problem are important since they show that barbiturates in the doses ordinarily used do not create a serious grade of physical dependence (addiction). This occurs only under conditions of uncontrolled abuse.

Only a beginning has been made in the study of this type of chronic intoxication. Nothing is known concerning the incidence of the condition, and very little is known of the psychiatric and social factors associated with it. As yet, no information on the biochemical and physiological disturbances responsible for the withdrawal symptoms is available.

Some of the symptoms that follow withdrawal of barbiturates bear a striking resemblance to phenomena observed in chronic alcoholism. Convulsions and delirium occur in both conditions. Abrupt withdrawal of alcohol after chronic intoxication has recently been shown to precipitate convulsions and delirium in both man[9] and dogs.[10] These facts suggest that chronic alcoholism and chronic barbiturate intoxication may induce similar changes in the functioning of the central nervous system and that these two intoxications may be partially equivalent in terms of pathological physiology. If this is true, adequate doses of alcohol should partly or completely suppress symptoms of abstinence from barbiturates and, conversely, adequate amounts of barbiturates should suppress symptoms of abstinence from alcohol. Recently, Fraser[10] has shown that alcohol does partly prevent symptoms of abstinence after withdrawal of barbital from chronically intoxicated dogs. Though the reverse experiment—substitution of barbiturates in animals chronically intoxicated with alcohol—remains to be done, the evidence for partial equivalence of chronic alcoholism and barbiturate intoxication is becoming quite strong. Such equivalence would explain how it is possible for chronic alcoholics to substitute alcohol for barbiturates and barbiturates for alcohol.

From the National Institute of Mental Health Addiction Research Center, U. S. Public Health Service Hospital, Lexington, Ky.

1. Isbell, H., and others: Chronic Barbiturate Intoxication: Experimental Study, Arch. Neurol. & Psychiat. **64:** 1-28 (July) 1950.
2. Pohlisch, K.: Uber psychische Reaktionsformen bei Arzneimittelvergiftungen, Monatsschr. Psychiat. u. Neurol. **69:** 351-367, 1928.
3. Dunning, H. S.: Convulsions Following Withdrawal of Sedative Medication, Internat. Clin. **3:** 254-264 (Sept.) 1940.
4. Kalinowsky, L. B.: Convulsions in Nonepileptic Patients on Withdrawal of Barbiturates, Alcohol and Other Drugs, Arch. Neurol. & Psychiat. **48:** 946-956 (Dec.) 1942.
5. Seevers, M. H., and Tatum, A. L.: Chronic Experimental Barbital Poisoning, J. Pharmacol. & Exper. Therap. **42:** 217-231 (June) 1931.
6. Fraser, H. F., and Isbell, H.: Abstinence Syndrome in Dogs After Chronic Barbiturate Medication, J. Pharmacol. & Exper. Therap. **112:** 261-267 (Nov.) 1954.
7. Fraser, H. F., and others: Chronic Barbiturate Intoxication: Further Studies, A.M.A. Arch. Int. Med. **94:** 34-41 (July) 1954.
8. Fraser, H. F.; Shaver, M. R.; Maxwell, E. S., and Isbell, H.: Death Due to Withdrawal of Barbiturates, Ann. Int. Med. **38:** 1319-1325 (June) 1953.
9. Isbell, H., and others: Experimental Study of Etiology of "Rum Fits" and Delirium Tremens, Quart. J. Stud. Alcohol **16:** 1-33 (March) 1955.
10. Fraser, H. F.: Unpublished data.

The medical and pharmaceutical professions bear a heavy ethical responsibility in prescribing and dispensing barbiturates. Physicians must realize that these drugs are potentially dangerous and that they can, under certain circumstances, create a dangerous type of addiction. Simple insomnia alone is seldom a valid indication for use of barbiturates. Prescriptions should be limited in amount and the laws against refills without a new prescription should be strictly observed. Great care should be exercised in prescribing barbiturates for unstable persons, and such patients should be carefully checked and followed. One should not prescribe a barbiturate for strangers unless the indication for the drug is unmistakable.

OVER-THE-COUNTER MEDICAMENTS

The recent Food and Drug Administration hearing as to whether present prescription requirements should be removed from hydrocortisone preparations for topical use warrants mention of the regulations concerning this matter. Many do not understand how drugs are released for over-the-counter sale. Current legislation (the Food, Drug and Cosmetic Act of 1938 and the Durham-Humphrey amendment of 1952) implies that any drug potentially unsafe when not used under proper medical supervision shall be restricted to sale by prescription only. At any time that a manufacturer, or even an interested person, believes the prescription restriction is no longer necessary to protect the public, and has evidence to support this contention of the drug's safety, he may petition the Food and Drug Administration to allow over-the-counter sales, provided, of course, labeling includes what is deemed by the FDA to be adequate directions for use and necessary warnings.

Over-the-counter sales are tantamount to self-medication. Aside from the problems resulting from unread or misread labels being the greatest element of danger, the probability of delaying proper diagnosis is always present. This may result from giving the individual a temporary feeling of well-being, or may even mask what were evident physical signs. Most "proprietary" medicaments sold today have, by virtue of clinical experience, proved themselves to be of reasonable potential harmlessness. It is, of course, the medical and legal interpretation of the word reasonable that is the crucial point of the matter. The definition of reasonably safe must not be limited just to lack of side-effects with normal dosage, but, of very great importance, there must also be consideration of what amounts the self-treating patient is likely to ingest or apply and the precipitation of adverse effects by possible or probable excess usage.

Petitions for removal of the prescription-only requirement on a drug are published in the *Federal Register*. If controversy arises, subsequent open hearings may be held. After the presentation of evidence, as well as occasional invited testimony, the Food and Drug Administration makes its decision, which under present law becomes effective for all manufacturers concerned, regardless of their beliefs on how the drug should be sold. One of the factors usually presented in support of a drug's safety is its past clinical use without ill or untoward effects having been reported. The medical profession therefore has an additional responsibility in these matters. This is the obligation to report any adverse consequences observed from medicaments used in practice. Unbiased observations from the practitioner's office could well be the essential factor in determining which drugs are potentially unsafe for over-the-counter sale. Medicine not only has the time-tested and traditional function of determining the therapeutic value of drugs but equally has the moral liability of assuring a drug's safety, especially when it is available and used without medical supervision.

PASSAGE OF FETAL RED BLOOD CELLS INTO MATERNAL CIRCULATION

The normal intact placental barrier prevents passage of fetal red blood cells into the maternal circulation. Occasionally, in the course of a pregnancy or during delivery, a break in the placental barrier may permit fetal red blood cells to enter the maternal circulation. This is the mechanism by which Rh sensitization can result from a pregnancy of an Rh-negative woman with an Rh-positive fetus. In general when a break in the placental barrier occurs, the amount of fetal blood that enters the maternal circulation is relatively small. so that the presence of the fetal red blood cells would not be detectable. The situation may be compared to giving a transfusion of Rh-positive blood to a nonsensitized Rh-negative recipient. It has been shown that the presence of the donor's Rh-positive cells mixed with the recipient's own Rh-negative cells would be demonstrable by differential agglutination only if at least 50 cc. of Rh-positive blood is transfused. Since ordinarily such a large volume of fetal blood would not enter the maternal circulation, the fetal cells would not be demonstrable in most cases.

In rare instances, while still in utero the fetus may lose substantial amounts of blood by bleeding from the placental surface into the maternal blood sinuses. When bleeding is extreme, a stillbirth may result, or the baby at birth may exhibit extreme anemia. In such cases, theoretically, if a differential agglutination test is carried out at the right time, fetal red blood cells may be demonstrable in the maternal circulation. If the mother is Rh negative and the fetus Rh positive, tests on the mother's blood may then show the presence of the baby's Rh-positive red blood cells. Even assuming that the baby's entire volume of blood should bleed into the maternal circulation, this would amount to only about one twenty-fifth of the mother's own blood volume. Thus, only one twenty-fifth of the mother's red blood cells after such an incident would react as Rh positive, and the appearance of the agglutination reaction would be quite different from a true Rh-positive reaction. Therefore, an experienced technician should have no difficulty in distinguishing such a reaction from a true Rh-positive test.

ORGANIZATION SECTION

SEATTLE CLINICAL MEETING

The Scientific Program for the Seattle Clinical Meeting of the American Medical Association, Nov. 27-30, is outstanding for its compactness and scope. One-hundred fifteen subjects will be discussed in four rooms simultaneously over a three and one-half day period, with use of panel discussion groups, color television presentations, lectures, and motion pictures. There will be 93 scientific exhibits covering the full range of medicine, with demonstrations during the entire period of the meeting. Subjects include obstetrics and gynecology with several panels, television presentations, exhibits, and manikin demonstrations. Hypertension will be considered in detail with a panel and several exhibits, while problems of the aging will be discussed for an entire morning, as well as being presented in motion pictures. The panel on fractures will be supplemented with fracture demonstrations in the Scientific Exhibit. The lecture program includes a large number of subjects and covers many of the problems of the physician in general practice.

Among other features, exhibits will show the contribution of physicians to the development of the Pacific Northwest, including Oregon, Washington, and Vancouver. All scientific activities will be located in the Civic Auditorium with meeting rooms in close proximity to each other and to the Scientific Exhibit. Restaurant facilities will be available in the Auditorium, making it possible for physicians to spend the entire day at the meeting. The program will be continuous, with several features taking place during the noon hour.

THREE NEW MEMBERS ON RURAL HEALTH ADVISORY COUNCIL

The three new members of the advisory council of the American Medical Association Council on Rural Health are Mrs. Haven Smith, Chappell, Neb., chairman, American Farm Bureau women's committee; Arthur Andersen of Ault, Colo., president, Colorado Farm Bureau Federation, both members of the American Farm Bureau Federation's board of directors; and Joseph Ackerman, managing director of the Farm Foundation, Chicago. At the recent advisory council meeting in Chicago, a progress report was made on a three-point program adopted in 1954 and embracing doctor participation, cooperation with country newspapers and farm journals, and a closer relationship between medical societies and agricultural leaders.

INDUSTRIAL HEALTH PROGRAM IN CHICAGO

At the National Safety Congress to be held Oct. 22-26 in Chicago, the A. M. A. Council on Industrial Health is co-sponsoring a special program on "Medicine in Industry" with the American Society of Safety Engineers and the Occupational Health Nursing Section of the National Safety Council. The one-day session Oct. 25 in the Gold Room of the Congress Hotel will feature medical authorities discussing the following topics: (1) "The Injured Back in Industry," J. Huber Wagner, M.D., chief surgeon, U. S. Steel Corp., Pittsburgh; (2) "Vision in Industry," E. B. Spaeth, M.D., Chairman, A. M. A. Committee on Estimation of Loss of Visual Efficiency, Philadelphia; (3) "Physical Examination of Industrial Workers," O. T. Mallery Jr., M.D., director, Institute of Industrial Health, University of Michigan, Ann Arbor; Logan T. Robertson, M.D., Occupational Health Services, Asheville, N. C.; and Charles E. Thompson, M.D., Health Research Center, Chicago. Co-chairmen of the program are B. Dixon Holland, M.D., and Clark D. Bridges of the A. M. A. Council on Industrial Health.

TWO NEW HEALTH FILMS

The A. M. A. Film Library recently acquired two nontechnical films that explain the functions of the heart and endocrine glands. Both films are so simply and effectively illustrated that they may be understood by any lay audience. Designed primarily for college hygiene and health education classes, these films are excellent teaching devices for any public group that a medical society might wish to reach. Bookings may be arranged through the Film Library.

The functions of a healthy and disordered heart are demonstrated in "Common Heart Disorders and Their Causes," a 17-minute film. One of its unique aspects is that it stresses the fact that people with heart disease are able to live long lives without seriously limiting their activities. The second film, "Endocrine Glands—How They Affect You," locates and describes the eight endocrine glands and explains the function of the hormones these glands secrete. The 15-minute film studies the effects of these hormones on growth, metabolism, sexual development, and behavior, and shows what happens when the flow of certain hormones is increased or decreased.

DISCUSSION OF ETHICS CHANGES

Dr. Louis A. Buie, Rochester, Minn., Chairman of the American Medical Association Committee on Constitution and Bylaws, and three A. M. A. staff members spoke at the Tennessee State Medical Association's first County Medical Society Officers Conference in Nashville recently. Seventy-six physicians and 20 auxiliary officers, representing more than half of the state's local societies, attended the program. Dr. Buie discussed the revision of the Principles of Medical Ethics now under consideration by the House of Delegates; C. Joseph Stetler told of his experiences as Director of the Law Department; Thomas A. Hendricks, Secretary of the Council on Medical Service, outlined the services of the A. M. A.; and Stephen T. Donohue, Assistant Director of Public Relations, presented eight basic projects for a county society public service program.

PROCEEDINGS OF THE CHICAGO MEETING

ABSTRACT OF PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN CHICAGO, ILL., JUNE 11-15, 1956

(Continued from page 586)

No. 36. Resolution on Approval by State Executive Committees of Nominations by Board of Trustees for Membership in Councils

Dr. Philip H. Jones, for the Louisiana delegation, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, It is desirable that the physicians composing the Councils of the American Medical Association should be representative of the membership of the state societies, and

WHEREAS, A closer relationship between the membership and the Councils should be attained, therefore be it

Resolved, That the Board of Trustees be requested to secure the approval of the appropriate executive committee of the state society concerned before a member is presented to the House of Delegates of the American Medical Association in nomination for election to a Council

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C Griffith, Chairman, Wisconsin, read the following report, which was adopted.

Resolution No. 36, introduced by the Louisiana delegation asks for approval by an executive committee of a state society before a member is presented by the Board of Trustees to the House of Delegates for election to any Council Your committee is aware of the fact that some members of councils, such as Pharmacy and Chemistry are not physicians, and not members of state medical societies and that multiple nominations are made by the Board of Trustees to this House for election, which would necessitate clearance with state committees at the time, and is of the opinion that this resolution would restrict the Board of Trustees in its work. It is not in favor of its adoption.

No. 37. Resolution on Pharmaceutical Mail Advertising

Dr. R. B. Robins, Arkansas, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The volume of pharmaceutical mail advertising has grown to such tremendous proportions that it is impossible to read, or even scan, this type of literature, and

WHEREAS, Most physicians now either instruct their secretaries to discard this type of mail on receipt or do so themselves, and

WHEREAS, There is excessive duplication of pharmaceutical advertising in our medical journals, by personal representation and by 'throw away" mail literature, the latter representing a waste of large sums of money, therefore be it

Resolved, That the House of Delegates of the American Medical Association adopt a resolution respectfully suggesting to all the pharmaceutical manufacturers the following. (1) Limit mail advertisements and/or samples to once a month mailing in any manner they see fit, and (2) earmark the money which this procedure would save to be contributed, as a tax deductible item, to schools of medicine, pharmacy, dentistry, and nursing for grants-in-aid in professional education and medical research

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, submitted the following report, which was adopted:

Resolution No. 37 would limit pharmaceutical mail advertising and earmark the money saved for grants-in-aid in professional education and medical research. Your committee recognizes the contributions of the pharmaceutical industry in medical research, in exhibits at meetings, and in advertising in national and local journals, and does not wish to influence further the industries' choice of modes of advertising by any official action. It does not recommend passage of this resolution.

No. 38. Resolution on Rotating Internship

Dr. J. Wallace Hurff, New Jersey, introduced the following resolution, which was referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, There is considerable dissatisfaction on the part of certain specialty groups relative to straight internship in their specialties to the exclusion of others, and

WHEREAS, In several states it is a basic requirement that each applicant for licensure shall present evidence of having served a rotating internship of at least one year, and

WHEREAS, It is generally recognized that a rotating internship should be the foundation of any specialty training, therefore be it

Resolved, That the House of Delegates go on record as favoring a rotating internship of at least one year as a prerequisite for any special training, internship or residency.

NOTE. The report of the Reference Committee on Medical Education and Hospitals regarding Resolution No. 38 will be found following Resolution No 11.

No. 39. Resolutions on Reaffirmation of Opposition to Inclusion of Doctors of Medicine in the Social Security System

Dr. Troy A. Shafer, for the Texas delegation, introduced the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, From all available reports and indications, it appears as though doctors of medicine will not be included for coverage under Social Security in any bill that may be considered further by Congress this year, sentiment polls taken by constituent medical associations show an overwhelming majority of physicians to oppose inclusion in the Social Security System, each successive session of Congress doubtless will see renewed efforts by social planners to bring doctors of medicine into the Social Security System, and, as enunciated by our forefathers, "eternal vigilance is the price of freedom!", therefore be it

Resolved, That the House of Delegates of the American Medical Association reaffirms its unalterable opposition to inclusion of physicians in the Social Security system at any time, and be it further

Resolved, That a copy of this resolution be sent to the President of the United States, to each member of his cabinet, and to each member of the Congress, and that this resolution be publicized by each constituent medical association.

NOTE. The report of the Reference Committee on Legislation and Public Relations concerning Resolution No. 39 will be found following Resolution No. 30.

No. 40. Resolution on Membership of Judicial Council

Dr. Troy A. Shafer, for the Texas delegation, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws:

WHEREAS, The Judicial Council, one of the standing committees of the House of Delegates, doubtless will have increasing responsibilities in considering matters of great importance to the medical profession, and this likely will mean more meetings, and greater burdens on the members of the Council, if the total membership of the Judicial Council might be increased to nine, much preliminary study of problems could be undertaken by small subcommittees, furthermore, members of a larger Council would undoubtedly appreciate the wider sharing of grave responsibilities, and inasmuch as the Judicial Council is comparable to other standing committees of the House of Delegates, it would be preferable for its members to be elected by the House on nomination by the Board of Trustees in the same manner as with other standing committees, therefore be it

Resolved, That the Bylaws of the American Medical Association be amended as follows.

Chapter XI, Section 2, to be amended to read as follows

Section 2—Membership—(A) The Judicial Council shall consist of nine Active or Service Members elected by the House of Delegates, on nomination of the Board of Trustees Two members shall be elected annually, except every fifth year, when but one shall be elected, each to serve for five years, or until the election and installation of his successor.

Chapter XI, Section 2 (E) to be amended by deleting the phrase, "except the Judicial Council."

REPORT OF REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BYLAWS

Dr. Jay J. Crane, Chairman, Section on Urology, read the following report, which, after discussion and after a motion to substitute Resolution No. 40 for the report of the reference committee was lost, was adopted:

Resolution No. 40.—Your committee received Resolution No. 40 introduced by Dr. Troy A. Shafer of Texas, increasing the number of members of the Judicial Council and the method of nomination and election of such members. After due consideration and hearings, it was evident to the committee that the Judicial Council is *fully* capable of functioning properly as presently constituted and it is your committee's opinion that an increase in the number of members is unnecessary. Your reference committee knows of no reason at present for changing the method of procedure of selecting members of the Judicial Council. Your committee recommends that this resolution be not approved.

No. 41. Resolution on Care of Patients with Nonservice-Connected Disability in Veterans Hospitals

Dr. James Q. Graves, Louisiana, introduced the following resolution, which was referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, The care of patients with non-service-connected disability, who are veterans, in Veterans Hospitals presents a continuing problem, and

WHEREAS, The further expansion of such care is a threat to the proper and private practice of medicine, therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to continue its efforts to control this source of abuse.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, presented the following report, which was adopted:

Resolution No. 41.—Your reference committee recommends approval of this resolution even though approval of supplementary report of the Board of Trustees H, just preceding, may have, by now, accomplished the same purpose.

No. 42. Resolution on Increasing Memberships in the American Medical Association

Dr. Peter J. DiNitale, for the Medical Society of the State of New York, introduced the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

WHEREAS, In New York State there are approximately 24,000 physician-members of the Medical Society of the State of New York, and

WHEREAS, Only about 18,000 of these are members of the American Medical Association; and

WHEREAS, There probably are many physicians throughout the various states and territories of the United States who are not members of the American Medical Association; therefore be it

Resolved, That the American Medical Association augment its efforts to stimulate new memberships in the American Medical Association by an increased, determined, cooperative effort with the various county and state medical associations

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, read the following report, which was adopted:

Increasing Memberships in the American Medical Association (Resolution No. 42).—This resolution was introduced for the Medical Society of the State of New York and was considered by your committee. It resolves—that the American Medical Association augment its efforts to stimulate new memberships in the American Medical Association by an increased, determined, cooperative effort with the various state and county medical associations. Your reference committee approves of this resolution and wishes to refer it to the Board of Trustees for what action it may take.

No. 43. Resolutions on Medical Care for Dependents of Members of the Uniformed Services

Dr. Robert L. Novy, for the Michigan delegation, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service:

WHEREAS, The Congress of the United States, as recommended by the Department of Defense, has enacted legislation providing for medical services for dependents of members of the uniformed services, and

WHEREAS, The legislation calls for the supplying of medical services for dependents of members of the uniformed services by civilian doctors and hospitals; and

WHEREAS, The position and policy of the American Medical Association has been clearly set forth by action of the House of Delegates of December, 1954, as follows: "... if it is to be the policy of the government to provide for medical care for dependents of service personnel, the services of civilian physicians and hospitals be used wherever possible, to be paid for at prevailing rates, with provision for *free choice of physicians*," and

WHEREAS, The *recommendations* of the Council on Medical Service as submitted to the Board of Trustees under date of Nov 27, 1954, state that if Congress believes that there is a need for assisting the serviceman financially in providing health services for his dependents while he is a member of the armed forces, it is recommended "That such funds as are made available be provided either (a) directly to the serviceman so that he may purchase his own protection through a voluntary program, or (b) be utilized to purchase services through a 'home town medical care' type of program on a fee-for-service basis for physicians and hospitals, arranged through the individual state medical societies, or their designated agency, and negotiated with the Department of Defense," therefore be it

Resolved, That the House of Delegates of the American Medical Association urge its constituent state and their component county medical societies to cooperate with the Defense Department in the provision of medical services to the dependents of servicemen as provided in P L 569, 84th Congress (Signed by the President, June 7, 1956) utilizing the facilities of Blue Shield and other medically-sponsored plans, *and be it further*

Resolved, That the Board of Trustees of the American Medical Association be, and hereby is, instructed to initiate direct liaison with the Department of Defense and render all reasonable and effective aid and assistance to state and county societies toward the implementation of the intent of P. L. 569, 84th Congress, 1956, and these resolutions

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, submitted the following report, which, after discussion, was adopted:

Resolution No. 43 on Medical Care for Dependents of Members of the Uniformed Services.—Your reference committee recommends approval of the resolution up to, and including, the word "utilizing" in the first "Resolved." It would delete the rest of that sentence to the colon before "and be it further." It would insert following the word "utilizing" the following: "such insurance, medical service, or health plan or plans as encompassed by the law. A plan or program for any given geographical area should first be approved by the organized medical profession of that area."

The remainder of the resolution is recommended as written except that the word "provisions" be substituted for "intent" in the second "Resolved."

No. 44. Resolutions on American Medical Association Leadership in Distribution of Medical Care

Dr. Clarence I. Owen, for the Michigan State Medical Society, introduced the following resolutions, which were referred to the Reference Committee on Insurance and Medical Service.

The following resolution is offered at the direction of the house of delegates of the Michigan State Medical Society.

WHEREAS, The ever-increasing developments of scientific medical procedures combined with increasing population puts heavy responsibility on the American Medical Association as the leader in the distribution of medical care, and

WHEREAS, The American Medical Association is being constantly challenged by certain social, political, and medical groups in *developing* distribution methods to keep pace with our scientific advances, and

WHEREAS, Policies for distribution of medical and health care can best be established and carried out through the leadership of the medical profession itself, and

WHEREAS, It is the responsibility of the medical profession to make long-range plans, to advise the public of such plans, and to provide effective alternatives to compulsory health insurance proposals, therefore be it

Resolved, That as an aid to the officers, delegates and trustees of the American Medical Association an advisory commission be established by the House of Delegates of the American Medical Association to review the combined problems of health care distribution and to suggest plans for their solution, and be it further

Resolved, That such Commission should include the President of the American Medical Association, the Secretary and General Manager of the American Medical Association, who shall also serve as Secretary to the Commission, a past-president of the American Medical Association, and representatives from each of the following the Board of Trustees of the American Medical Association, the House of Delegates of the American Medical Association, the specialties, general practice, industry, labor, institutions of higher learning, medical schools, the executive branch of the federal government, prepaid medical care plans, prepaid hospital care plans, and such others as may be deemed appropriate, and be it further

Resolved, That such Commission be established with a rotating membership of five-year terms to serve without compensation but with reimbursement for necessary travel and other expenses, to meet at least semiannually, to select its own chairman and to submit progress reports to the officers and delegates of the American Medical Association before each regular annual and interim meeting of the American Medical Association, and be it also

Resolved, That the Board of Trustees of the American Medical Association be requested to provide the necessary funds for such Commission to carry out its functions.

REPORT OF REFERENCE COMMITTEE ON INSURANCE AND MEDICAL SERVICE

Dr. John K. Glen, Chairman, Texas, submitted the following report, which was adopted:

Resolution No. 44 on American Medical Association Leadership in Distribution of Medical Care.—Your reference committee feels that the machinery recommended by this resolution might well become a redundancy if insisted upon by the House of Delegates. It likewise feels that the present organization of the American Medical Association can be relied upon to retain leadership in the distribution of medical care. Your committee, therefore, recommends that this resolution be not approved.

No. 45. Resolution on Nonscientific Problems at Scientific Sessions of the American Medical Association

Dr. George W. Slagle, for the Michigan State Medical Society, introduced the following resolution, which was referred to the Reference Committee on Sections and Section Work:

The following resolution is offered at the direction of the house of delegates of the Michigan State Medical Society:

Whereas, Many problems other than scientific beset the various sections as presented in the Scientific Assembly of the American Medical Association; and

Whereas, Most of the nonscientific problems are basic to the distribution of all the medical sciences and are essential to medical welfare; therefore be it

Resolved, That the executive committee of the Scientific Assembly and the several section committees be urged by the House of Delegates of the American Medical Association to provide sufficient time at national meetings for discussion and deliberation concerning the distribution of medical care, of education, of legislation and of similar other subjects in relation thereto; such discussions and deliberations shall be conducted in the same manner as that employed in the scientific sessions, and the essential findings and conclusions shall be reported to the House of Delegates and to other appropriate bodies for consideration.

REPORT OF REFERENCE COMMITTEE ON SECTIONS AND SECTION WORK

Dr. H. Kenneth Scatliff, Chairman, Illinois, presented the following report, which was adopted:

Your Reference Committee on Sections and Section Work has had for its study Resolution No. 45 introduced by Dr. George W. Slagle, Michigan, entitled "Nonscientific Problems at Scientific Sessions of the American Medical Association."

Although Dr. Slagle did not appear before the committee, information from the Michigan delegation was brought to us concerning the resolution by two of their delegates, namely Drs. Hyland and Novy. Representatives from the Ohio delegation were also present and presented their viewpoints. Dr. Henry R. Viets, appearing for the Council on Scientific Assembly, gave a summary of that Council's extensive operation, pointing out that the Assembly has traditionally been the place for the dissemination of scientific information. Dr. Leonard W. Larson of the Board of Trustees called attention to the action of the Board in asking for a legal opinion and review to determine proper activities and functions of the scientific sections. Briefly, this opinion held that the fundamental concepts of the Scientific Assembly are to supply a forum for the discussion and dissemination of scientific information. Other matters have no place in its deliberation. Business and legislative interests are considered by the House of Delegates under powers provided for it in Division Three of the Bylaws.

Your committee recognizes the need for disseminating information concerning business and socioeconomic matters but would point out that such information is available in The Journal commencing in succeeding issues immediately after a meeting of the House.

It would further point out that the business sessions of all sections are free to discuss any and all nonscientific matters. Their desires in these matters can be brought to the House by resolution as late as the final meeting of the House of Delegates. This liberal provision in confined and is for the use only of the different sections.

It is therefore recommended by your committee that this resolution be disapproved.

No. 46. Resolutions on Death of Dr. Arthur C. Scott Jr.

Dr. Eli S. Jones, Indiana, introduced the following resolutions, which were adopted unanimously without referral to a reference committee:

Whereas, Dr. Arthur C. Scott Jr., of Temple, Texas, came to an untimely death on Feb. 23, 1956, and

Whereas, Dr. Scott for years served faithfully and capably in this House of Delegates, on the Special Committee on General Practice Prior to Specialization, on the Council on Medical Service, and in other responsible assignments; now therefore be it

Resolved, That this House of Delegates express its deep appreciation for the faithful work and friendly comradeship of Dr. Scott, and its sorrow at his passing; and be it further

Resolved, That a copy of this resolution be sent to the family of Dr. Scott.

No. 47. Resolutions on Nationwide Commission to Review Income Tax System

Dr. Milford O. Rouse, Texas, introduced for the Texas, New Mexico, New Jersey, and Maine delegations, the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Preamble

The prodigious increase in the encroachment of federal power on the prerogatives of the several states and the every-day activities of individual citizens dates back to the constitutional amendment which made possible the levying of federal income taxes. With access to large sums of tax monies, came inevitable, tremendous increases in power. Tax authorities like T. Coleman Andrews are emphasizing, with real courage, the pressing need for a thorough study and review of the federal income tax system by an independent commission of qualified citizens selected on a nationwide basis. Physicians need to sponsor a movement for the creation of such a commission to acquaint taxpayers with the increasing threat to private enterprise and initiative; Now therefore be it

Resolved, That the House of Delegates of the American Medical Association recommends to the Congress of the United States the creation of such a nationwide commission to study the federal income tax system, with ample time for a thorough review, and with provision for full report and recommendations to the Congress and to the public; and be it further

Resolved, That a copy of this resolution be sent to the President of the United States, to the members of his cabinet, and to the members of the Congress.

REPORT OF REFERENCE COMMITTEE ON LEGISLATION AND PUBLIC RELATIONS

Dr. Willis H. Huron, Chairman, Michigan, read the following report, which was adopted:

Resolution 47 on Nationwide Commission to Review Income Tax System.—Your committee is in accord with the intent of this resolution. It recommends that this should be done on an individual basis, and that doctors, as individual citizens, use their efforts to support the creation of a nationwide commission to study the federal tax structure. Your committee recommends that this resolution, as amended, be adopted.

No. 48. Resolutions on Scholarship Aid

Dr. Edward J. McCormick, past-president, introduced on behalf of the Ohio State Medical Association, the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

Whereas, The facilities for aid to young men and women who desire to study medicine and are in financial need are still inadequate in spite of the efforts of state medical associations and various foundations; and

Whereas, The parent body of American medicine, the American Medical Association, has no fund to aid these worthy individuals; therefore be it

Resolved, That this House of Delegates authorize the Board of Trustees to establish a rotating fund from which money can be loaned at a reasonable rate of interest to actual or prospective medical students; and be it further

Resolved, That the Board of Trustees be requested to appoint a screening committee to review and act upon any and all applications for scholarship aid and that the details regarding the use of this fund be in the hands of the Board of Trustees of the American Medical Association.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, read the following report, which was adopted:

Resolution No. 48 proposes that the Board of Trustees establish a rotating fund from which money may be loaned to prospective medical students. Mr. M. P. McQuillan and Mr. R. F.

Staudacher appeared before the committee and explained the Student American Medical Association Foundation, already incorporated. This provides for similar loans after the freshman year. Your committee commends these young men for their foresight and manner of procedure. As these two loan funds would cover virtually the same purpose, your committee proposes that this matter be referred to the Board of Trustees for its consideration.

No. 49. Resolution on *Opposition to Practice of Medicine* By Hospitals, Medical Schools, and Other Corporate Bodies

Dr. Edward B. Tuohy, *Section on Anesthesiology*, introduced the following resolution, which was *referred to the* Reference Committee on Insurance and Medical Service:

WHEREAS, *The specialty of anesthesiology* has repeatedly gone on record as opposing the practice of medicine by hospitals, medical schools, and other corporate bodies through full time employees; and

WHEREAS, *This subject is scheduled for discussion* by the House of Delegates of the American Medical Association now in session; therefore *be it*

Resolved, That the Section on Anesthesiology of the American Medical Association reaffirms this position and instructs its delegate to present and *support its views before the House of Delegates.*

NOTE: The Reference Committee on Insurance and Medical Service made no report concerning Resolution No. 49.

No. 50. Resolutions on High School Science Fairs

Dr. Wendell C. Stover, on behalf of the Indiana State Medical *Association, introduced the following resolutions*, which were referred *to* the Reference Committee on Legislation and Public Relations:

WHEREAS, The American Medical Association through its Department of Public Relations has recommended to the constituent state and component county medical societies that they consider active participation in the National *High School Science Fairs*; and

WHEREAS, The Indiana State Medical Association and its component county societies accepted this recommendation as one of sound purpose; and

WHEREAS, The experience of our *State in the 1955 Science Fair program* has proved worth far more than its cost, from a public relations standpoint; and

WHEREAS, *The sincere letters of appreciation from* students, teachers, school officials and the public *evidenced an entirely new perception of our* medical *organization; now therefore be it*

Resolved, That *the American Medical Association* and its Department of Public Relations be complimented by this House for encouraging the participation *by medical organizations in this National High School Science Fair project; and be it further*

Resolved, That the American Medical Association, through *its appropriate* departments and Councils continue to use every resource at its command *to bring* the whole of organized medicine into active participation in this *worthwhile* and constructive program to encourage *the youth of our nation* to take a serious interest *in the field of science as their career.*

REPORT OF REFERENCE COMMITTEE ON *LEGISLATION AND PUBLIC RELATIONS*

Dr. Willis H. Huron, Chairman, Michigan, submitted the following report, which was adopted:

Resolution No. 50 on High School Science Fairs.—Your committee approves heartily of this resolution, and commends the delegation from Indiana for bringing this to the attention of the *House of Delegates.* Your committee recommends its adoption.

No. 51. *Resolutions on* Associations with Optometrists

Dr. W. L. Benedict, for the Section on *Ophthalmology, introduced* the following resolutions, which were referred to the Reference Committee on Medical Education and Hospitals:

WHEREAS, The Judicial Council has pointed *out in its report to the* House of Delegates at the December, 1955, meeting that voluntary associations with optometrists are unethical; and

WHEREAS, *It has come* to the attention of the Section on Ophthalmology that optometrists are associated with hospitals, clinics, and other medical *agencies in their capacity as optometrists; therefore be it*

Resolved, That the hospitals and other agencies so concerned be informed of the position of the American Medical Association in this matter; and be it further

Resolved, That the *report of the reference* committee and the action of the House be communicated to all state and county medical societies.

REPORT OF REFERENCE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

Dr. George S. Klump, Chairman, Pennsylvania, submitted the following report, which was adopted:

Resolution No. 51.—Your reference committee has considered this resolution and, after discussion with its proponents, who agree with your committee, suggests that the first "resolved" be deleted and the second "resolved" amended, so that the resolution will then read:

Resolved, That the report of the action of the House of Delegates of the *American* Medical Association be communicated to all constituent state associations.

No. 52. Resolution on Status of Practice of Optometry

Dr. W. L. Benedict, *Section on* Ophthalmology, introduced the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and Bylaws:

Resolved, That the proper American Medical *Association authorities* inquire into the current status of the *practice of optometry* to determine whether *optometry is in fact* a cult or a sectarian method of the practice of medicine.

REPORT OF REFERENCE COMMITTEE ON *AMENDMENTS TO THE CONSTITUTION AND BYLAWS*

Dr. Jay J. Crane, Chairman, *Section* on Urology, read the following report, which was adopted:

Resolution No. 52.—Your reference committee has had referred to it Resolution No. 52 introduced by Dr. William L. Benedict for the Section on Ophthalmology. The resolution asks that "the proper American Medical Association authorities inquire into the *current status of the practice of optometry to determine* whether optometry is in fact a cult or a sectarian method of the practice of medicine." Your committee has been informed that some months ago the Judicial Council requested the Law Department of the American Medical Association to make a thorough study of all phases of the practice of optometry. That study is now nearing completion. Your committee, therefore, recommends that this resolution be not approved at this time pending a report on the current study.

No. 53. Resolution on 1961 American Medical Association Annual Meeting

Dr. Floyd S. Winslow, New York, introduced the following resolution, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

WHEREAS, Several annual meetings of the American Medical Association have been held in New York City with outstanding success; and

WHEREAS, New and remarkable *facilities for such a meeting* are now available; and

WHEREAS, *The House of Delegates* of the Medical Society of the State of New York has enthusiastically *voted to invite* the American Medical Association to hold its 1961 Annual Meeting in New York City; *therefore* be it

Resolved, That this House of Delegates recommends to the Board of Trustees that the 1961 Annual Meeting be held in New York City.

REPORT OF REFERENCE COMMITTEE ON REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Dr. Woodruff L. Crawford, Chairman, Section on Pediatrics, submitted the following report, which was adopted:

Resolution No. 53.—Your reference committee has revised the "resolved" portion of this resolution, as follows:

Resolved, That this House of *Delegates recommends that the* Board of Trustees seriously consider holding the 1961 Annual Meeting in New York City.

Your committee recommends approval of the resolution as amended.

No. 54. Resolution on Physical Examinations

Dr. Rutherford T. Johnstone, for the *Section* on Preventive Medicine, introduced the following resolution, which was referred to the Reference Committee on *Hygiene*, Public Health, and Industrial Health:

WHEREAS, *It has* long been recognized that the *health of the* employee is an economic as well as human relations concern of the *employer*; and

WHEREAS, Preventive medicine is actively concerned in maintaining the economic productiveness of said employee; and

WHEREAS, It has been recognized that periodic physical examinations will contribute to the health of the nation and aid in the early recognition of disease; therefore be it

Resolved, That periodic physical examinations provided by the employer are within the province of the said employer, and do thereby provide a basis for a private enterprise approach to the health maintenance needs on a broad base for American citizens.

REPORT OF REFERENCE COMMITTEE ON HYGIENE, PUBLIC HEALTH, AND INDUSTRIAL HEALTH

Dr. Martyn A. Vickers, Chairman, Maine, read the following report, which was adopted:

Resolution No. 54 on Physical Examinations.—As this resolution involves many fundamental principles, such as patient-doctor relationship, free choice of physician, and rights of employee as well as employer, your committee recommends that it be referred to the Board of Trustees for a report at the interim meeting in Seattle.

Report from Student American Medical Association

The Speaker presented to the House the two delegates from the Student American Medical Association, Mr. J. Kent Guild of Northwestern University Medical School, President, and Mr. Michael P. McQuillen of Georgetown University School of Medicine, Vice-President.

Mr. Guild made the following address, during which he presented a SAMA check for $5,000:

Mr. Speaker, Members of the House of Delegates, and Guests: It is a pleasure and an honor to be here this afternoon and represent the Student American Medical Association. As some of you know, our organization was founded under the auspices of the American Medical Association in 1950 and became autonomous in 1955. Our delegate stated before this House two years ago, "The fathers who support most of the medical students in the country today must be extremely envious of the American Medical Association in having an offspring, at the age of four, that is assuming its own financial responsibilities." This year, your offspring, at the age of six, would like to return a portion of your investment in him. Just as you were happy to loan us capital in the beginning, likewise we are happy to be able to return to you at this time this third installment of $5000. bringing the total repaid to $20,000 for a three-year period. We know that this is not a sizable check, considering the one you received on Monday, but it means a lot to us, and we are very happy to be able to return these funds to you.

During the past year, SAMA has reached new heights in several fields. In size, our membership has increased until it now exceeds 30,000. Three new chapters have raised the total of active chapters to 72 out of the 82 medical schools, and the circulation of the *SAMA Journal* now exceeds 50,000. Increased size is not our immediate goal. Instead, we consider it to be an index of the moral success in fulfilling our purpose.

During our convention this spring, we certainly appreciated the aid and participation of many of your members. The opinions and clarifications which were forthcoming from your representatives both stimulate and facilitate our knowledge of problems common to both the American Medical Association and the Student American Medical Association. For example, SAMA, in expressing the needs of many interns, has resolved that it has and still does agree wholeheartedly with the Council on Medical Education and Hospitals in its definition of the ideal milieu of graduate medical education as that in which "the education benefits to the trainee are considered of paramount importance, with the service benefits of the milieu of secondary importance." However, with your guidance, we proposed to advance one step further in this philosophy and define an ideal minimum for internships as "the optimal educational advantage plus the economic possibility of enjoying this advantage."

Next spring, our convention will be held in Philadelphia. Although the location is different, we sincerely hope that you will again participate with us. Perhaps the biggest news that we have to present concerns the SAMA Foundation, about which the following speaker, Mr. McQuillen, will address you.

The objects of our association are "to advance the profession of medicine, to contribute to the education and welfare of medical students, to familiarize its members with the purposes and ideals of organized medicine, and to prepare its members to meet the social, moral, and ethical obligations of the medical profession." We are proud of our progress thus far, and with confidence and with your guidance, we look forward to the future.

Mr. McQuillen addressed the House as follows:

Mr. Speaker, President Murray, Members of the House of Delegates: It is a distinct honor and privilege that has been accorded me this morning to speak to this House on a matter that has been deemed by your Board of Trustees as a most noteworthy project. This matter is the Student American Medical Association Foundation.

In recent years, the pulse of economic pressure has beaten with an ever-increasing and more alarming fullness in the period preparatory to medical practice to the detriment of medicine in general. Applications for medical schools are falling off from the young man who might tomorrow become a leader in medicine, but who today cannot see his way clear to entering upon a long period of training under economic duress both to himself and to his family. The old "sour grapes" that medicine is a closed profession, open only to the sons and daughters of rich men, is being thrown in our faces once again. Oh, yes, there are some funds available to alleviate this situation of a very inadequate and most unevenly distributed nature, but in large part these either require collateral or co-signers or endorsers to such a degree that if possessed would make the loans themselves unnecessary; or they require the young medical student to signify his intention to practice in a certain type of practice in a certain locality, which is a situation that no medical student in the early stages of his training is either capable or desirous of making.

The need, then, has been for a foundation which would offer loans to students of approved medical schools on the basis of need and of character and of scholastic merit alone. We were most happy last June to report to this House our intention of fulfilling this need, and we are happier still to announce at this time that the Student American Medical Association Foundation has been established as a separate, distinct, self-perpetuating philanthropy of the Student American Medical Association under the trusteeship of the Continental Illinois National Bank and Trust Company of Chicago. It is our firm hope that this foundation will have sufficient funds, and by sufficient funds we mean at least $100,000, by September of this year, the opening of the fall term, in order to offer to each of the approved medical schools one or two loans of $500 to $1,000 each. The need was expressed to us very clearly by the delegates to our convention in May, each of whom brought with him many inquiries from his constituent members as to when the foundation would be available to loan funds to the students in his school, and documented proof of this need will be offered as soon as we may offer the loans to the schools.

We are searching in several directions for funds to make these loans available. We are approaching the various pharmaceutical firms that in the past have shown a kindly interest in improving the standard of medical practice. We are approaching many of the foundations which have given grants to further medical education. We are hoping that individual doctors themselves who may have either lived under this sort of economic duress, or who may appreciate the economic duress that we today must live under, will assist and give one-time self-perpetuating grants to our foundation.

Finally, and most important of all, we are approaching organized medicine, both on a national and state and county level. As an aside, I might offer thanks at this moment to Mrs. Mason Lawson and to her organization, the Woman's Auxiliary to the American Medical Association, for their kind gift announced on Monday. It is our firm hope that the charity of these various groups that we are approaching will be of sufficient degree to demonstrate in a mute, silent, yet most eloquent way, their faith in the future of medicine and their desire to improve and insure that future.

Presentation to Dr. Dwight H. Murray

Dr. Robertson Ward, California, was given the privilege of the floor for the purpose of presenting to President Dwight H. Murray a framed resolution signed by Drs. Sidney J. Shipman and Albert Daniels, president and secretary of the California Medical Association, which had been unanimously adopted by the house of delegates of the California association on April 29, 1956.

Dr. Ward read the following resolution:

WHEREAS, The California Medical Association's own beloved and respected Dr. Dwight H. Murray of Napa, Calif., currently President-Elect of the American Medical Association, will soon become President of the American Medical Association; and

WHEREAS, Dr. Murray has attained his high honor because of his life-long devotion to the ever-advancing standards of medical care for the people of his state and nation and the welfare of his confreres; now therefore be it

Resolved, That the California Medical Association, duly meeting in convention, convey to Dr. Murray our best wishes for a year of successful leadership for American medicine.

Supplementary Report of Council on Medical Service

Dr. Joseph D. McCarthy, Chairman, presented the following supplementary report, which was referred to the Reference Committee on Miscellaneous Business:

COMMITTEE ON GERIATRICS

The Council on Medical Service, at the suggestion of its Committee on Geriatrics, recommends to the House of Delegates that the name of this committee be changed to the Committee on Aging. It is believed by the committee and the Council, after considerable discussion relative to the objectives of the committee, that the title Committee on Aging would be preferable and would more clearly describe the scope of activities of the committee.

REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Joseph C. Griffith, Chairman, Wisconsin, read the following report, which was adopted:

A supplementary report of the Council on Medical Service requesting that the name of its Committee on Geriatrics be changed to the Committee on Aging has been considered. Your reference committee agrees and so recommends.

Greetings to Canadian Medical Association

The House of Delegates voted, at the suggestion of the Vice Speaker, to send a telegram of greetings to the Canadian Medical Association now in session.

Remarks on the American Medical Education Foundation

The Speaker obtained the privilege of the floor for Dr. Norman L. Sheehe, second vice-president of the Illinois State Medical Society, in order to present remarks prepared by Dr. Edward H. Weld of Rockford, Ill., past-president of the Illinois society, as follows:

Mr. Speaker, Members of the House of Delegates and Friends: I am here to speak on the contributions made to the American Medical Education Foundation by the members of the Illinois State Medical Society during the past three and a half years. In 1953, the house of delegates of the Illinois State Medical Society voted to increase the annual dues of the membership and to instruct the council of the society to allocate $20 from each member's dues to the AMEF.

I was a strong opponent of this plan from the very beginning, and some of the other members shared my views. It was our eling that this was a compulsory assessment and undemocratic ts concept. Our opposition was based primarily on what we rded as compulsory dues deduction, and not because of any ing that doctors could not afford to contribute to the support their medical schools. We realized that doctors never fully pay for their medical education and that the least they can do is to make up for this after they go into practice by contributing to the support of their schools. Those of us who were against the Illinois plan thought that if we were to have compulsory assessments for the AMEF, *then* similar assessments should be made in other states.

I was amazed at a report given recently by Mr. John Hedback, Executive Secretary of the American Medical Education Foundation. Although the proponents of the Illinois plan had expressed the belief that other states would adopt similar methods of raising funds for our medical schools, the report showed that few states had followed suit. During the past year, I believe, one state was added to the list and one was dropped.

As you all know, the AMEF solicits contributions from within the medical profession while another group, the National Fund for Medical Education, seeks medical school support from business and industry sources. Since the establishment of these two fund-raising agencies in 1951, a total of nearly 10 million dollars has been donated through them for the support of the nation's medical schools. Of the monies raised within the medical profession, 45% came by grant from the American Medical Association. This amounts to $2,100,000. During the same period the Illinois State Medical Society contributed a total of $621,900, California gave $302,000, New York came up with $205,000, Pennsylvania $194,000, Indiana $158,000, Ohio $100,000 and New Jersey $76,000. Now I have had cause to study these figures carefully in the light of a plan I opposed bitterly. It became apparent that unless something along the line of the Illinois plan was adopted by all other state medical organizations, total contributions to AMEF would continue to be relatively unimpressive. I realize now that something must be done to approach this problem with new vigor.

I wish to state here that I have been wrong in my opposition to the Illinois plan for contributing to the AMEF and that I believe the Winnebago County Medical Society, of which I am a member, has been wrong in consistently voting against the $20 dues allocation.

We firmly believe that the medical schools need even stronger support from the medical profession and that the Illinois plan definitely proves that this is the most effective way to raise the funds. The comparable figures on state contributions to AMEF bear me up on this score. The seed has been planted, I am here to see that it is properly nurtured. We must get more money from individual state societies for our medical schools and I am convinced that the Illinois way is the best way to do the job. Since I was so strong originally in my misguided opposition to the plan, I want now to back with equal strength any effort that would cause other state societies to adopt this method of raising funds for the AMEF. The wonderful work that the Ford Foundation is now doing in behalf of medical education, with its fund matching program, should make all physicians want to increase their own personal contributions.

Gentlemen, I am completely sold on the Illinois plan and I know that it is the hope of my society that your respective organizations find merit in such a fund-raising procedure. I urge the American Medical Education Foundation to sell the Illinois plan to other states even as you have sold it to me. It can be done. And now God bless you one and all. Let's keep American medicine free from federal control.

The Speaker stated that the remarks on the American Medical Education Foundation would be considered as informative, and the Secretary was directed to deliver a copy to the Board of Trustees for its information and action.

Election of Officers

The following officers were elected:

President-Elect: Dr. David B. Allman, Atlantic City, N. J

Vice President: Dr. Franklin S. Crockett, West Lafayette, Ind

Secretary Dr. George F. Lull, Chicago.

Treasurer. Dr. J. J. Moore, Chicago.

Speaker, House of Delegates. Dr. E. Vincent Askey, Los Angeles

Vice Speaker, House of Delegates: Dr. Louis M. Orr, Orlando Fla

Members, Board of Trustees: Dr. Julian P. Price, Florence, S C, Dr Hugh H Hussey Jr., Washington, D.C

Member, Judicial Council: Dr. Robertson Ward, San Francisco

Members, Council on *Medical Education* and Hospitals Dr Guy A Caldwell, New Orleans, Dr. John W. Cline, San Francisco

Members, Council on Medical Service Dr. Carlton E Wertz, Buffalo Dr. John Flack Burton, Oklahoma City, Dr. Thomas J Danaher, Torrington Conn ; Dr. Raymond M. McKeown, Coos Bay, Ore , Dr J Lafe Ludwig Los Angeles.

Member, Council on Constitution and Bylaws Dr Walter E Vest Huntington, West Va

Remarks of President-Elect David B. Allman

The newly elected President-Elect, Dr. David B. Allman, was escorted to the rostrum, and addressed the House as follows

Mr. Speaker, Members of the House of Delegates, Friends Today you have conferred upon me the greatest honor of my life. My reaction is one of delight. I am delighted by this thrilling demonstration that you have made today and by the confidence that you have placed in me. I am humbled by my awareness of the great task and the magnitude of the duties which go with this office, but on my part I sincerely thank you and from my heart I pledge to give the best that is in me to serve the medical profession of this country and the people of this nation, to the best of my ability and faithfully, and, with your assistance and with your guidance and with the help of God, I *will not fail you.*

Election of Affiliate Members

The following persons were elected to Affiliate Membership in the American Medical Association:

Physicians of adjacent countries nominated by the Judicial Council:

Dr. George I. Bernstein, Windsor, Ont., Can.
Dr. Gustave Gingras, Montreal, Can.
Dr. Samuel E. C. Turvey, Vancouver, B. C., Can.

American medical missionaries, nominated by the Judicial Council:

Dr. William J. Barnett, Brooklyn, N. Y.
Dr. Robert C. Bowers, Wema, Equateur Province, Belgian Congo, West Africa.
Dr. Richard S. Buker, New York.
Dr. Almarose Cooke, Wheaton, Ill.
Dr. Erwin J. Cummins Jr., Minna, Nigeria, West Africa.
Dr. Donald C. Edwards, Gombe, North Nigeria, West Africa.
Dr. Arthur E. Geschke, Rangoon, Burma.
Dr. H. Wallace Greig, Batouri, Cameroun, Africa.
Dr. Marion D. Hursh, Kano, Nigeria, West Africa.
Dr. Shukry D. Karmy, Baghdad, Iraq.
Dr. Alfred O. Mazat, Singapore, C. S.
Dr. Albert J. Patt, Vellore, Madras State, South India.
Dr. Oliver J. Pogue, Georgetown, British Guiana.
Dr. Douglas B. Reitsma, Brooklyn, N. Y.
Dr. Doris J. H. Wilson, Hartford, Conn.
Dr. Harry R. Zemmer, Bukavu, Belgian Congo, West Africa.

Scientists allied to medicine nominated by the Section on Experimental Medicine and Therapeutics:

Dr. Roger A. Lewis, Bombay, India.
Dr. A. J. Plummer, Summit, N. J.
Albert Schatz, Ph.D., Farm School P.O., Bucks County, Pa.

American Medical Education Foundation Awards of Merit

Dr. Louis H. Bauer, President of the American Medical Education Foundation announced that an Award of Merit had been conferred on each of the following-named organizations and persons, who had contributed more than $1,000 during the past year:

American Medical Association
Arizona Medical Association
California Medical Association
Illinois State Medical Society
Iowa State Medical Society
Massachusetts Medical Society
Medical Society of New Jersey
Oregon State Medical Society
Tennessee State Medical Association
Utah State Medical Association
Medical Society of Virginia
American College of Anesthesiologists
American College of Radiology
Dr. W. W. Bauer

Report of Reference Committee on Rules and Order of Business

Dr. Herbert H. Bauckus, Chairman, New York, presented the following report, which was adopted unanimously:

On behalf of the Reference Committee on Rules and Order of Business, I am pleased to offer the following resolution:

Resolved, That this House of Delegates hereby make known its sincere and admiring appreciation for that which has been done to make the meeting we are soon to conclude very pleasant and successful.

Therefore, we make grateful acknowledgment to the General Chairman, Dr. Maurice M. Hoeltgen, and the Co-Chairmen, Drs. Percy E. Hopkins, F. Garm Norbury, and Joseph T. O'Neill, and the members of their committee.

We acknowledge with thanks the work of the Secretary, Dr. George F. Lull, and his very efficient staff who perform their task most faithfully as do the Speaker and Vice Speaker, Drs. E. Vincent Askey and Louis M. Orr. We thank the Subcommittee on Woman's Auxiliary, Mrs. Leonard J. Houda, Chairman.

We note with appreciation the Illinois State Medical Society and the Chicago Medical Society, thanking them for their most gracious kindness and entertainment. Thanks are extended to the management of the Palmer House and to the Searle Company for a very fine luncheon. We thank those who have made possible our scientific meetings and exhibits.

There are many who contribute to this Annual Meeting of the American Medical Association, and their zeal in so doing will aid us in carrying on as we return to our state and county associations.

Remarks of Vice President F. S. Crockett

The newly elected *Vice President, Dr. F. S. Crockett,* addressed the House as follows:

Mr. Speaker, Members of the House of Delegates: I want you to know how very much I appreciate this very high honor you have given me. I welcome this opportunity for further service to our profession, to our medical association, and to the public we serve.

The House of Delegates adjourned, sine die, at 5:05 p. m., Thursday, June 14, 1956.

MINUTES OF THE SCIENTIFIC SECTIONS

SECTION ON ANESTHESIOLOGY

The Section on Anesthesiology met on Tuesday, Wednesday, and Thursday afternoon, June 12, 13, and 14, 1956, in the Tally Ho Room of the Sheraton Hotel.

Dr. John S. Lundy, Chairman, Rochester, Minn., presided over the meeting on Tuesday and Thursday afternoon, and the Vice-Chairman, Dr. Lewis H. Wright, New York, over the Wednesday afternoon meeting.

All of the papers listed on the official program of the Section were read by the proper authors and were discussed by those named for that purpose.

At a business meeting held on Tuesday, June 12, a report was made by the Section delegate, Dr. Edward B. Tuohy, Los Angeles, concerning actions of the House of Delegates of the American Medical Association, and Dr. Stuart C. Cullen, Iowa City, Section representative to the American Board of Anesthesiology, reported concerning the work of the Board. Members of the Section who had exhibits in the Scientific Exhibit were introduced. A letter submitted by Dr. Ralph M. Tovell, former Chairman of the Section, with respect to career residencies in Veterans Administration hospitals, was referred by vote of the Section to the Council on Medical Education and Hospitals. Two resolutions were introduced and referred to the delegate, Dr. Tuohy, for consideration for presentation in the House.

Note: One of these resolutions, No. 49, will be found in the abstract of the Proceedings of the House of Delegates in the Oct. 6 issue of The Journal.

On Thursday, June 14, the following officers were elected: *Chairman, Dr. Scott M. Smith,* Salt Lake City; Vice-Chairman, Dr. Richard H. Barrett, Hanover, N. H.; delegate, Dr. Edward B. Tuohy, Los Angeles; alternate delegate, Dr. Urban H. Eversole, Boston; representative to the Scientific Exhibit, Dr. Edwin L. Rushia, Augusta, Ga. The Chairman and Vice-Chairman were elected to serve for the ensuing year, the delegate and alternate delegate for two-year-terms beginning Jan. 1, 1957, and the representative to the Scientific Exhibit for the ensuing two years. The Secretary of the section, Dr. Daniel C. Moore of Seattle, was elected at the Atlantic City Annual Meeting in June, 1955, for a three-year term ending at the close of the Annual Meeting in 1958.

SECTION ON DERMATOLOGY

The Section on Dermatology held its meetings on Tuesday, Wednesday, and Thursday afternoon, June 12, 13, and 14, 1956, in the ballroom of the Knickerbocker Hotel.

At the meetings on Tuesday and Wednesday, the Chairman, Dr. J. Walter Wilson, Los Angeles, presided over half the sessions and Dr. Ruben Nomland, Vice-Chairman, Iowa City, over the other half. Dr. Nomland presided over the session on Thursday afternoon.

Dr. Herbert Rattner. Chicago, presented a report as Chief Editor of the *A. M. A. Archives of Dermatology*; Dr. Samuel Bluefarb. Chicago. submitted his report as representative to the Scientific Exhibit; a report on the American Board of Dermatology was presented by Dr. Marcus Caro, Chicago; and Dr. Robert R. Kierland. Section delegate. read a report outlining actions taken at the current session of the House of Delegates. Dr. George M. Lewis. New York. submitted the report of the nominating committee. which was laid on the table for action on June 14. These reports were presented at the business meeting of the Section on Tuesday, June 12.

All papers were presented and discussed by authors and discussors as listed in the official program.

The following officers were elected on Thursday. June 14: Chairman. Dr. Herbert Rattner, Chicago. and Vice-Chairman, Dr. Frederick M. Jacob, Pittsburgh, for the ensuing year; delegate, Dr. Winfred A. Showman, Tulsa, Okla., and alternate delegate, Dr. Maurice J. Costello, New York, for three-year terms beginning Jan. 1, 1957; representative to the Scientific Exhibit, Dr. Stanley E. Huff, Evanston, Ill., for the ensuing three years. The Secretary, Dr. Clarence S. Livingood, Detroit, was elected at the Atlantic City Annual Meeting in 1955, for a three-year term to end in 1958. Representatives to the American Board of Dermatology also were elected: Dr. Beatrice M. Kesten, New York, for a three-year term, and Dr. Walter Lobitz, Hanover, N. H., for two years to fill the unexpired term of Dr. George M. Lewis, New York.

SECTION ON DISEASES OF THE CHEST

Two meetings of the Section on Diseases of the Chest were held in the Ballroom of the Knickerbocker Hotel on Wednesday and Thursday morning, June 13 and 14, 1956, the second meeting being held jointly with the Section on Radiology. The third meeting of the Section was a joint session with the Section on General Practice in the Gold Coast Room of the Drake Hotel on Friday morning, June 15.

The business meeting of the Section took place on Wednesday morning, June 13, and Dr. John F. Briggs, St. Paul. Minn., Secretary, served as Chairman in the absence because of illness of Dr. Edgar T. Mayer, New York, who had been appointed Chairman subsequent to the 1955 meeting on the resignation of the regularly elected Chairman, Dr. Edward W. Hayes of Monrovia, Calif.

At the business meeting, the following officers were elected: Chairman. Dr. John F. Briggs, St. Paul. Minn., and Vice-Chairman. Dr. M. Jay Flipse, Miami, Fla., for the ensuing two years; Secretary, Dr. Burgess L. Gordon, Philadelphia, for the ensuing five years: delegate, Dr. Hollis E. Johnson, Nashville, Tenn., and alternate delegate, Dr. J. Winthrop Peabody, Washington, D. C., for two-year terms beginning Jan. 1, 1957, representative to the Scientific Exhibit, Dr. Edwin R. Levine, Chicago, for the ensuing three years.

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

The Section on Experimental Medicine and Therapeutics held an executive committee meeting at 7:30 a. m., Tuesday, June 12, 1956, in Room 12 at the Palmer House. Drs. Thomas Findley, Harry F. Dowling, Edgar V. Allen, and George E. Burch were in attendance. The problems of the Section and the candidates for offices were discussed. In addition it was decided to continue meeting in conjunction with the Section on Internal Medicine on the fourth day of the Annual Meeting.

The sessions of the Section were held in the ballroom of the Sheraton Hotel on Tuesday, Wednesday, and Thursday morning, June 12, 13, and 14, the Thursday morning session being a joint meeting with the Section on Internal Medicine.

At the business meeting on Wednesday, June 13, the following officers were elected: Chairman, Dr. Harry F. Dowling, Hinsdale, Ill., and Vice-Chairman, Dr. George E. Burch, New Orleans, for the ensuing year; Secretary, Dr. Elliott V. Newman, Nashville, Tenn., for the ensuing three years. The terms of Drs. Edgar V. Allen, Rochester, Minn., and Robert D. Taylor, Marshfield, Wis., delegate and alternate delegate respectively, do not expire until Dec. 31, 1958. The same is true with respect to the term of Dr. Joseph F. Ross, Los Angeles, representative to the Scientific Exhibit.

Dr. Thomas Findley, Chairman, presided over the Section meetings on Tuesday and Wednesday, and the papers and discussions were presented as listed in the official program.

SECTION ON GASTROENTEROLOGY AND PROCTOLOGY

Meetings of the Section on Gastroenterology and Proctology were held on Tuesday, Wednesday, and Thursday afternoon. June 12, 13, and 14, 1956, in the University of Illinois Gymnasium on Navy Pier, the session on Thursday being a joint meeting with the Section on Pathology and Physiology.

The following officers were elected at the business meeting on Wednesday, June 13: Chairman, Dr. Robert A. Scarborough, San Francisco, Vice-Chairman, Dr. Everett D. Kiefer. Boston, and Secretary, Dr. William H. Dearing, Rochester, Minn., for the ensuing year: delegate, Dr. Stuart T. Ross, Garden City, N. Y., and alternate delegate, Dr. Garnet W. Ault, Washington, D. C., for two-year terms beginning Jan. 1, 1957. Drs. Willard H. Bernhoft, Buffalo, and George G. McHardy, New Orleans. were elected representatives to the Scientific Exhibit for the ensuing year.

SECTION ON GENERAL PRACTICE

The Section on General Practice met in the Gold Coast Room of the Drake Hotel on the mornings of Tuesday, Wednesday, and Thursday, June 12, 13, and 14, 1956. The Thursday morning session was a joint meeting with the Section on Diseases of the Chest. All three meetings were presided over by Dr. I. Phillips Frohman, Washington, D. C., Chairman of the Section on General Practice.

Dr. Lester D. Bibler, Indianapolis, Section delegate, presented a comprehensive report of actions of the House of Delegates at the Boston Interim Meeting and of his own activities in the interest of the Section.

Papers were presented as listed in the official program with the exception of one presentation scheduled for the joint meeting. the author being unable to attend because of official duties elsewhere.

Officers were elected at the business meeting on Wednesday, June 13, as follows: Chairman, Dr. George L. Thorpe, Wichita. Kan., and Vice Chairman, Dr. Charles E. McArthur, Olympia. Wash., for the ensuing year; delegate, Dr. Lester D. Bibler. Indianapolis, and alternate delegate, Dr. Milton B. Casebolt. Kansas City. Mo., for two-year terms beginning Jan. 1, 1957; representative to the Scientific Exhibit. Dr. I. Phillips Frohman, Washington. D. C., for the ensuing year. The Secretary, Dr. Eugene I. Baumgartner, Oakland, Md., was elected in 1954 for a four-year term ending in 1958.

SECTION ON INTERNAL MEDICINE

A luncheon meeting of the past chairmen, the present executive committee, and the trustees of the Billings Fund of the Section on Internal Medicine was held at the Sheraton Hotel on Tuesday, June 12, 1956. Those present were Drs. Henry M. Thomas Jr., Walter L. Bierring, Charles T. Stone Sr., Ovid O. Meyer, Walter L. Palmer, Roy W. Scott, and A. Carlton Ernstene. Minutes of the executive committee meeting on June 8, 1955. were approved, and it was noted that Dr. Jerome W. Conn. who had been elected representative to the Scientific Exhibit, was unable to accept, and that Dr. Henry T. Ricketts, Chicago, was appointed in Dr. Conn's place.

The scientific meetings of the Section were held on Tuesday, Wednesday, and Thursday afternoon, June 12, 13, and 14, in the Ballroom of the Sheraton Hotel, the third session being a joint meeting with the Section on Experimental Medicine and Therapeutics. Dr. Henry M. Thomas Jr., Baltimore, Chairman, Section on Internal Medicine, presided over the three sessions except for the latter half of the joint meeting when Dr. Ovid O. Meyer, Madison, Wis., Vice-Chairman of the Section on Internal Medicine, assumed the chair. All papers and discussions thereon were presented as listed in the official program.

The following officers were elected at the business meeting on June 13: Chairman, Dr. A. Carlton Ernstene, Cleveland, Vice-Chairman, Dr. Paul B. Beeson, New Haven, Conn., and representative to the Scientific Exhibit, Dr. Henry T. Ricketts, Chicago, for the ensuing year; delegate, Dr. Charles T. Stone Sr., Galveston, Texas, and alternate delegate, Dr. Richard B. Capps, Chicago, for two-year terms beginning Jan. 1, 1957. There were no vacancies on the board of trustees of the Billings Fund. The present trustees are the members of the executive committee of the Section on Internal Medicine and Drs. Walter L. Bierring, Truman G. Schnabel, and Walter L. Palmer. Dr. Robert Loeb, New York, was selected to deliver the Billings Lecture in 1957, and Drs. John R. Paul, New Haven, Conn., and Sidney Burwell, Boston, were chosen first and second alternate respectively.

SECTION ON LARYNGOLOGY, OTOLOGY, AND RHINOLOGY

The Section on Laryngology, Otology, and Rhinology met in Thorne Hall of Northwestern University on Tuesday, Wednesday, and Thursday morning, June 12, 13, and 14, 1956.

Dr. John R. Lindsay, Chicago, Chairman, presided over the meetings, and all papers were read and discussed as presented in the Official Program.

The delegate of the Section, Dr. Gordon F. Harkness, Davenport, Iowa, also Honorary Chairman of the Section, presented a report on his work as a member of the House of Delegates.

At the business meeting of Thursday, June 13, the following officers were elected: Chairman, Dr. Gordon D. Hoople, Syracuse, N. Y., Vice-Chairman, Dr. Kenneth L. Craft, Indianapolis, and representative to the Scientific Exhibit, Dr. Walter E. Heck, San Francisco, for the ensuing year; Secretary, Dr. Hugh A. Kuhn, Hammond, Ind., for a term of three years ending in 1959. The delegate, Dr. Gordon F. Harkness, Davenport, Iowa, and the alternate delegate, Dr. Dean Lierle, Iowa City, were elected in 1955 for two-year terms ending Dec. 31, 1957.

SECTION ON MILITARY MEDICINE

The meetings of the Section on Military Medicine were held in the Cinema Theater on Tuesday, Wednesday, and Thursday morning, June 12, 13, and 14, 1956, and were presided over by the Chairman, Dr. H. Lamont Pugh, Bethesda, Md.

All of the papers, and discussions thereon were presented as listed in the official program.

At the business meeting on Wednesday, June 13, officers were elected as follows: Chairman, Dr. Russel V. Lee, Palo Alto, Calif.; Vice-Chairman, Dr. Silas B. Hays, Washington, D. C.; secretary, Dr. Cecil L. Andrews, Washington, D. C.; representative to the Scientific Exhibit, Dr. Frank M. Townsend, Washington, D. C. All of the foregoing officers were elected to serve for the ensuing year. The delegate, Dr. Charles L. Leedham, Cleveland, and the alternate delegate, Dr. Charles P. Campbell, Hackensack, N. J., were elected in 1955 for two-year terms ending Dec. 31, 1957.

SECTION ON MISCELLANEOUS TOPICS

Session on Allergy

A Session on Allergy was held in the Section on Miscellaneous Topics on the morning of Thursday, June 14, 1956, in the Walton Room of the Drake Hotel.

Drs. Stanley F. Hampton, St. Louis, and Lawrence J. Halpin, Cedar Rapids, Iowa, Co-Chairmen, presided over the session. The papers as listed in the official program were presented, and some were discussed from the floor.

SECTION ON NERVOUS AND MENTAL DISEASES

The Section on Nervous and Mental Diseases met on Tuesday, Wednesday, and Thursday morning, June 12, 13, and 14, 1956, in the ballroom of the Drake Hotel.

Dr. Lee M. Eaton, Rochester, Minn., Chairman, presided. All of the papers listed on the official program were read by the proper authors and were discussed by those named for that purpose.

The business meeting of the Section took place on Wednesday, June 13, and the following officers were elected: Chairman, Dr. Karl O. Von Hagen, Los Angeles, and Vice-Chairman, Dr. Frank H. Mayfield, Cincinnati, for the ensuing year; Secretary, Adolph L. Sahs, Iowa City, and representative to the Scientific Exhibit, Dr. Benjamin Boshes, Chicago, for the ensuing three years; delegate, Dr. Francis M. Forster, Washington, D. C., and alternate delegate, Dr. G. Wilse Robinson Jr., Kansas City, Mo., for two-year terms beginning Jan. 1, 1957; representative to the American Board of Psychiatry and Neurology, Dr. Lee M. Eaton, Rochester, Minn.

Dr. Forster reported concerning activities of the House of Delegates. The report on the American Board of Psychiatry and Neurology was read by the Secretary, Dr. Karl O. Von Hagen, Los Angeles, and was approved as read. The Secretary read the report of the representative to the American Board of Neurological Surgery, which was approved.

SECTION ON OBSTETRICS AND GYNECOLOGY

The meetings of the Section on Obstetrics and Gynecology were held in the Gold Coast Room of the Drake Hotel on Tuesday, Wednesday, and Thursday afternoon, June 12, 13, and 14, 1956. The Thursday afternoon session was a joint meeting with the Section on Urology. Dr. Frank R. Lock, Washington, D. C., Chairman of the Section on Obstetrics and Gynecology, presided over the three meetings.

The panel discussions and papers were presented as listed in the official program.

At the business meeting on Wednesday, June 13, it was reported that a Resolution on Straight Internships in Obstetrics and Gynecology which had been adopted by the Section and introduced in the House of Delegates by the delegate, Dr. Ralph E. Campbell, Madison, Wis., had not been approved by the House.

The following officers were elected: Chairman, Dr. D. Frank Kaltreider, Baltimore, Vice-Chairman, Dr. Woodard D. Beacham, New Orleans, and representative to the Scientific Exhibit, Dr. Frederick H. Falls, Oak Park, Ill., for the ensuing year; secretary, Dr. Keith P. Russell, Los Angeles, for the ensuing three years; delegate, Dr. Ralph E. Campbell, Madison, Wis., and alternate delegate, Dr. Roy J. Heffernan, Brookline, Mass., for two-year terms beginning Jan. 1, 1957. Drs. F. Bayard Carter, Durham, N. C., Robert A. Kimbrough, Philadelphia, and Robert L. Faulkner, Cleveland, were reelected to represent the Section on the American Board of Obstetrics and Gynecology.

SECTION ON OPHTHALMOLOGY

The Section of Ophthalmology held its meetings on Tuesday, Wednesday, and Thursday afternoon, June 12, 13, and 14, 1956, in Thorne Hall of Northwestern University. It also held a special business meeting on Tuesday evening, June 12.

With the exception of a portion of the Wednesday afternoon meeting, during which the Vice-Chairman, Dr. John B. Hitz, Milwaukee, was in the Chair, the Chairman, Dr. Albert B. Reudemann Sr., Detroit, presided. All of the papers were read and discussed as listed in the official program.

At the business meeting on Wednesday afternoon, the following officers were elected: Chairman, Dr. Algernon B. Reese, New York, Vice-Chairman, Dr. Hedwig S. Kuhn, Hammond, Ind., and representative to the Scientific Exhibit, Dr. Frank W. Newell, Chicago, for the ensuing year; Secretary, Dr. Harold G. Scheie, Philadelphia, for the ensuing three years; delegate, Dr. Ralph O. Rychener, Memphis, Tenn., and alternate delegate, Dr. Harvey E. Thorpe, Pittsburgh, for two-year terms beginning Jan. 1, 1957.

The following actions were taken by the executive committee of the Section at the special business meeting on Tuesday evening:

Reports of the following-named committees of the Section were accepted as given:

American Committee on Optics and Visual Physiology
Committee on the American Board of Ophthalmology
Registry of Ophthalmic Pathology
Scientific Exhibit of the Section on Ophthalmology
Committee on Museum of Ophthalmic History
Committee on Nomenclature of the Section on Ophthalmology
Committee on the American Orthoptic Council
Committee on Industrial Ophthalmology
Representative to the College of Surgeons, Board of Governors
Report of the Lucien Howe Fund
Report of the Delegate to the House of Delegates
Report of the Representative to the Pan American Congress
Committee on Eye Banks
Committee on Civil Defense
Committee on Ophthalmology in Government Services
Committee on Knapp Testimonial Fund
Committee on Research in Eye Diseases

Committee members and Section representatives were appointed or reappointed as follows: Dr. Arthur Linksz reappointed to American Committee on Optics and Visual Physiology for three years; Dr. Wilbur C. Rucker appointed to Committee on American Board of Ophthalmology for four years; Dr. Algernon B. Reese appointed to succeed Dr. Jonas Friedenwald on Committee on National Museum of Ophthalmic Pathology; Drs. Burton Chance, chairman, Hans Barkan, and Frederick C. Cordes reappointed to Committee on Museum of Ophthalmic History; Dr. Conrad Berens reappointed on Committee to National Conference on Medical Nomenclature; Dr. Robert E. Laughlin appointed to Committee on American Orthoptic Council for three years; Dr. Parker Heath reappointed as delegate and Dr. W. Guernsey Frey as alternate to International Congress of Ophthalmology; Dr. James H. Allen reappointed as delegate to Pan American Congress; Drs. A. D. Ruedemann Sr., and Michael J. Hogan appointed as delegates to National Committee for Research in Eye Diseases; Drs. Ralph O. Rychener, chairman, Charles E. Jackle, J. Spencer Dryden, Edwin F. Tait, Everett L. Goar, Barnet R. Sakler, A. D. Ruedemann, and Alson E. Braley reappointed to Committee on Public Relations; Drs. William A. Mann, chairman, P. Robb McDonald, and Warren Wilson appointed to Committee on Civil Defense; Drs. Brittain F. Payne, chairman, J. H. King Jr., W. Maxwell Thomas, James H. Allen, and George L. Tabor Jr., reappointed to the Committee on Ophthalmology in Government Services.

The Section decided to discontinue its participation in the present Joint Committee on Industrial Ophthalmology and to submit to the Council on Industrial Health of the A.M.A. the names of six ophthalmologists for the selection of two as members of a new joint committee to be composed of representatives of the Section, the American Academy of Ophthalmology and Otolaryngology, and the American Ophthalmological Society.

The Section nominated three members, Drs. James N.
C [illegible] ohn Matthews, and John Long for the selection of
[illegible] Board of Governors of the American College of
[illegible] s to be elected as the Section representative on that

The Section accepted the recommendation of its Committee on Eye Banks to form a Joint Committee on Eye Banks, with the following organizations participating: Section on Ophthalmology, American Ophthalmological Society, Academy of Ophthalmology and Otolaryngology, and Association for Research in Ophthalmology. The present committee of the Section will be continued until the joint committee is organized.

The Knapp Medal was not awarded for 1954.

It was decided to discontinue publication of the Section Transactions, and it was announced that the A. M. A. *Archives of Ophthalmology* would publish the Transactions in a special issue containing a report of the business session, committee reports, and the scientific papers and discussions.

The Prize in Ophthalmology, a gold medal, was awarded to Dr. Derrick Vail by Dr. Trygve Gundersen.

The $250 prize for the best exhibit was awarded to Dr. Bertha A. Klien for her exhibit on "Survey of the Pathogenesis of Retinal Vein Occlusions."

Dr. T. E. Sanders was awarded the $250 prize for his paper entitled, "Fungus Keratitis," judged on the basis of presentation and originality.

Members of the Committee on Award of the Knapp Medal were elected unanimously as follows: Drs. Charles K. W. Ascher, chairman, Derrick Vail, and Francis H. Adler.

The report of the Committee on Public Relations was read and approved, and two new members of this committee, Drs. Barnet Sakler and Alson E. Braley, were appointed.

Two resolutions were adopted and referred to the Section delegate, Dr. William L. Benedict, for introduction in the House of Delegates.

NOTE: These resolutions, No. 51 and No. 52, will be found in the abstract of the Proceedings of the House in the Oct. 6 issue of THE JOURNAL.

Dr. Ralph H. Pino contributed a statement on "Distribution Responsibilities of the Specialties Represented in the Scientific Assembly."

SECTION ON ORTHOPEDIC SURGERY

The meetings of the Section on Orthopedic Surgery were held on Tuesday, Wednesday, and Thursday afternoon, June 12, 13, and 14, 1956, in the ballroom of the Lake Shore Club. The Thursday afternoon session was a joint meeting with the Section on Physical Medicine.

At the business meeting on June 13, the following officers were elected: Chairman, Dr. Edward L. Compere, Chicago, Vice-Chairman, Dr. Frederick R. Thompson, New York; Secretary, Dr. H. Herman Young, Rochester, Minn.; delegate, Dr. H. Relton McCarroll, St. Louis; alternate delegate, Dr. Robert J. Joplin, Brookline, Mass.; representative to the Scientific Exhibit, Dr. James I. Kendrick, Cleveland, Drs. J. Vernon Luck, Los Angeles, Edward R. Schottstaedt, San Francisco, and George O. Eaton, Baltimore, were elected to represent the Section on the American Board of Orthopaedic Surgery.

SECTION ON PATHOLOGY AND PHYSIOLOGY

The Section on Pathology and Physiology met on Tuesday and Wednesday afternoon, June 12 and 13, 1956, in the Walton Room of the Drake Hotel, and on Thursday afternoon, June 14, in a joint meeting with the Section on Gastroenterology and Proctology in the University of Illinois Gymnasium on Navy Pier.

Dr. Roger D. Baker, Chairman, Durham, N. C., presided over the meetings, and all papers were read and a panel discussion conducted as listed in the official program.

The following officers were elected at the business meeting on Wednesday, June 13: Chairman, Dr. H. Russell Fisher, Pasadena, Calif., Vice-Chairman, Dr. Edwin F. Hirsch, Chicago, and representative to the Scientific Exhibit, Dr. Samuel A. Levinson, Chicago, for the ensuing year; Secretary, Dr. Hugh A. Edmonson, Los Angeles, for the ensuing three years. The delegate and alternate delegate, Drs. Lall G. Montgomery, Muncie, Ind., and Harry J. Corper, Denver, were elected in 1955 for two-year terms ending Dec. 31, 1957.

SECTION ON PEDIATRICS

The meetings of the Section on Pediatrics were held in the Tally Ho Room of the Sheraton Hotel on Tuesday, Wednesday, and Thursday morning, June 12, 13, and 14, 1956, the Tuesday morning session being a joint meeting with the Section on Preventive and Industrial Medicine and Public Health.

Both Dr. F. Thomas Mitchell, Chairman, Memphis, Tenn., and Dr. Edward P. Luongo, Los Angeles, Chairman of the Section on Preventive and Industrial Medicine and Public Health, presided over the joint meeting on Tuesday, and Dr. Mitchell occupied the Chair at the Wednesday and Thursday meetings. All papers were read as listed in the official program, and some were discussed from the floor.

The business meeting was held on June 13. Dr. Hugh Dwyer presented the report of the Abraham Jacobi Fund, stating there is a balance of $5,473 in the account. A resolution was adopted which instructed the secretary to request from the American Board of Pediatrics a copy of its constitution and bylaws; a financial statement which shall include salaries paid; and information as to whether appointments to the Board by the Section are mandatory or may be rejected. The resolution also provided that the American Academy of Pediatrics be urged to make the same request. Dr. Woodruff L. Crawford, Rockford, Ill., made a brief report of his work as a member of the House of Delegates representing the Section.

The following officers were elected: Chairman, Dr. M. G. Peterman, Milwaukee, Vice-Chairman, Dr. Alfred E. Fischer, New York, and representative to the Scientific Exhibit, Dr. F. Thomas Mitchell, Memphis, Tenn., for the ensuing year; delegate, Dr. Woodruff L. Crawford, Rockford, Ill., and alternate delegate, Dr. Walter B. Stewart, Atlantic City, N. J., for two-year terms beginning Jan. 1, 1957. The Secretary was elected in 1955 for the ensuing three years.

SECTION ON PHYSICAL MEDICINE

Meetings of the Section on Physical Medicine were held on Tuesday and Wednesda afternoon, June 12 and 13, 1956, in the Oceanic Room of the Knickerbocker Hotel, and on Thursday, June 14, a joint meeting was held with the Section on Orthopedic Surgery in the ballroom of the Lake Shore Club.

All of the papers and a panel discussion were presented as listed on the program.

At the business meeting on Wednesday, June 13, the following officers were elected: Chairman, Dr. Louis B. Newman, Chicago, Vice-Chairman, Dr. Miland E. Knapp, Minneapolis, and representative to the Scientific Exhibit, Dr. Donald A. Covalt, New York, for the ensuing year; Secretary, Dr. Walter J. Zeiter, Cleveland, for the ensuing three years; delegate, Dr. Frank H. Krusen, Rochester, Minn., for a two-year term beginning Jan. 1, 1957. The alternate delegate, Dr. Arthur L. Watkins, Boston, was elected in 1955 for a two-year term ending Dec. 31, 1957.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

A joint meeting with the Section on Pediatrics was held on Tuesday morning, June 12, 1956, in the Tally Ho Room of the Sheraton Hotel. Dr. Edward P. Luongo, Chairman, Los Angeles, and Dr. F. Thomas Mitchell, Memphis, Tenn., Chairman of the Section on Pediatrics, presided over the joint session. The other meetings of the Section on Preventive and Industrial Medicine and Public Health were held on Wednesday and Thursday morning, June 13 and 14, in the Cinema Theater, the Thursday session being a joint meeting with the American Association of Public Health Physicians.

Dr. Luongo presided over the Wednesday morning meeting and Dr. Bruce Underwood, Washington, D. C., over the Thursday session. Papers were presented and discussed as listed in the official program.

The following officers were elected at the business meeting on June 13: Chairman, Dr. Edward J. Tracy, Dayton, Ohio, Vice-Chairman, Dr. Bruce Underwood, Washington, D. C., and representative to the Scientific Exhibit, Dr. Paul A. Davis, Akron, Ohio, for the ensuing year; delegate, Dr. Rutherford T. Johnstone, Los Angeles, and alternate delegate, Dr. Oscar A. Sander, Milwaukee, for two-year terms beginning Jan. 1, 1957. The secretary, Dr. Frank Princi, Cincinnati, was elected at a previous annual meeting to serve until 1960.

The Section adopted a resolution on periodic physical examinations, which was referred to the Section delegate for presentation in the House of Delegates.

NOTE: The resolution, No. 54, will be found in the abstract of the Proceedings of the House in the Oct. 6 issue of The Journal.

SECTION ON RADIOLOGY

The Section on Radiology held meetings on Tuesday and Wednesday morning, June 12 and 13, 1956, in the ballroom of the Lake Shore Club, and a joint meeting with the Section on Diseases of the Chest on Thursday morning, June 14, in the ballroom of the Knickerbocker Hotel. Dr. Leo P. Rigler, Duarte, Calif., Chairman of the Section on Radiology, presided at all three meetings.

All papers and discussions were presented as listed in the official program.

At the business meeting on Wednesday, June 13, officers were elected as follows: Chairman, Dr. Donald S. Childs, Syracuse, N. Y., Vice-Chairman, Dr. Wendell G. Scott, St. Louis, and representative to the Scientific Exhibit, Dr. Richard H. Chamberlain, Philadelphia, for the ensuing year; delegate, Dr. Byrl R. Kirklin, Rochester, Minn., and alternate delegate, Dr. Eugene P. Pendergrass, Philadelphia, for two-year terms beginning Jan. 1, 1957; representative to the American Board of Radiology, Dr. Ernest Harvey Wood, Chapel Hill, N. C., for a term of six years. The term of the Secretary, Dr. Traian Leucutia, Detroit, does not expire until the annual meeting in 1957.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

The meetings of the Section on Surgery, General and Abdominal, were held on Tuesday, Wednesday, and Thursday morning, June 12, 13, and 14, 1956, in the University of Illinois Gymnasium on Navy Pier. The first meeting was presided over by the Chairman, Dr. Waltman Walters, Rochester, Minn., and Dr. Walters shared the Chair during the other two meetings with the Vice-Chairman, Dr. Robert E. Gross, Boston.

The papers and discussions were delivered as indicated in the official program.

The time of the business meeting of the Section on Wednesday, June 13, was changed to the end of the session rather than at the beginning as scheduled, on motion of Dr. Henry Ransom, Ann Arbor, Mich., seconded by Dr. Claude Hunt, Kansas City, Mo., and unanimously carried.

Dr. René Fontaine, Professor and Dean of the Faculty of Medicine, Strasbourg, France, was presented to the members and guests in attendance. Dr. Fontaine spoke glowingly of the contribution made by American surgeons in the field of cardiovascular surgery.

A report was given by Dr. Grover C. Penberthy, Detroit, Section delegate, regarding the work of the House of Delegates.

A report on the American Board of Surgery was given by the Section representative to the Board, Dr. John M. Waugh, Rochester, Minn.

The following officers were elected: Chairman, Dr. Walter G. Maddock, Chicago, Vice-Chairman, Dr. Henry K. Ransom, Ann Arbor, Mich., and representative to the Scientific Exhibit, Dr. John H. Mulholland, New York, for the ensuing year; Secretary, Dr. Gustaf E. Lindskog, New Haven, Conn., for the ensuing three years; delegate, Dr. Grover C. Penberthy, Detroit, for a term of one year beginning Jan. 1, 1957.

SECTION ON UROLOGY

The Section on Urology met on Tuesday and Wednesday afternoon, June 12 and 13, 1956, in the ballroom of the Drake Hotel, and on Thursday afternoon, June 14, in a joint meeting with the Section on Obstetrics and Gynecology in the Gold Coast Room of the Drake Hotel. The Chairman, Dr. Rubin H. Flocks, Iowa City, presided at the meetings on June 12 and 13, and the Chairman of the Section on Obstetrics and Gynecology, Dr. Frank R. Lock, Winston-Salem, N. C., at the June 14 joint session.

All papers and discussions were delivered as listed in the official program.

John A. Morrissey awards were presented to Drs. Donald E. Burke and Chester Winter, Los Angeles, and to Drs. Eugene F. Poutasse, William J. Engel, and Harriet Dustan, Cleveland, for excellent scientific exhibits demonstrated at this session.

At the business meeting on Wednesday, June 13, the following officers were elected: Chairman, Dr. Stanford W. Mulholland, Philadelphia, and Vice-Chairman, Dr. Roger W. Barnes, Los Angeles, for the ensuing year; Secretary, Dr. Thomas A. Morrissey, New York, and representative to the Scientific Exhibit, Dr. Milton M. Coplan, Miami, Fla., for the ensuing three years; delegate, Dr. Jay J. Crane, Los Angeles, and alternate delegate, Dr. Earl E. Ewert, Boston, for two-year terms beginning Jan. 1, 1957.

MEDICAL NEWS

CALIFORNIA

Memorial Course in Surgery.—The San Francisco Academy of General Practice will dedicate a new surgical refresher course, to be given at the Fort Miley Veterans Administration Hospital, San Francisco, to the memory of the late Dr. Francis T. Hodges, president of the California Academy of General Practice, who died Aug. 15 in Santa Barbara. The tentative program is as follows: Oct. 23, thoracic surgery clinic; Oct. 30, surgical technique clinic, Nov. 6, traumatic surgery clinic; Nov. 13, preoperative and postoperative care clinic; Nov. 20, practical office procedure clinic, Nov. 27, breast clinic. Those desiring information should contact Dr. Lawrence M. Trauner, 450 Sutter St., San Francisco.

Seminar on Neuromuscular Disabilities.—A seminar, "Comprehensive Patient Care and Rehabilitation of Selected Neuromuscular Disabilities," will be presented jointly by the Orthopaedic Hospital and the Rancho Los Amigos Hospital, Los Angeles, Oct. 22-26. This seminar, aided by a grant from the National Foundation for Infantile Paralysis, is open to physicians, who may apply to their local chapters of the foundation for financial assistance. Guest speakers will include Drs. Jessie Wright, Leetsdale, Pa., Edwin R. Schottstaedt, San Francisco; Elizabeth S. Austin, Los Angeles, and Cyril B. Courville, Los Angeles. The fee is $15; lunch for the five days (available at both hospitals) is $4. Those enrolled are invited to be guests of the two hospitals for a buffet supper preceding the Wednesday evening program.

DISTRICT OF COLUMBIA

Lecture by Dr. Pack.—Dr. George T. Pack, New York, will lecture on "The Philosophy of Cancer Therapy," Oct. 22 in Washington, D. C., at the first meeting of a new lecture series and Interschool Student Cancer Society (under the sponsorship of the local hospitals, medical schools, and American Cancer Society).

ILLINOIS

Chicago

Medical History Meeting.—The Society of Medical History of Chicago will hold an open meeting at the Institute of Medicine (fourth floor, 86 E. Randolph St.), Oct. 17, 8 p. m. Dr. Francis J. Gerty, head, department of psychiatry, University of Illinois College of Medicine, will speak on "The Story of Three Women," and Dr. Joseph H. Kiefer, associate professor, department of urology, University of Illinois College of Medicine, on "The History of Lithotomy." All are welcome.

Society News.—The Jackson Park branch of the Chicago Medical Society, in cooperation with the Chicago Heart Association, will meet at the University of Chicago, Pathology 117 (Amphitheater), 950 E. 59th St., Oct. 18. A fellowship hour at 6 p m. will precede dinner and the scientific meeting at 8 p. m. Dr. Ormand C. Julian, associate professor in surgery, University of Illinois College of Medicine, will discuss "Cardiovascular Conditions Amenable to Surgery." Physicians are welcome. Reservations for the dinner should be made by noon Oct. 18 through Dr. William J. Hand (SAginaw 1-2480).

Cancer Lecture Series.—Northwestern University Medical School announces its annual series of cancer lectures to be presented in the auditorium of the Veterans Administration Research Hospital, 333 E. Huron St., 5-6 p. m. on Wednesday evenings. The program, under the direction of Dr. William B. Wartman, chairman, department of pathology at the medical school, began Oct. 3, when Dr. Shields Warren, Cancer Research Institute, New England Deaconess Hospital, Boston, lectured on "The Effect of Radiation on Populations." "Neoplasia and Endocrine Imbalance in the Parakeet" was discussed on Oct. 10 by Dr Hans G. Schlumberger, Ohio State University College of Medicine, Columbus. Remaining lectures include

Oct 17, Debatable Tumors, Danely P. Slaughter, University of Illinois College of Medicine.

Oct 24, Effects of Multimillion Volt Irradiation on Treatment of Cancer, Roger A. Harvey, University of Illinois College of Medicine

Oct 31, Tumors of the Soft Tissues, Arthur P Stout, Columbia University College of Physicians and Surgeons, New York.

Nov 7, Surgery of Hepatic Neoplasms, Alexander Brunschwig, Cornell University Medical College, New York

Nov 14, Diagnosis and Treatment of Neoplasms of the Lung, Rollin A Daniel Jr, Vanderbilt University School of Medicine, Nashville, Tenn

Nov 21, Management and Care of the Patient with Inoperable and Terminal Cancer, John S LaDue, Cornell University Medical College, New York

IOWA

Coxsackie Disease in Iowa.—In its communicable disease summary for the week ended Sept. 15, the U. S. Public Health Service reports that Dr. Ralph H. Heeren, Iowa State Department of Health, has received a report of the isolation of Coxsackie B-5 virus from 21 patients living in three different counties in the state. In July a small outbreak of illness occurred in Polk County. The cases, originally diagnosed as nonparalytic poliomyelitis, were characterized by severe headache, stiffness of the neck and back, joint and muscle aches and pains, pleurodynia, nausea, and vomiting. The period of acute illness varied from five to seven days. Recovery was complete within 10 to 14 days The Coxsackie B-5 virus was isolated from the stools of six of the patients. Later in July, with the aid of several staff members from the Public Health Service Kansas City field station, a detailed study was made in Cerro Gordo County. Medical histories and laboratory specimens were obtained from about 200 persons with an illness similar to that reported in Polk County. To date, Coxsackie B-5 virus has been isolated from the stools of 13 persons. The same virus has been isolated from persons in Dubuque County.

KANSAS

School Health Conference.—A school health conference is scheduled at the University of Kansas Medical Center Oct. 22-23, for discussion of heart disease and pulmonary disease. Information is available from the Department of Postgraduate Medicine, University of Kansas School of Medicine, Kansas City 12

KENTUCKY

Fellowship Openings.—Applications for fellowship stipends in child psychiatry (two first-year fellowships, $3,400) are being considered from Oct. 1 to Dec. 1 at the Louisville Child Guidance Clinic, a fully accredited training center. Details may be obtained from Dr. S. Spafford Ackerly, University Medical Center, 206 E. Chestnut St., Louisville 2

MISSISSIPPI

Academic Dedication.—The University of Mississippi School of Medicine, Jackson, will hold an academic dedication Oct. 23-24 (approved for credit, 10 hours category 1, American Academy of General Practice). Papers to be presented include the following:

The Problems of Intersexuality, F. Bayard Carter, Durham, N C

Psychiatry and Undergraduate Medical Education, George N. Raines, Washington, D. C.

Certain Unsolved Problems in Amoebiasis, Henry E. Meleney, New Orleans

Nutrition and Atherosclerosis, Fredrick J. Stare, Boston

The Place of Pathology in Medicine of the Future, Douglas H Sprunt, Memphis, Tenn

Pediatric Diagnostic Problems, Amos Christie, Nashville, Tenn

X-Ray Screen Intensification and Its Import in Clinical and Experimental Medicine, Russell H. Morgan, Baltimore

Contribution of Pyramidal and Extrapyramidal System to the Use of Skeletal Muscle in the Primate, Marion Hines, Ph D, Emory University, Ga

---

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Topic to be announced, Isidor S. Ravdin, Philadelphia.

Basic Physiology as a Clinical Science, Carl J. Wiggers, Cleveland.

Experimental Study of Combined Viral and Bacterial Infections, G. John Buddingh, New Orleans.

The Challenge of Mood-Altering Drugs, Chauncey D. Leake, Ph.D., Columbus, Ohio.

A tour of the University Medical Center will be conducted at 12 noon on Tuesday and Wednesday. Alton C. Bryant, provost of the University of Mississippi, will preside over a dinner, Tuesday, 7 p. m., at the Heidelberg Hotel, when Joseph C. Hinsey, Ph.D., director of the New York Hospital–Cornell Medical Center, will speak.

NEW YORK

Cardiac Teaching Day.—A cardiac teaching day will be held Oct. 18, beginning at 2:30 p. m. in the Educational Building, Charles S. Wilson Memorial Hospital, Johnson City. Dr. Howard A. Eder, New York, will speak on the relation between diet and atherosclerosis, which will be followed by "Special Problems in the Treatment of Congestive Heart Failure" by Dr. Arthur C. DeGraff, New York, and "Office Fluoroscopy and Recent Advances in Roentgen Diagnosis of Heart Disease" by Dr. Israel Steinberg, New York. The reception at the hospital, 5:30 p. m., will be followed by dinner (6:45 p. m., courtesy of the Endicott-Johnson medical department) at the Endicott-Johnson Recreation Center in Johnson City. At 8 p.m. Dr. Irving S. Wright, professor of clinical medicine, Cornell University Medical College, New York, will deliver a paper on "Cerebral Vascular Diseases." Expenses are underwritten jointly by the Broome County Medical Society, the Heart Committee of the Health Association of Broome County, the New York State Department of Health, and the Medical Society of the State of New York. Postgraduate credit will be given to members of the American Academy of General Practice.

Conference on Meprobamate.—The New York Academy of Sciences will present a conference on meprobamate and other agents used in mental disturbances Oct. 18-19 at the Barbizon-Plaza Hotel (101 W. 58th St. at 6th Avenue). Co-chairmen are Dr. James G. Miller, Mental Health Research Institute, University of Michigan, Ann Arbor, Mich., and Dr. Frank M. Berger, medical director, Wallace Laboratories, New Brunswick, N. J. The opening session Thursday 9 a. m., under the chairmanship of Dr. Harry Beckman, Marquette University School of Medicine, Milwaukee, will be concerned with "Chemistry, Pharmacology and Mode of Action of Meprobamate." "The Treatment of Psychoneurotic Conditions" will be the subject of the afternoon session, under the chairmanship of Dr. Edwin F. Gildea, Washington University School of Medicine, St. Louis. At 5:30 p. m. a cocktail hour will be held at the academy building. Main themes Friday will include "The Treatment of Psychiatric and Other Conditions with Meprobamate" (session chairman, Dr. Harry C. Solomon, Harvard Medical School, Boston) and "Use of Meprobamate in Muscle Spasm" (session chairman, Dr. H. Houston Merritt, Columbia University College of Physicians and Surgeons, New York). A summary of the conference will be presented by Dr. Ralph W. Gerard, University of Michigan, Ann Arbor.

OHIO

Northwestern Ohio Meeting.—The Northwestern Ohio Medical Association will hold its 112th scientific assembly in the Administration Building, Bowling Green State University, Bowling Green, Oct. 17 (six hours credit, category 1, American Academy of General Practice). At 9:50 a. m. a welcome address will be delivered by Dr. John V. Pilliod, Grand Rapids, president, Wood County Medical Society. The program will include the following presentations:

Infectious Diseases and Their Present Day Treatment, Paul A. Bunn, State University of New York College of Medicine, Syracuse, N. Y.

What Cardiovascular Surgery Offers the Practicing Physician, Robert P. Glover, Presbyterian Hospital, Philadelphia.

Role of the Community Hospital in Diseaster Planning, Mr. Anthony W. Eckert, Perth Amboy (N. J.) General Hospital. Moderators: Charles S. Wohl and Orrin C. Keller, Toledo.

Abdominal Emergencies in Infancy, H. William Clatworthy, Ohio State University College of Medicine, Columbus.

Clinical Applications of Available Laboratory Blood Tests, Robert L. Wall, Ohio State University College of Medicine, Columbus.

The meeting will adjourn at 3:45 p. m. when coffee and refreshments will be served at the new Wood County Hospital. Miss Anna Belle Kinney, R.N., administrator, will speak on "How Does This Hospital Plan for Mass Casualties?"

OKLAHOMA

Annual Clinical Conference.—The 26th annual clinical conference of the Oklahoma City Clinical Society will be held at the Biltmore Hotel, Oklahoma City, Oct. 22-25. Round-table discussions (free to registered associate members) will be held at noon each day. On Monday, Tuesday, and Wednesday, separate luncheons will be held for the medical and surgical groups; on Thursday, one large combined luncheon will be conducted. Tuesday evening the Oklahoma City Chamber of Commerce will honor the clinical society and its visiting members with a dinner in the Persian Room of the Skirvin Tower Hotel (wives and guests invited). Specialty lectures will be delivered by the following guests of honor: Drs. Albert Behrend, Philadelphia; William H. Beierwaltes, Ann Arbor, Mich.; Willis E. Brown, Little Rock, Ark.; Vincent P. Collins, Houston, Texas; Patrick J. Fitzgerald, Brooklyn, N. Y.; Gordon P. McNeer, New York; Rufus C. Goodwin, San Francisco; Kendall B. Corbin, Rochester, Minn.; Harold W. Elley, Ph.D., Wilmington, Del.; John F. Crigler and Ethan A. Brown, Boston; Gordon Meiklejohn, Denver; Donald J. Birmingham, Cincinnati; A. Keller Doss, Fort Worth, Texas; Joseph H. Ogura, St. Louis; Edward T. Evans, Minneapolis; and Henry B. Turner, Memphis, Tenn. The annual banquet in honor of the associate members will be held Monday, 7 p. m. Dr. Elley, chairman of the Research Study Committee of the National Association of Mental Health, will be the principal speaker. Advance registration fee ($20) may be sent to the Executive Office of the Oklahoma City Clinical Society, 503 Medical Arts Bldg., Oklahoma City.

OREGON

Sommer Memorial Lectures.—In conjunction with the 82nd annual session of the Oregon State Medical Society, the 24th Sommer Memorial Lectures will be presented Oct. 17-19 at the Masonic Temple, Portland. The lecturers will be Dr. Paul A. Owren, professor of medicine, University of Oslo, Norway, whose topics will be "The Coagulation of Blood," "Disordered Blood Coagulation," and "Permanent Anticoagulant Therapy in Cardiovascular Disease;" Dr. Alfred Blalock, professor of surgery, Johns Hopkins University School of Medicine, Baltimore, who will present "A Consideration of Certain Aspects of Cardiovascular Surgery," "Some of the Important Recent Advances in Surgery," and "Remarks on the Nature of Discoveries in Medicine"; and Dr. Leo H. Bartemeier, Baltimore, medical director, Seton Psychiatric Institute, and clinical professor of psychiatry, Georgetown University School of Medicine, Washington, D. C., who will have as his subjects "The Influence of Patients on Their Physicians," "The Practical Value of the Concept of Multiple Causality in Diagnosis and Treatment," and "On Referring Patients to Other Physicians."

PENNSYLVANIA

Institute on Cerebral Palsy.—An institute on cerebral palsy will be held Oct. 20 in the Berkshire Hotel, Reading, 3-5 p. m. and 7-9 p. m. Dr. Temple S. Fay, Philadelphia, will conduct the institute and will discuss the classification and early recognition of cerebral palsy, his neurophysiological concept, and reflex and neuromuscular therapy. Cases from the local Cerebral Palsy Treatment Center will be presented, and Dr. Fay's film on the evolutionary development of primitive patterns will be shown. The institute is sponsored by the Reading chapter of the American Business Club's Cerebral Palsy Treatment Center, the Berks County Medical Society, the Pennsylvania Academy of Physical Medicine and Rehabilitation, the Pennsylvania chapter of the American Physical Therapy Association, the Pennsylvania Society for Crippled Children and Adults, and the Pennsylvania chapter of United Cerebral Palsy. Physicians and therapists are invited to register in advance by communicating with Dr. Herman L. Rudolph, 400 N. Fifth St., Reading. There will be no registration fee.

GOVERNMENT SERVICES

AIR FORCE

Personal.—Brig. Gen. M. S. White, M. C., U. S. Air Force, has been named director of medical staffing and education for the Air Force Medical Service and has assumed his duties in the Office of the Surgeon General. General White is a diplomate of the American Board of Internal Medicine and Board of Preventive Medicine.

NAVY

Personal.—Capt. David W. Lyon Jr., M. C., U. S. Navy, was placed on the retired list of officers on Sept. 1, after having completed more than 31 years' active service.

In addition to the Bronze Star, he wears the World War I Victory medal with three combat clasps, American Defense Service medal with Sea Duty Star, American Area, Asiatic-Pacific Area medal with two engagement stars, and the World War II Victory and the China Occupation medal. Captain and Mrs. Lyon plan to settle in California in the San Francisco Bay area in the near future.

New Technical Director at Research Institute.—The Naval Medical Research Institute, Bethesda, Md., has as its new technical director Dr. Ralph S. Muckenfuss, who came from the Navy Biological Laboratory of the University of California. In 1925 he joined the Rockefeller Institute in New York, as assistant in bacteriology. He was assistant professor of medicine in Washington University School of Medicine, St. Louis, from 1929 to 1935. He retired in 1953 from the Department of Public Health of New York City. During the war Dr. Muckenfuss was a colonel in the U. S. Army Medical Corps. He served as commanding officer of the first medical general laboratory in the European theater. He also holds the Legion of Merit.

VETERANS ADMINISTRATION

Annual Paraplegic Conference.—The fifth Annual Paraplegic Conference of the Veterans Administration will convene at the Veterans Administration Hospital, Hines, Ill., on Oct. 16, 17, and 18. The opening session will begin at 1:00 p. m. on Oct. 16, and the meeting will close at noon on Oct. 18. Participants will include doctors from all the Veterans Administration paraplegia centers in the United States. All physicians are cordially invited to attend.

PUBLIC HEALTH SERVICE

Regular Corps Examinations for Medical Officers.—A competitive examination for appointment of medical officers to the regular corps of the U. S. Public Health Service will be held in various places throughout the country on Nov. 27-30. The examinations will include an interview, physical examination, and comprehensive objective examinations in the professional fields. Appointments provide opportunities for careers in clinical medicine, research, and public health. They will be made in the ranks of assistant and senior assistant, equivalent to Navy ranks of lieutenant (j. g.) and lieutenant. Entrance pay for both grades for persons with dependents is $7,498 per year. Qualified officers are promoted at regular intervals. Benefits other than promotions include periodic pay increases, 30 days' annual leave, sick leave, medical care, disability retirement pay, and regular retirement pay, which is three-fourths of annual basic pay at time of retirement.

Requirements are U. S. citizenship, age of at least 21 years, and graduation from a recognized school of medicine. For the rank of assistant surgeon, at least seven years of collegiate and professional training and appropriate experience are needed. For senior assistant surgeon, an additional three years, for a total of at least 10 years of collegiate and professional training and appropriate experience, are required. Application forms may be obtained from the Chief, Division of Personnel, U. S. Public Health Service, Washington 25, D. C. Completed application forms must be received in the division of personnel no later than Oct. 13.

Special Citation for Union Pacific.—The U. S. Public Health Service has awarded a special citation to the Union Pacific Railroad, Surgeon General Leroy E. Burney announced Sept. 7. This is the second award to a railroad since the special citation was established in 1952. The citation is awarded when all of a railroad's operating dining cars have achieved a rating of 95 or better on an official PHS inspection during a single year. The presentation was made Sept. 10 in Omaha, where the main offices of the Union Pacific Railroad are located. Officials of the Department of Health, Education, and Welfare, Public Health Service, and Union Pacific Railroad took part in the ceremonies. The Erie Railroad was awarded the special citation in 1953.

Training in National Emergencies.—Sixty-six reserve officers of the U. S. Public Health Service from 58 cities attended a two-week training course in Washington, D. C., Sept. 17-28, to study public health activities in national emergencies. The course included lectures, panel discussions, committee work, field exercises, demonstrations, and problems.

Some of the major subjects studied were as follows: Conserving the Nation's Human Resources; National Aspects Affecting Defense; Health Emergency Planning; Chemical Agents—Hazard, Vulnerability, and Defense; Nuclear Weapons; Radioactivity and Interaction of Radiation with Matter; Radiation Detection Instruments; Implications of Biological Warfare; Feasibility of Biological Warfare Agents Against Water Supplies; Detection and Identification of Biological Agents; Epidemic Aid and Epidemic Intelligence; the Management of Injuries; First Aid, Sorting, and Medical Evacuation; Psychological Reactions to Disaster; Natural Disaster Aid to States, and Public Health Service Responsibilities in Natural Disaster; the Health Organization of Civil Defense; the Emergency Hospital, and the Medical Supply Program.

Advisory Council on Health Research Facilities.—Congress recently enacted legislation authorizing 90 million dollars over three years to assist institutions in building facilities for research in medicine, osteopathy, dentistry, public health, and related sciences. Federal grants must be matched by the institutions. The secretary of Health, Education, and Welfare on Sept. 10 appointed a 12-member advisory council to assist the Public Health Service in administering this new program. The advisory council established in the law will be known as the National Advisory Council on Health Research Facilities. The grants program will be administered by the National Institutes of Health.

The council held its first meeting at the Institutes in Bethesda, Md., on Sept. 24-25 to review initial applications for aid from medical schools, research hospitals, and other research institutions. Dr. Leroy E. Burney, surgeon general of the Public Health Service, presided. The surgeon general and an official of the National Science Foundation are ex officio members, with the former serving as chairman. Other members of the new council are:

George N. Aagaard, M.D., dean, School of Medicine, University of Washington, Seattle.
Eugene N. Beesley, LL.B., president, Eli Lilly and Company, Indianapolis.
Thomas H. Hunter, M.D., dean, School of Medicine, University of Virginia, Charlottesville, Va.
Carlyle Jacobsen, Ph.D., executive dean, Medical Education, State University of New York, Delmar, N. Y.
Paul C. Kitchin, professor of dental histology and embryology, School of Dentistry, Ohio State University, Columbus, Ohio.
Oliver H. Lowry, M.D., dean, School of Medicine, Washington University, St. Louis.
Robert A. Moore, M.Sc., vice chancellor, University of Pittsburgh, Pittsburgh.
F. C. Sowell, vice president and general manager, Radio Station WLAC, Nashville, Tenn.
John E. W. Sterling, Ph.D., president, Stanford University, Stanford, Calif.
Thomas B. Turner, M.D., professor of microbiology, School of Hygiene and Public Health, Johns Hopkins University, Baltimore.
James W. Wilson, Ph.D., chairman, department of biology, Brown University, Providence, R. I.

The 12th member will be James B. Mintener, Washington, D. C., who plans to resign soon as assistant secretary of the Department of Health, Education, and Welfare.

DEATHS

Katz, Elihu ⚕ New York City; born in New York City in 1889; Columbia University College of Physicians and Surgeons, New York City, 1914; professor of gastroenterology at the New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Internal Medicine; life fellow of the American College of Gastroenterology; fellow of the New York Academy of Medicine; formerly vice-president of the Society for the Advancement of Gastro-Enterology; served as treasurer of the National Gastroenterological Association; chief gastroenterologist at the Sea View Hospital in Staten Island; consultant in gastroenterology at the Richmond Memorial Hospital in Staten Island and the Bound Brook (N. J.) Hospital; died July 20, aged 67, of heart disease.

Thornton, Michael Joseph, New York City; born Feb. 22, 1876; Albany (N. Y.) Medical College, 1901; an associate member of the American Medical Association; at one time professor of neurology at the New York University Post-Graduate Medical School; veteran of World War I; served on the staffs of the Craig Colony in Sonyea and the Central Islip (N. Y.) State Hospital; formerly assistant and later chief physician and psychiatrist of the psychiatric service at Bellevue Hospital; resigned in 1934 as general medical superintendent of the Department of Bellevue and Allied Hospitals; retired in 1954 as resident psychiatrist at the Four Winds in Katonah; died in St. Luke's Hospital July 23, aged 80, of a cerebral vascular accident.

Goodridge, Malcolm, New York City; Columbia University College of Physicians and Surgeons, New York City, 1898; emeritus professor of clinical medicine at Cornell University Medical College; an associate member of the American Medical Association; past-president of the New York Academy of Medicine, which on Jan. 5, 1956, presented him with its plaque for distinguished service; active on the staffs of numerous hospitals and at his death was consulting physician to Mercy Hospital in Hempstead, New York Hospital, where he was an honorary member of the board of governors, Bellevue Hospital, and the Neurological Institute; died July 16, aged 83, of myocardial infarction.

de Rivas, Damaso, Tallahassee, Fla.; Medico-Chirurgical College of Philadelphia, 1898; University of Pennsylvania School of Medicine, Philadelphia, 1910; specialist certified by the American Board of Pathology; an associate member of the American Medical Association; member of the Medical Society of the State of Pennsylvania; formerly on the faculty of the University of Pennsylvania School of Medicine in Philadelphia, University of Pennsylvania Graduate School of Medicine in Philadelphia, and the Hahnemann Medical College and Hospital of Philadelphia; died May 28, aged 81.

Kalder, Ned Black ⚕ Detroit; University of Michigan Medical School, Ann Arbor, 1942; interned at the Henry Ford Hospital; served a residency at the University Hospital in Ann Arbor; at one time senior instructor in surgery at his alma mater; fellow of the American College of Surgeons; came to Mount Carmel Mercy Hospital as director of surgery in 1950, later assuming the duties of director of resident education, a position he held at the time of his death; specialist certified by the American Board of Surgery; died July 15, aged 43, in an automobile accident.

Benson, Adelbert Harold, Albuquerque, N. Mex.; Rush Medical College, Chicago, 1902; veteran of World War I; formerly associated with the Veterans Administration in Houston, Texas; died July 1, aged 77.

Bigelow, Coniah Leigh, Westwood, Calif.; Medical Department of the University of California, San Francisco, 1905; died in Susanville June 16, aged 78, of arteriosclerotic heart disease.

Brendel, John William, Avoca, Neb.; Lincoln Medical College of Cotner University, Lincoln, 1901; an associate member of the American Medical Association; died July 26, aged 76, of carcinoma of the lung.

Bruell, Frederic William ⚕ Margaretville, N. Y.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1925; died June 14, aged 57, of heart disease.

Callister, Frances Eleanor, Laguna Beach, Calif.; Detroit Homeopathic College, Detroit, 1912; died in Los Angeles May 21, aged 86.

Carter, Edward Albert, Detroit; State University of Iowa College of Medicine, Iowa City, 1907; died in the Burton Mercy Hospital June 12, aged 74, of carcinoma.

Cawley, Aloysius John ⚕ Pittston, Pa.; Temple University School of Medicine, Philadelphia, 1925; on the staff of the Pittston Hospital; died June 23, aged 72, of coronary thrombosis.

Chambers, Charles Lewis ⚕ Des Moines, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; died in Ellsworth, Maine, June 27, aged 86.

Champlin, Harry Howard, Ashfield, Mass.; University of Colorado School of Medicine, Denver, 1912; for many years practiced in New York City, where he was on the staff of the New York Polyclinic Medical School and Hospital; died in the Franklin County Public Hospital, Greenfield, June 15, aged 72, of cerebral thrombosis and arteriosclerosis.

Claridge, Ralph Alonso ⚕ St. Louis; Northwestern University Medical School, Chicago, 1909; a medical officer during World War I; served as medical advisor for the Travelers Insurance Company; died in the Alexian Brothers Hospital July 4, aged 69, of arteriosclerosis and heart disease.

Clothier, Samuel H., Paxico, Kan.; Kansas City (Mo.) Homeopathic Medical College, 1899; died June 7, aged 87, of coronary occlusion and carcinoma of the prostate.

Conly, Leonard Hudson, Key West, Fla.; Jefferson Medical College of Philadelphia, 1926; member of the Florida Medical Association and the American Academy of General Practice; died July 11, aged 55, of coronary thrombosis.

Conway, William Henry, Clarks Summit, Pa.; Baltimore Medical College, Baltimore, 1905; an associate member of the American Medical Association; senior physician at Clarks Summit State Hospital; died in the Scranton (Pa.) State Hospital June 22, aged 80, of coronary occlusion.

Cook, Charles Edward, Jr., Calais, Maine; University of Vermont College of Medicine, Burlington, 1908; served as city health officer; died in the Veterans Administration Hospital, Togus, June 9, aged 73, of bronchopneumonia and recurrent epidermoid carcinoma of the gum.

Coston-Conner, Laila Ann ⚕ New York City; University of Pennsylvania School of Medicine, Philadelphia, 1920; died July 2, aged 66.

Coulter, Lester McDonnell, Berkeley, Calif.; Trinity Medical College, Toronto, Ontario, Canada, 1899; veteran of World War I; served as health officer of Watertown, N. Y., and Stanislaus County, Calif.; died June 20, aged 85, of arteriosclerosis and cerebral thrombosis.

Crane, Carl Custer ⚕ San Francisco; Harvard Medical School, Boston, 1899; served on the staffs of the University of California, St. Francis Memorial, and Mary's Help hospitals; died July 1, aged 80, of a heart attack.

Crozier, Gordon Turner, Blountstown, Fla.; University of Georgia Medical Department, Augusta, 1907; past-president of the Georgia Health Officers' Association and secretary of the Georgia Public Health Association; while practicing in Valdosta, Ga., served as health commissioner of Lowndes County; a veteran of World War I; died June 30, aged 70.

⚕ Indicates Member of the American Medical Association.

Derrick, Howard Clifton ⊕ Oglethorpe, Ga.; Atlanta College of Physicians and Surgeons, Atlanta, 1902; served as a member of the county school board; died June 8, aged 77, of cerebral embolism.

Downing, Earl Ebert Raymond ⊕ Chicago; Bennett Medical College, Chicago, 1914; on the staff of the Walther Memorial Hospital; died Aug. 16, aged 72, of acute coronary occlusion.

Drummond, Winslow, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1894; an associate member of the American Medical Association; died July 10, aged 93.

Dulaney, Octavus, Louisville, Ky.; University of Nashville (Tenn.) Medical Department, 1901; an associate member of the American Medical Association; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; past-president of the Tennessee State Medical Association; served on the faculty of the University of Louisville School of Medicine; at one time on the medical staffs of Kentucky Baptist Hospital, Norton Memorial Infirmary, and St. Anthony Hospital; died June 17, aged 77, of a heart attack.

Earp, Ralph Bowman ⊕ El Dorado, Kan.; Central College of Physicians and Surgeons, Indianapolis, 1897; on the staff of the Susan B. Allen Memorial Hospital, where he died June 25, aged 81, of diverticulitis and intestinal obstruction.

Eastlake, Chesmore ⊕ Denver; University of Colorado School of Medicine, Denver, 1922; on the staffs of St. Joseph's and Childrens hospitals; died June 20, aged 63, of heart disease.

Eichman, Edward A. ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1905; on the staff of the Germantown Dispensary and Hospital; died July 23, aged 74, of myocardial infarction.

Elder, Lindsay H., Bogart, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; served as mayor of Bogart, and for many years a member and chairman of the county board of education; died in the Piedmont Hospital, Atlanta, July 4, aged 69, of gastric hemorrhage.

Elliston, LeRoy Bertram ⊕ Fort Lauderdale, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, Chicago, 1909; veteran of World War I; on the staff of the North Broward General Hospital; died June 18, aged 71, of nephrosclerosis and arteriosclerosis.

Farmer, Charles Hall ⊕ Macon, Ga.; Emory University School of Medicine, Emory University, 1921; at one time vice-president of the Medical Association of Georgia; fellow and past state chairman of the American Academy of Pediatrics; past-president of the Georgia and Macon Pediatrics societies; specialist certified by the American Board of Pediatrics; consulting physician, Macon Hospital; died June 23, aged 61, of coronary occlusion.

Funderburk, Isaac Sheppard ⊕ Cheraw, S. C.; Atlanta School of Medicine, Atlanta, Ga., 1910; served as mayor of Cheraw; on the courtesy staff of Marlboro County General Hospital in Bennettsville; died July 4, aged 73, of coronary thrombosis.

Gaumer, George Williams ⊕ Oreland, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1935; veteran of World War II; served on the staff of the Abington (Pa.) Memorial Hospital; died in the Methodist Episcopal Hospital, Philadelphia, July 16, aged 45.

Hess, Delbert Melroy, Washingtonville, Pa.; College of Physicians and Surgeons, Baltimore, 1902; served as president of the Columbia County Medical Society; died in the George F. Geisinger Memorial Hospital and Foss Clinic, Danville, July 18, aged 87, of carcinoma of the pancreas.

Hoffmann, Sterling Peter ⊕ Fort Wayne, Ind.; Indiana University School of Medicine, Indianapolis, 1912; veteran of World War I; died in the Lutheran Hospital July 4, aged 71, of cerebral thrombosis and arteriosclerosis.

Hohanshelt, Anna S. ⊕ Rosemead, Calif.; College of Physicians and Surgeons, Los Angeles, 1919; died in Indianola, Iowa, Aug. 8, aged 63, of cancer.

Hollands, William Howard ⊕ Fisher, Minn.; Minneapolis College of Physicians and Surgeons, Minneapolis, 1908; past-president of the Red River Valley Medical Society; served two terms as mayor of Fisher, and on the council; formerly health officer; died in St. Francis Hospital, Crookston, July 13, aged 75, of cancer of the liver.

Hooker, Lynn Collins ⊕ Carthage, Texas; University of Texas School of Medicine, Galveston, 1932; died July 18, aged 49, of heart disease.

Houser, Blanche Wanda ⊕ Cedar Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1938; member of the American Society of Anesthesiologists; on the staffs of St. Luke's Methodist and Mercy hospitals; died July 10, aged 45, of leukemia.

Howell, Ezekiel, Telford, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1914; died in Johnson City June 29, aged 72.

Hudson, Elmer M., Little Rock, Ark.; University of Louisville (Ky.) Medical Department, 1890; fellow of the American College of Surgeons; died June 27, aged 87.

Kelley, Ernest J., Chandlers Valley, Pa.; University of Buffalo School of Medicine, Buffalo, 1891; an associate member of the American Medical Association; died July 13, aged 92.

King, Myron Louis ⊕ Brookline, Mass.; Harvard Medical School, Boston, 1898; served on the staff of the Mount Auburn Hospital in Cambridge; died July 26, aged 84, of carcinomatosis.

Koehler, Charles George, Jr., Brooklyn, N. Y.; Cornell University Medical College, New York City, 1906; served on the staff of the Wyckoff Heights Hospital; died in the Brooklyn Hospital July 20, aged 72, of a heart attack.

Krug, Frederick H., St. Louis; St. Louis University School of Medicine, St. Louis, 1905; examining physician for the draft board during World Wars I and II; on the staffs of the Shriners Hospital for Crippled Children, Missouri Baptist Hospital, and Incarnate Word Hospital; died July 15, aged 87, of cancer of the lung.

Ladden, John Joseph ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1932; on the staff of the Nazareth Hospital; killed July 23, aged 50, in an automobile accident.

Lakeman, Mary Ropes ⊕ Salem, Mass.; Boston University School of Medicine, Boston, 1895; served as northeastern regional director for the Women's Field Army of the American Society for the Control of Cancer; retired Dec. 1, 1937, from the Massachusetts Department of Public Health, with which she was associated for 20 years in child and adult hygiene work; died June 26, aged 86.

Littell, George Shaum ⊕ Dallas, Texas; Washington University School of Medicine, St. Louis, 1926; certified by the National Board of Medical Examiners; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; veteran of World War II; served on the staffs of the Veterans Administration hospitals in various places; at one time on the faculty of Baylor University College of Medicine; on the staffs of the Methodist Hospital and the Children's Medical Center; died July 17, aged 54, of coronary infarction.

McCray, Elwood H. ⊕ Malvern, Ark.; Beaumont Hospital Medical College, St. Louis, 1901; died July 7, aged 79, of acute cardiac failure.

McNaughton, Guy Peery ⊕ Miami, Okla.; Memphis (Tenn.) Hospital Medical College, 1912; served overseas during World War I; died in the University of Kansas Medical Center, Kansas City, Kan., May 21, aged 68.

Meek, Eleanor Grace ⊕ Denver; University of Colorado School of Medicine, Denver, 1950; interned at the Colorado General Hospital; formerly a resident at the Veterans Administration Hospital in Fort Logan, Colo.; member of the staffs at St. Luke's, St. Joseph's, Presbyterian, Mercy, and General Rose Memorial hospitals; died in St. Luke's Hospital May 28, aged 46, of bronchopneumonia and cor pulmonale.

Otis, John ⊕ Parma, Ohio; Western Reserve University School of Medicine, Cleveland, 1943; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; veteran of World War II; on the staff of the Veterans Administration Hospital; died in Cleveland June 10, aged 44.

FOREIGN LETTERS

BELGIUM

Medical Research.—At a meeting of the Royal Academy of Medicine, the attention of the government was drawn to the present critical situation of medical researchers, and the creation of a national foundation for medical research was urged.

Post-Traumatic Osteoporosis.—At the 10th Belgian Congress of Surgery, held in May, Belenger stated that post-traumatic osteoporosis results from the persistence of a vasomotor disorder created and maintained by a focus of irritation in the spine. Its severity is not proportionate to the severity of the trauma. It is observed more often in subjects presenting psychic instability or marked vegetative dystonias, who hold the wounded member as immobile as possible or complain of pain at the slightest movement. Treatment must take these factors into account. The condition is improved by measures that establish vasomotor and circulatory equilibrium. Post-traumatic osteoporosis, however, is only one of the symptoms of post-traumatic disease. For example, small muscular atrophies may be associated with a marked osteoporosis, or extensive edema may be associated with minimal osseous rarefaction. Osteoporosis and related phenomena can be largely prevented by early and skillful repair of the traumatic lesion. It is necessary to immobilize the affected region and to see that all other regions are mobilized. It is necessary to reduce pain and edema by elevating the injured part. If these preventive measures are unsuccessful, operation on the sympathetic nerves may be tried.

Sanitary Collaboration.—A sanitary commission composed of governmental delegates of the Benelux countries was inaugurated by Professor De Laet, general secretary of the Ministry of Public Health, following a decision of the Counsel of Ministers of these countries. Three divisions were created, having jurisdiction over pharmaceutical products, meats, and the shipping of foodstuffs respectively. The ministerial delegates will meet at The Hague to outline the mutual aid of the three countries in the prevention of poliomyelitis, the protection of the population against the effects of industrial nuclear energy, and the control of habit-forming drugs.

Epilepsy.—At the meeting of the Belgian Association of Hygiene and Social Medicine in May, Sorel of Louvain said that the physician should envisage the medicosocial situation of the epileptic patient. He should study his behavior as much between as during the crises. The crisis itself alway appears in the same way in the same patient. The milieu (office, class) can therefore adapt itself to these manifestations. The epileptic's chances of social adaptation between crises are conditioned by his intelligence, memory, and personality, all of which are frequently normal. Personality also is often altered. The atmosphere of the family circle and the efficacy of medical control of seizures have an important influence on the personality. Some of the psychic obstacles to normal personality development are (1) refusal by the patient to recognize his illness and, consequently, to cooperate in treatment or advice of a social nature; (2) excessive urging by the parents toward studies beyond the patient's capabilities; and (3) refusal by employers or teachers to make allowances for the patient's condition.

BRAZIL

Subtotal Gastrectomy with Gastroduodenal Anastomosis.—Paulino and Ferreira (*Rev. brasilo cir.* 31:565, 1956) reported a series of 64 subtotal gastrectomies with gastroduodenal anastomosis (Billroth 1). Besides being more physiological, the reconstruction of the digestive tract by means of this anastomosis permits a better utilization of the first jejunal loop, whose capacity of absorption is much higher than that of the rest of the jejunum. In spite of this the Billroth 1 operation is rarely used, a marked preference being given to gastrojejunal anastomosis. Since certain technical difficulties of the gastroduodenal anastomosis may explain the abandonment of the Billroth 1 operation, the authors believe that the publication of their results may help to revive interest in this procedure. The age of the patients varied from 28 to 78 years (average 59). The average postoperative stay in the hospital was 9.5 days (range 6 to 34 days). There was only one death, which occurred in a patient with cachexia who did not have adequate preoperative care.

Owing to the short time of observation of their patients, the authors limited their report to the problems of surgical technique. They believe the Billroth 1 operation can easily be used in 80% of the patients with peptic ulcer. The operation was performed in brachymorphic as well as in obese patients and also in patients with juxtacardial ulcers and in those with ulcers penetrating the pancreas. An important technical point in the Billroth 1 operation is the freeing of the duodenum together with the head of the pancreas. In some patients there is destruction and infiltration of the posterior wall of the duodenum, for which Von Haberer suggested and Moore and Harkins used the suture of the duodenum and the anastomosis with the anterior surface of the organ in the longitudinal direction. In such patients the authors modified the technique, performing the anastomosis of the stomach with the second part of the duodenum, which is opened transversely. This procedure not only makes the operation easier but also is a better approximation to the terminoterminal anastomosis technique. As for the anastomosis itself, the authors maintain careful hemostasis of the submucosal vessels by means of transfixing ligation of each vessel and careful joining of the mucosas, using fine chromic absorbable surgical sutures with an atraumatic needle.

Anesthesia is induced with pentothal and then maintained with curare, nitrous oxide, and oxygen. Preoperative gastric intubation is maintained until 24 or 48 hours after the operation. A pararectal incision is used. Duodenopancreatic mobilization is essential. The colon is freed and moved downward. The duodenum and the head of the pancreas are moved to the left, permitting an easier dissection of the ulcer. Before the opening of the duodenum, the organ is clamped with a forceps with slender blades, to prevent the spilling of duodenal fluid and to serve as a support during the posterior suturing of the gastroduodenal anastomosis. The first two planes of suture of the gastric defect act as a means of securing hemostasis. After the closing of the stomach in two layers, invaginated separate stitches cover the hemostatic sutures.

Retinopathy in Diabetes.—Mattos and co-workers (*Rev. Hosp. clin.* 11:83, 1956) reported a study of the clinical significance of retinopathy in diabetes. With the advent of insulin, the survival of diabetics was greatly prolonged, thus allowing an increased incidence of vascular complications. In the authors' series of 72 cases, the duration of the disease varied from 1 to 10 years. Control of the diabetes was excellent or good in none, fair in 34, and poor in 38. The authors classified the severity of the retinopathy as follows: first degree—capillary microaneurysms, accentuation of the sinuosity, turgor of the veins and small hemorrhages or petechiae; second degree—accentuation of the above signs in both eyes, small white spots with clear limits, round or flame-shaped hemorrhages; third degree—accentuation of the above signs, macroaneurysms of the great veins, and newly formed vessels; and fourth degree—hemorrhage in the vitreous, proliferative retinitis, hemorrhagic glaucoma, and detachment of the retina. The authors believe that this classification will facilitate an easy understanding between the internist and the ophthalmologist. Of the 43 patients in whom the disease had been present from one to five years, 25 did not present any alteration

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

of the fundus oculi and 3 had a first-degree, 12 a second-degree, 2 a third-degree, and one a fourth-degree retinopathy. Of the 29 patients in whom the disease had been present 6 to 10 years, 6 had a normal fundus and 7 had a first-degree, 12 a second-degree, and 4 a third-degree retinopathy. Of the total series, 30 had arterial hypertension, and, of these, 6 had no diabetic retinopathy, while 3 had a first-degree, 12 a second-degree, 8 a third-degree, and one a fourth-degree retinopathy. The authors confirmed previous reports that the duration of diabetes is a decisive factor in the degree of severity of diabetic retinopathy, but they believe there is no significant difference in the degree of retinopathy in the groups with fair and poor control of the disease.

DENMARK

Barbiturate Poisoning.—The many publications in the medical press on the treatment of barbiturate poisonings bear witness to the revolution effected by the centralization of such cases in a special hospital since 1949. Since that time the case fatality rate has been reduced from about 25 to 3%. Myschetzky found that, of 109 barbiturate deaths, about 33% were due to pulmonary complications, another 33% to cardiac complications, and the rest to failing renal function or protracted shock, in equal proportions. *Ugeskrift for læger* for July 5 contains several articles showing what is being done to reduce this residual mortality. Some of these articles give an appraisal of the treatment introduced in 1954 by Shaw and co-workers. It consists of the intravenous injection of a combination of Megimide and Daptazole. Between September and December, 1955, 24 patients with severe barbiturate poisoning were treated at the Bispebjerg Hospital with Megimide. Reporting on these cases, Louw and Sonne said that Megimide had a definitely stimulating effect on reflex activity and on respiration, but they could not discover any acceleration of the elimination of the poison or curtailment of the duration of coma. Their provisional impression did not support the theory of an antagonist effect. In another article Dr. J. Kjaer-Larsen stated that, of the first 50 patients treated at the Bispebjerg Hospital with Megimide, 15 became psychotic and 16 had cramps. These psychoses closely resembled the clinical picture provoked by the withdrawal of barbiturates, and it was chiefly the barbiturate addict who was most liable to react in this way. Though the psychoses did not last long, they were disquieting and should be taken as a warning against any indiscriminate use of Megimide.

Accessory Nipples.—New light on the old problem of accessory or supernumerary nipples has lately been thrown by two independent observers. Dr. Harald Boas in *Ugeskrift for læger* for May 17 states that, when he took charge of the skin department of a large hospital 23 years ago, he examined every new patient for this anomaly. Of 6,456 patients examined, 121 had one or more accessory nipples. In 97 of these there was only one accessory nipple. More were on the left than on the right, and there were more than twice as many accessory nipples in men than in women. All were below the level of the normal nipple, and none was found on the thighs or back. These findings do not support the theories that this condition (1) is associated with tuberculosis, (2) is often associated with various other degenerative stigmas, and (3) is a hereditary phenomenon. In the July 5 issue of the same journal, Dr. Holger Holm says that since 1949 he has kept a careful record of such cases among school children and of 4,315 examined he found 133 with accessory nipples. Boys were in the majority, with an incidence of 4.26%, and the corresponding percentage for girls was 3.58. The preponderance of accessory nipples on the left over those on the right was even more marked than in Boas's material. Holm asks why he has twice as high an incidence of such cases as Boas and most other observers and suggests that the difference may be due in part to the fact that examinations of school children are frequently repeated. Thus, in several cases he did not discover an accessory nipple until the same child had been examined three or four times. He has never known an accessory nipple to disappear spontaneously.

NORWAY

Tests for Blood Alcohol.—The motorist whose blood is found to contain more than a certain amount of alcohol after a traffic accident risks a heavy prison sentence. Last May a traffic accident showed how complicated this risk can be. After a collision between a motorcyclist and a motorist, the former was admitted to Ullevaal hospital with a broken leg. The motorist submitted to a blood alcohol test and asked that the motorcyclist also do so. The motorcyclist refused, and the physician on duty in the hospital did not insist on carrying out the test. Nor did the hospital take measures to allow the police to employ some outside physician to take this test *nolens volens.* The police protested, their formal complaint being lodged not only with the Ministry of Justice but also with the Ministry of Health. In theory the matter is quite plain. The Norwegian motor traffic law lays down clearly enough that the driver of a motor vehicle is bound to submit to a blood alcohol test under certain conditions. These conditions are now being more clearly defined in order to meet the situation in precisely such cases as the above. The Ministry of Health has issued a statement reminding physicians of their responsibilities to both patient and state. Every case must be judged on its own merits, but any demanded blood alcohol test must be subordinated to any emergency operation a patient requires. Hospitals should provide legitimate facilities for the taking of this test at the request of the police. It may be well, under certain conditions, to let the police employ physicians other than those on a hospital staff to carry out this test. In a commentary on the subject, Prof. Axel Ström draws attention to a semiofficial draft of a new law that may be enacted if it is not effectively denounced. According to this draft, Norwegian physicians may incur legal penalties if they refuse to undertake a blood alcohol test against the wishes of the patient on the bidding of the police. Ström believes that a physician should never be forced by the authorities to operate on a patient without the physician being free to decide whether he should do so.

Seropositive Syphilis.—One of the functions of the serodiagnostic department of the Norwegian State Institute for National Health is the Rh-typing of blood of the husbands of Rh-negative pregnant women. In the course of such typing, the opportunity is taken to test the sample of blood for syphilis. Between Jan. 1, 1951, and July 16, 1955, a total of 16,489 samples were thus tested, and in 87 cases one of the serologic tests for syphilis was positive. In 64 of these cases there could be no doubt as to the diagnosis of syphilis, and Dr. J. Eng, who reports on this study in *Tidsskrift for den norske lægeforening* for June 15, concludes that about 0.44% of the subjects tested were syphilitic. Thirty of the 64 already knew they were syphilitic. The value of this study is enhanced by the facts that the sampling was random, in that the persons examined were not more likely to be infected with syphilis than any other group of married Norwegians, and that the samples came from all over Norway. As a result of his findings, Dr. Eng urges routine premarital examination for syphilis for both men and women, a precaution already in force in many countries.

PORTUGAL

Symposium on Collagen Diseases.—At a meeting of the Medical Society of the Lisbon Hospitals, attended by many physicians from other countries, Prof. G. Favilli, of Bologna, Italy, said that collagen pathology is synonymous with intercellular pathology. The ground substance is of primary importance in the pathogenesis of such degenerative reactions as mucoid and fibrinoid degenerations. It has relations with the endocrine system and has an important role in the beginning of acute inflammation and in the malignant degeneration of epithelial surfaces. Elastosis is the most important lesion of the fibrillary part of connective tissue. Prof. Raymond Garcin, of Paris, said that the nervous manifestations of periarteritis nodosa resulted mainly from peripheral nerve lesions such as multineuritis and polyneuritis and that those of systemic lupus erythematosus (convulsions and psychic disturbances) resulted mainly from lesions of the central nervous system. In general, changes in the small blood vessels are responsible for such manifestations as ischemic neuritis and cerebromalacia, but in the brain certain parenchymatous changes may be caused by distant visceral lesions. High blood pressure and renal insufficiency in patients with periarteritis nodosa may also cause brain damage. Psychic disturbances and convulsions may even be due to treatment with corticosteroids. In polymyositis the problem is a peculiar one: muscles and connective tissue participate in the disease, but nerves are free and blood vessels participate but slightly. If the origin is vascular, then it is a purely functional phenomenon, in the sense of a serous inflammation.

UNITED KINGDOM

Employment of Older Persons.—At the third annual conference of advisory councils on occupational health in B.M.A. House in April, it was agreed that (1) steps should be taken to encourage the employment of older persons, (2) the type of work, hours, and working conditions should be adapted to suit the health, physical fitness, and mental capabilities of the worker, due regard being paid to the ordinary physical problems that attend advancing age, and (3) if fit and willing older people were not able to remain at work, to find work, or to use their experience and qualifications to the full, there would be great hardship to the persons concerned and a loss of manpower and skill to the country. In an annotation in the May 5 issue of the *British Medical Journal* it is stated that, through the efforts of some 140 employment exchanges in all parts of the country, 537 of more than 1,100 elderly men had found jobs as watchmen, cleaners, sweepers, porters, handymen, gardeners, and park, cinema, and elevator attendants. A group of 118 men found light work in factories, and a few were taking preliminary training courses to fit them for a new type of work. Many men registered as disabled and over the age of 60 have shown themselves readily adaptable to a suitable occupation. It is evident that we must begin to think in terms of jobs where pace need not be a primary consideration.

Better Use of Health Centers.—A large reduction in the cost of providing health centers could be made, according to a report by the Local Medical Committee for London. The most important step is to make sure that full use is made of the rooms provided. For example, consulting rooms could be used for antenatal and infant welfare clinics between morning and evening office hours For a general practitioner's suite to be used for only about six hours a week is wasteful. So far, patients have shown no preference for the health center as against the physician's private office Apart from natural conservatism this might be due to dislike of an institutional building or fear of lack of privacy and lack of a congenial atmosphere owing to staffing difficulties A group practice examined by the committee was more successful than any of the four health centers examined. There is no reason why a group of physicians in partnership should not provide an equally good service at a health center, and there is an urgent need for further health centers where this experiment could be tried.

Alcoholism and Mortality.—The *British Medical Journal* of June 9 states that the death rates from cirrhosis of the liver and alcoholism in many countries have recently been tabulated by the World Health Organization. Variations in the standards of reporting between countries introduce some uncertainty into international comparisons, and the several revisions of the international classification of the causes of death make comparison over the years difficult. Moreover, exact comparison over a number of years necessitates standardization of the rates by age, since the average age in most countries is increasing and cirrhosis of the liver is mainly a disease of later life. Finally, diagnosis has become more precise in most countries. Despite these difficulties the trends of the death rate do give a broad picture of variations in this aspect of social life within and between countries in the past 50 years. The number of deaths annually from cirrhosis of the liver in England and Wales declined from over 4,000 in 1901 to about 800 in the period 1942 to 1949 (while the population increased by about 25%), but they increased to just over 1,100 in each of the years 1951 to 1954. The highest recorded European death rates from this cause in 1954 were those of France, 36.7 per 100,000 men and 20.2 per 100,000 women. The rates in England and Wales were only 3 for men and 2.3 for women. Austria had an exceptionally large sex difference, with a rate of 20.7 for men and 7.5 for women. In the United States the death rates were 14.7 for white men and 7.1 for white women; for the nonwhites the corresponding rates were 8.5 and 5.2.

The number of deaths attributed to alcoholism in England and Wales dropped from 3,131 in 1901 to 34 in 1954. In the United States the number of deaths during this period rose from about 1,000 to about 2,500, though the population also increased (by about 100%). Many countries, including France, have no data from the early years of this century, but in 1954 the number of deaths from this cause in France was 4,106. In 1954 the death rate per 100,000 was only 0.1 for both sexes in England and Wales, and in Scotland the rates were 0.6 for men and 0.2 for women. In France the rates were 14.5 for men and 5 for women, and in the United States (1953) the corresponding rates for whites were 2.4 and 0.4 and for nonwhites 5 and 1.4.

Rheumatism.—In the annual report for 1955 of the department of rheumatology of the Royal Free Hospital, London, some details are given of the follow-up on all patients seen in the department since it was opened in 1947. Of the 921 patients discharged in this eight-year period, 228 (25%) have been lost sight of. An analysis of the figures shows that about 75% of those admitted as inpatients for rheumatoid arthritis, 50% of those with ankylosing spondylitis, and 80% of those with osteoarthritis do not need readmission for at least three years. In the case of rheumatoid arthritis, as the interval after discharge increased there was a tendency for the proportion of those who maintained improvement and of those whose conditions deteriorated to decline, while the proportion remaining in status quo increased, so that, whereas at the end of the first year only 34% were in status quo, by the end of the eighth year 63% were in this category. In ankylosing spondylitis the proportion that maintained improvement continued fairly constant in each successive year after discharge at between 50 and 60%, but the proportion of patients with osteoarthritis who maintained improvement tended to fall while the proportion remaining in status quo increased, giving a similar result to that in rheumatoid arthritis.

Further investigations have been carried out into the conditions of isolation of the mucoprotein fractions M-1 and M-2. The estimation of mucoproteins by the scanning of stained strips was investigated, and the results were encouraging. Electrophoresis of concentrated urine has revealed the presence of fractions with very high mobilities that appear to be similar to the polypeptides recently reported in cerebrospinal fluid. The mucoprotein fractions of urine exhibit the same electrophoretic mobilities as those in serum. In the course of studying their position in the pattern obtained by electrophoresis at pH 8.6, this pattern was subjected to a second electrophoretic analysis at pH 4.6 at right angles to the first. The two-dimensional analyses revealed heterogeneity of both M-1 and M-2 in the serum and urine of patients with acute rheumatoid arthritis. The serum of normal subjects exhibited heterogeneity of M-2 but not of M-1. The levels of the fractions in normal urine are too low to enable them to be studied in this manner. A quantitative study of coprecipitation of mucoproteins when serum proteins are precipitated with sulfosalicylic acid has been carried out in serums of three patients with acute rheumatoid arthritis. The recovery of M-1 was essentially 100%, and that of M-2 ranged from 30 to 60%.

Following the publication of the article by Morris Ziff and co-workers, from the New York University College of Medicine, claiming that 92% of adult patients with peripheral rheumatoid arthritis showed a positive agglutination test with Rose's euglobulin test while only 2% of the controls had positive results, a series of tests was carried out using their modification of this test. The drawback of the Waaler-Rose sensitized-sheep-cell agglutination test, in the hands of the workers at the Royal Free Hospital, had been a failure of positivity in about 40% of patients with active rheumatoid arthritis. With the modified method, 64 (91.4%) of 70 patients with proved cases of rheumatoid arthritis showed positive agglutination tests with the euglobulin fraction. Three of the six cases where results were negative were considered clinically inactive. Three patients with psoriasis and arthritis had negative results. Analysis of the results in rheumatoid arthritis indicate that the agglutination titer is higher in women, in patients over 60, in those whose arthritis has been present over four years, in those with severe activity, and in those with a high sedimentation rate.

The Preceliac Syndrome.—In *Proceedings of the Royal Society of Medicine* (49:391, 1956) Guy Daynes reports 40 cases of what he describes as the preceliac syndrome. In a typical case, a child, aged 1 to 5 years, becomes irritable and refractory a few days after the onset of an acute infectious illness such as measles. Sleep is disturbed, appetite fails, the abdomen becomes distended, and the stools become pale, bulky, and offensive. The condition usually subsides in a month or two, but if it persists petit mal–like attacks may develop. There is a dramatic response when these children are put on a gluten-free diet. Relapse occurs if a premature return to a normal diet is made. Sleep disturbances are the common presenting symptom. The dramatic response to a gluten-free diet and the similarity of the syndrome to canine hysteria has led Daynes to regard this syndrome as the counterpart in humans of canine hysteria. He believes that the syndrome is the result of a sensitivity to a digestion product of wheat flour at a time when patients are specially likely to develop this, i. e., when they have an infection that can cause cell damage. He does not believe that the changes he has described are the result of direct toxic action by the pathogen after the illness. He postulates that damage to nerve tissue can be followed by sensitization to certain common allergens and that, once caused, such sensitization can be temporary only provided the allergen is withdrawn early. He suggests that patients with petit mal, behavior and sleep disorders, reactive depression, recurrent headache, and insomnia might be reexamined with this syndrome in mind. Because of the relationship between the syndrome and bread, he wonders whether it may be due to the modern chemical treatment of flour. He does not believe that the syndrome is due entirely or directly to agene. The severest reactions have been precipitated by stale wheat flour, which suggests that the basic toxic allergen may be found in the staling process of flour and flour products.

Myelomatosis.—In *The Practitioner* (vol. 177, August, 1956) E. M. Buzzard reviews a series of 46 proved cases of plasma cell myeloma (myelomatosis). None of the patients was under the age of 41, and the average age at the time of diagnosis was 60. Thirty of the patients were men. The presenting symptom was pain in 35 patients, and, as this was usually skeletal rather than visceral, it was usually diagnosed initially as due to rheumatism. This probably explains why there is such a long interval between the onset of symptoms and the correct diagnosis—an average of 16 months in this series. The commonest site for the pain is the back; other common sites were the hips, thigh, and ribs. Nine patients were admitted to the hospital with symptoms and signs of spinal-cord compression and four with a pathological fracture. The presenting symptom in the 11 who did not complain predominantly of pain was debility. Abnormal radiological appearances of the skeleton were present in 24 of the 34 patients on whom x-ray examinations were made. Thirteen of them had collapsed vertebrae, and a further 12 had generalized bony changes, particularly in the skull, ribs, and pelvis. Twenty-three patients were anemic on admission, levels of 7.4 to 8.9 gm. of hemoglobin per 100 cc. being common.

Hyperglobulinemia was found in 32 patients, and the bone marrow showed diagnostic changes in 23. Bence-Jones protein was present in only 14 and was found only in the late stages of the disease. Treatment is symptomatic and unsatisfactory. Deep x-ray therapy to the painful bony sites may give temporary relief. Stilbamidine isethionate has little or no specific effect. Laminectomy and decompression for paraplegia, followed by deep x-rays and some form of spinal support, are always worthwhile and often effective temporarily. Salicylates are the most effective analgesic for bony discomfort and pain. The prognosis is hopeless, but the patient may live 10 days or 10 years. The significant feature in Buzzard's series was how often a patient died within days or, at most, weeks of admission. Death from uremia and congestive heart failure was common.

Bureaucratic Bumbledom.—*The Chemist and Druggist* reports an example of "pedantic nonsense." Under the Food and Drugs Act a drug to be tested is divided into three parts: one each for the analyst of the local authority, the government chemist, and the independent analyst selected by the retailer. Last October, a Surrey pharmacist, in dispensing a test prescription for 40 penicillin lozenges, supplied two tubes of 20 lozenges each in the manufacturer's original sealed tubes. In dividing the sample the two tubes were opened, and seven lozenges were taken from one and six from the other and placed in a third container. The reports of all three analysts showed a deterioration in potency of the lozenges, whereas the manufacturers reported that tests of the same batch of lozenges in their possession were satisfactory. The pharmacist claimed that the breaking of the original seal was responsible for the loss of potency, and his claim was accepted by the executive council with which he was under contract. The executive council further recommended that testing arrangements should be modified to ensure that seals of original containers should not have to be broken in order to provide the samples for analysis. This reasonable suggestion the Minister of Health has categorically rejected, a decision that *Chemist and Druggist* describes as "an unhappy example of bureaucratic unreasonableness and stupidity."

The Complications of Measles.—A study group of the College of General Practitioners published a report on the complications of measles as a supplement to the college's *Research Newsletter* no. 11. It is based on the findings in 2,728 cases. In severe cases of measles the complication rate was between 3 and 10 times as great as in mild cases. Age by itself did not directly affect the complication rate for measles of any given severity, but in children under the age of 2 years pulmonary complications were commoner than aural complications. In children unusually susceptible to respiratory infections the risk of complications was doubled, even after a mild attack of measles. If, at the first visit to a patient with a straightforward case of measles, abnormal physical signs, especially in the chest or ears, are present, the risk of complications is increased threefold in a case of average severity. The prophylactic use of sulfonamides or antibiotics confers little, if any, benefit in mild cases and in cases of ordinary severity, and may even do harm. In severe cases some benefit may be obtained from their use. They can be of benefit to children who are in poor health when they contract measles, especially if they are highly susceptible to respiratory disease or have abnormal physical signs at the onset of the measles. If pulmonary complications are anticipated, the drug of choice is an antibiotic. If otitis media is present or expected, sulfonamides may be of more benefit than antibiotics. If an antibacterial drug is required for a previously healthy child under the age of 2 years, an antibiotic rather than a sulfonamide should be given, as pulmonary, rather than aural, complications are more likely to occur. There is nothing to commend the routine use of sulfonamides, since this increases rather than reduces the total complication rate. The routine use of antibiotics in measles is expensive and largely unnecessary.

Pathologists' Jubilee.—The Pathological Society of Great Britain and Ireland held its 50th meeting at Manchester, where the inaugural meeting was held in 1906. In its early days the society drew its membership largely from the Scottish and provincial medical schools. This was partly because pathology departments were more highly developed in these schools than in the London medical schools. To the pathologist today, the Pathological Society of Great Britain and Ireland and *The Journal of Pathology and Bacteriology* are practically synonymous, because within less than a year of the foundation of the society the journal became its official organ. The society has always maintained a sturdy independence of medical politics and an avoidance of frills. It has no permanent president. The rule is that the chair is taken by the head of the laboratory in which the meeting is being held. The society refuses to send delegates to conferences. Attempts have been made at different times to involve the society in medical politics, but these have always been successfully resisted. It has consistently adhered to its original purpose—to advance pathology and to facilitate communication between pathologists

Complaints Against Physicians.—The Minister of Health stated that about 2,800 complaints have been received against physicians in the National Health Service. The investigation of 2,508 of these has been completed. In 7, the physician's name was removed from the medical lists of executive councils; in 355, sums of money were withheld from the physician's pay; in 81, other action was taken, such as the reimbursement of expenses incurred by patients; in 301, the physician's attention was drawn to a breach of his terms of service; and in 1,764, no action was necessary.

CORRESPONDENCE

LOW-PROTEIN OBESITY DIETS

To the Editor:—May I commend THE JOURNAL for its excellent coverage, especially in the Aug. 25, 1956, issue, of the low-protein obesity diets publicized recently in lay magazines. Notable was the scholarly, thorough, and readable review by Dr. Jolliffe (page 1633). One factor perhaps deserves special emphasis—the influence of appetite, or lack of it. While anorexia is prevalent in malnutrition, the opposite is true in obesity, and therefore anything that decreases appetite is of obvious importance in the treatment of obesity. Dr. Jolliffe quoted Streick, who found that, when the protein intake was reduced from 28 gm. per day (the minimum for nitrogen balance) to 23, the subject "developed loss of appetite," and Dole and his co-workers, who showed in their obese subjects that an intake of 30 to 40 gm. of protein per day resulted in a loss of appetite. This certainly has been my own observation in many surgical patients subjected unknowingly to partial or complete protein starvation. In an earlier study by Dole and his co-workers of various restricted diets in patients with hypertension (*J. Clin. Invest.* 32:185, 1953), it was only the low-protein diets that led to anorexia. Thus, it seems that obese persons are no exception to the rule that a low-protein intake leads to anorexia and, thus, to a lower food intake. After all, starvation, even if incomplete, has long been known to lead to a loss of body weight. Many years ago a high-protein diet was also touted for the treatment of obesity. It was extolled in terms of "eat all the meat you wish." The gimmick was that absolutely no salt could be added, which, of course, made the food so tasteless few would eat much of it. I wonder whether the "compulsive dieters," to use the term of Jolliffe, actually developed a salt deficiency on such a diet. Editors of lay magazines, as well as obese persons who read them, should, of course, consult reputable authorities before accepting fads and fancies as established facts. Publishers, it seems, should have enough of a sense of responsibility in public relations to avoid purveying wishful thinking in their attempts to fulfill the natural curosity of their readers for medical knowledge.

ROBERT ELMAN, M.D.
Barnes and Wohl Hospitals
600 S. Kingshighway
St. Louis 10.

A MODE OF TRANSMISSION OF VIRAL HEPATITIS

To the Editor:—Acute hepatitis can be spread by minute amounts of infective matter; as little as 1 cu. mm. can transmit the disease. Cold chemical sterilization of surgical instruments is practiced widely (it is used commonly for scissors and also for any instruments that must be sterilized during an operation), but the virus of homologous serum hepatitis is reported to be destroyed only by heat. The virus may possibly be destroyed only by prolonged exposure to solutions for sterilizing instruments; a four-hour exposure has been said to be minimal, but common practice in the operating room consists of less than one-eighth of this time (10 minutes is often used). Once an incision has been made in the skin, all instruments are equally hazardous, and the mechanism recognized in syringe hepatitis is brought to the operating table with cold sterilization. The following suggestions are therefore made. 1. Homologous serum hepatitis may be spread from patient to patient by failure to heat-sterilize surgical instruments, since they are invariably exposed to blood and other fluids and subcutaneous tissues. 2. The role of blood transfusion in causing serum hepatitis may be exaggerated, since transfusion and surgery commonly go together. 3. All instruments used in surgical procedures should be sterilized by heat sufficiently intense and administered for a long enough time to destroy the virus.

FRANK COLE, M.D.
2430 Lake St.
Lincoln, Neb.

BOOK REVIEWS

To the Editor:—With reference to a review in the July 28 issue of THE JOURNAL, page 1341, of a book, "Allergy in Childhood," by Jerome Glaser, I should like to make the following comments. The book was castigated by the reviewer and not one part was singled out for commendation. There may be certain parts that the reviewer could have taken issue with, but the book is replete with sound information. The subject of allergy is most complex, and no one can be expected to do justice to all its phases. This book represents what Glaser, who has had wide experience, thinks of pediatric allergy. It is highly practical and will serve a useful purpose. I am certain that many allergic children will be benefited because of the information that can be gleaned from Glaser's volume. Allergy in children is perhaps the most neglected field in medicine, and I am sure that this volume will help to focus more attention on this subject. When an author writes a book or article he exposes himself to criticism and must accept it whether it is favorable or not. On the other hand, a reviewer best serves his duty if he is objective and tries to understand the purpose of the author. I recommend Glaser's book for its many good parts.

BRET RATNER, M.D.
50 E. 78th St.
New York 21.

VENOSTOMY

To the Editor:—I wish to comment on the article "Venostomy, an Improved 'Cut-Down' Procedure in Infants and Children," by Miles and Harris (*J. A. M. A.* 161:619 [June 16] 1956). Most aspects of the technique described and illustrated are excellent; however, there is one dangerous omission. The illustration accompanying the article shows the polyethylene tubing extending straight out of the cut-down to the needle. This is extremely dangerous, since any weakening of the catheter wall by repeated insertion of the needle or flexion of the tubing against the needle, or an error in handling replacement of the needle, may result in the polyethylene tube being carried away into the blood stream. I personally know of five such instances. In one of these, a nurse was changing the needle inserted in the cannula and let go of the polyethylene tube just for an instant, only to see the tube disappear beneath the skin. It was later found in the heart. I would highly recommend that a loop of the polyethylene tube be fashioned between the venostomy and the needle and that this loop be securely fastened to the skin by adhesive tape.

GEORGE E. MOORE, M.D., Ph.D.
Roswell Park Memorial Institute
Buffalo 3.

MICROSPORUM GYPSEUM

To the Editor:—In the Aug. 25 issue of THE JOURNAL on page 1687, the following statement was made under the heading "Correction": "What was meant was that all ringworms that attack man or animals attack both, except M. audouini, which attacks only man, and M. Gypseum, which attacks only animals." The latter part of the sentence should be deleted, as M. gypseum does attack man.

SAMUEL D. ALLISON, M.D.
Waikiki Medical Building
305 Royal Hawaiian Ave.
Honolulu 15, Hawaii.

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Revocation of a License for Conviction of an Offense Involving Moral Turpitude.—The Board of Medical Examiners revoked the plaintiff's license to practice medicine and surgery in California. The order of revocation was affirmed by the superior court, so the physician petitioner appealed to the Supreme Court of California.

In October, 1953, a judgment of conviction was entered on petitioner's plea of guilty to a violation of the Alcoholic Beverage Control Act. Subsequently a special investigator for the Board of Medical Examiners filed with the board an accusation against petitioner, charging that his conviction was for an offense involving moral turpitude and that he was therefore guilty of unprofessional conduct under the Business and Professions Code. Subsequently this petition was heard before a hearing officer who found that the conviction in question was for giving a drink of an alcoholic beverage to a 17-year-old boy but that the crime did not involve moral turpitude. He recommended that the accusation be dismissed. The Board of Medical Examiners, however, decided that petitioner had been convicted of a crime involving moral turpitude and revoked his license to practice medicine and surgery in the state. Upon appeal to the superior court, that court found that "said conviction was of a crime involving moral turpitude in that it arose from the furnishing of intoxicating liquor by the petitioner to a minor . . . without just cause or explanation, and that at said time and place and in connection with the furnishing of said intoxicating liquor the petitioner did engage in immoral acts with the said minor."

Under the plain language of the Business and Professions Code, said the Supreme Court, it is the conviction alone of an offense involving moral turpitude that empowers the board to suspend or cancel a license. Since the record of conviction is conclusive evidence of the unprofessional conduct, the circumstances under which the crime was in fact committed cannot be considered. Moral turpitude must be inherent in the crime itself to warrant cancellation or suspension of a license because of the conviction. Moral turpitude is not inherent in the crime itself unless a conviction in every case would evidence bad moral character. Only if the minimum elements for a conviction necessarily involve moral turpitude, and a conviction cannot be had without proof of fact showing moral turpitude, can the conviction be held to be of an offense involving moral turpitude.

We have concluded, the court continued, that the offense of giving an alcoholic beverage to a person under the age of 21 years does not in every case evidence a bad moral character and that moral turpitude is therefore not inherent in the crime itself. Conviction alone, therefore, of such an offense does not warrant the suspension or cancellation of a license under the Business and Professions Code. If other acts committed at the same time as the offense for which a licensee is convicted constitute unprofessional conduct, the licensee may be disciplined for those acts. He must, however, be charged with such acts. In the present case petitioner was neither charged nor convicted of anything but a violation of the Alcoholic Beverage Control Act.

An offense that does not necessarily involve moral turpitude may be committed during the commission of an act involving moral turpitude, e. g., the Alcoholic Beverage Control Act may be violated by adulterating a nonalcoholic drink with alcohol and inducing a minor to take it in the belief that it is nonalcoholic. In such cases a licensee cannot be disciplined under a procedure that makes the record of conviction conclusive evidence of unprofessional conduct but must be charged with the fraudulent or immoral act and given a hearing on that charge. The petitioner was not charged with such an act, and there is nothing in the record to indicate any deception or other immoral act in the giving of the alcoholic beverage.

Accordingly the judgment of the trial court was reversed and the order of revocation directed to be set aside. *Lorenz v. Board of Medical Examiners, 298 P. (2d) 537 (Calif., 1956).*

Hospitals: Liability of Husband for Hospital Fees of Estranged Wife.—This was a suit for the recovery of fees for hospital services rendered to the estranged wife of the defendant. From a judgment for the plaintiff, the defendant appealed to the Court of Appeals of Maryland.

The patient-wife entered the plaintiff's hospital in 1952 and was still in the hospital in a critical condition at the time of the suit. The affidavit of the secretary of the hospital alleged that there was a balance due for hospital services of over $7,000, that the defendant had promised to pay the amount, and that the care and treatment rendered to the patient was a necessity for which her husband was justly liable. The defendant admitted that he was married to the patient, but he disputed the claim and swore that he did not owe any part of it. He then alleged by way of defense (1) that his wife, at the time of her separation from him without just cause, had a separate estate; (2) that they had been separated for about 30 years, (3) that he had never promised to make any payment to the plaintiff of any kind; and (4) that the hospital services were not necessary after January, 1953.

Generally, said the court, a husband is liable for the necessaries provided for the support of his wife. Whatever may be a husband's circumstances, his wife is entitled to food and clothing to preserve her life and health, and to medical attendance and nursing when she is sick. The Maryland statutes, which preserve to the wife the ownership and enjoyment of her property, do not relieve the husband of his common-law obligation to maintain his wife and to pay for medical attendance upon her. Generally, therefore, it is the husband's duty to support his wife when she is confined in a hospital, and it is only when he is unable to do so that resort can be had for her maintenance to her separate estate. However, continued the court, the rule is different where the wife deserts her husband without just cause and continues to live apart from him without his consent.

In accordance with the doctrine generally accepted in this country, the Court of Appeals concluded, it is held in Maryland that a wife has the right to look to her husband for support if he deserted her or if his misconduct forced her to leave him. But, when a wife deserts her husband without his fault, she forfeits all right to support from him and carries with her no authority to pledge his credit even for necessaries.

In the case at bar, the question whether the husband was liable for the wife's hospital care and treatment was squarely in issue. It is clear that the husband's pleas and affidavit raised the dispute of material fact as to whether his wife deserted him without just cause, thereby relieving him of liability for necessaries furnished to her. The plaintiff contended that the husband's pleas and affidavit were inadequate because they did not state precisely that the patient was guilty of desertion. We do not consider this a substantial objection. It is true that he did not use the word "desertion." However, his allegations that his wife had left him without just cause for the separation, that they had been separated for 30 years, and that many times he had attempted to effect a reconciliation but each time she refused to return to live with him were tantamount to an allegation that she had deserted him.

Accordingly the judgment of the trial court in favor of the plaintiff hospital was reversed and the cause remanded for further proceedings. *Kerner v. Eastern Dispensary and Casualty Hospital, 123 A. (2d) 333 (Md., 1956).*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Rubella in a Remote Community. F. K. M. Hillenbrand. Lancet 2:64-66 (July 14) 1956 [London, England].

Hillenbrand describes an outbreak of rubella that occurred at Port Stanley, the chief settlement in the Falkland Islands, in 1952-1953. The outbreak began 17 days after the arrival of the monthly mail and passenger boat from Montevideo on Sept. 7, 1952. None of the passengers reported sick, and the first case was seen in a Port Stanley schoolboy. Most of them occurred during the first two months; but a second crop followed Christmas gatherings, and after this there were still a few scattered cases. No other infectious fever was current at the time. Previous outbreaks of rubella had occurred on the islands in 1911-1912 and in 1947-1948. When some patients stated that they had had rubella in 1947-1948 the author was at first inclined to think that they had confused german measles with true measles, of which there had been an outbreak at about the same time. Of 33 women who became pregnant during the epidemic of 1952-1953, 15 claimed to have had rubella earlier. However, there were 107 school children whose medical records showed that they had both measles and rubella in 1947-1948, but clinical rubella developed in 15 and subclinical rubella in 6 of these during the 1952-1953 outbreak.

Rubella attacked persons over a wide range of age, and in the age group 15 to 45 many more females than males were affected. Other outstanding features were relapses, second attacks, many subclinical infections, and an unusually high incidence of a variety of rheumatic afflictions. Enlargement of the lymph nodes, especially of the postauricular and occipital ones, was found to persist for many months. Pregnancies starting during the epidemic resulted in a number of congenital defects and other sequels similar to those reported elsewhere. The author emphasizes the advantages of studying infectious diseases in isolated communities, pointing out that the isolation makes it easier to estimate incubation periods, epidemic periodicity, and immunity; and, as other infections are less likely to be present, the clinical picture may be observed in pure form.

Clinical and Biological Observations on the Association of ACTH and Antibiotics in the Treatment of Pulmonary Tuberculosis. E. Minetto, V. Donadio, G. M. Molinatti and A. Pizzini. Minerva med. 47:1744-1758 (June 6) 1956 (In Italian) [Turin, Italy].

Patients with various forms of pulmonary tuberculosis who were receiving treatment with antibiotics were given ACTH and cortisone. They were kept under clinical and biological control. ACTH was given in infusions in a 500 cc. solution with 5% of glucose, 30 drops per minute, continued for five hours. Infusions were given 12 hours apart. The dose of ACTH varied from 10 to 5 units per day. Particular attention was paid to the temperature, weight, and diuretic curves. Erythrosedimentation and glycemia were controlled every four days. Radiological examination of the thorax and search for alcohol-acid-resistant bacilli were performed periodically. The results showed that the treatment is indicated in forms of tuberculosis with a marked exudative and allergic progress. ACTH can improve the diminished clinical sensitivity to antibiotics. ACTH and cortisone, considered as stimulant or substitution therapy, are also indicated in forms of pulmonary tuberculosis associated with adrenal hypofunction.

Erythema Nodosum as a Manifestation of Sarcoidosis. D. G. James, A. D. Thomson and A. Willcox. Lancet 2:218-221 (Aug. 4) 1956 [London, England].

The authors report on 27 patients in whom histological evidence of sarcoid tissue was obtained at the time of erythema nodosum. Seven were men and 20 were women, aged 18-60, the majority being young adults. Evidence of sarcoidosis was obtained by biopsy of a lymph node in 4 patients, of the skin in 5 patients, of the liver in 4, through Kveim test in 19, and directly from a skin lesion of erythema nodosum in 2. The lesions always occurred in the legs, but were also present in the arms in four patients. Lesions were present for from one to six weeks (average, two weeks). Two patients had recurrences after a two-month interval. Constitutional disturbances and fever (temperature 102 F) were present for the first few days. Seventeen patients (63%) had an associated polyarthritis. Polyarthritis preceded erythema nodosum in 11 patients.

Radiography of the chest showed bilateral enlargement of the hilar lymph nodes in 24 of the 27 patients; in 3 only single films were taken, so changes were possibly missed. Enlargement persisted for from 2 to 12 months. The erythrocyte sedimentation rate was often greatly increased but returned to normal as the erythema nodosum subsided. Fifteen patients followed up for more than two years have remained well and free from clinical and radiographic complications. Twelve patients followed up for from 9 to 12 months remain in good health. It is important to obtain histological evidence to separate erythema nodosum due to sarcoidosis from erythema nodosum due to other causes.

Environmental Causes of Cancer of the Lung Other Than Tobacco Smoke. W. C. Hueper. Dis. Chest 30:141-159 (Aug.) 1956 [Chicago].

The author studied the environmental causes of cancer of the respiratory system. The evidence presented definitely establishes the fact that some well-defined exogenous physical and chemical agents are causally involved in the production of occupational cancers of the respiratory system of members of certain restricted worker groups. Since epidemiological studies of various large worker groups and of the membership of special occupations have shown marked differences in their lung cancer death rates, and since excessive lung cancer death rates have been found in occupational groups with occupational exposure to known industrial respiratory carcinogens, it is likely that industry-related factors account for a much larger number of lung cancers than that on record. The demonstration of recognized environmental respiratory carcinogens in the atmosphere especially of urban areas and of consistently and markedly higher lung cancer death rates for urban populations over rural populations strongly suggests that industry-related air pollutants may play a causal role in the causation of lung cancer and its recent considerable increase in frequency in practically all industrialized countries.

Occupational and industry-related carcinogenic air pollutants seem to play an important role in the causation of lung cancer and its recent increase in frequency, but it is obvious that they are not the only factors responsible for pulmonary carcinogenesis. Research on the etiology of lung cancer therefore should be conducted on a broad basis, including not only inhalants but also agents entering the body through nonrespiratory routes.

Salicylate Ingestion: A Frequent Cause of Gastric Hemorrhage. J. J. Kelly Jr. Am. J. M. Sc. 232:119-128 (Aug.) 1956 [Philadelphia].

The occurrence of weakness and tarry stools is reported in a 62-year-old woman and in two men, aged 29 and 53 years respectively, who did not notice any digestive disturbance or abdominal pain. Free acid was found in the fasting stomach, and there was no roentgenographic proof of an ulcer. The melena always followed episodes of headache, which in turn were treated with acetylsalicylic acid (aspirin). Hypoprothrombinemia was not the cause of the bleeding, as the prothrombin time was

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association. Periodical files cover 1947 to date only, and *no photoduplication services are available.* No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

normal in all the patients in whom it was determined and the amount of salicylates taken was inadequate to depress significantly the prothrombin concentration of the blood. An examination of the hospital records of 49 patients with unexplained upper gastrointestinal bleeding revealed that 16 (32%) of these patients had received salicylate therapy for such conditions as severe headache, arthritis, grippe, and chest injury when the bleeding occurred. The ingestion of aspirin given for headache or arthritis preceded the symptoms of myocardial infarction in only 4 (4%) of 100 patients with acute myocardial infarction and without gastrointestinal bleeding who served as controls. The striking difference between the 32% incidence of salicylate ingestion in the group with the unexplained gastrointestinal bleeding and the 4% incidence in the control group is strong circumstantial evidence of a cause-and-effect relationship between the salicylates and the gastrointestinal bleeding.

Of 75 patients with a bleeding peptic ulcer, 15 (20%) were receiving salicylates for headache, arthritis, or grippe when the symptoms developed. This high incidence of aspirin users among patients with bleeding peptic ulcer is not proof that salicylates were responsible for the bleeding, but the use of salicylates appears to increase the frequency of bleeding in patients with proved peptic ulcer. The mechanism of bleeding both in the patients with proved peptic ulcer and in the other group, which was without symptoms or laboratory evidence of peptic ulcer, is not clear. A local mucosal factor may be the cause, but it seems more likely that aspirin by augmenting the gastric acidity leads to peptic erosion and bleeding. The hypothesis is advanced that the seasonal incidence of peptic ulcer activation may be partially explained by the more frequent use of this drug in the "ulcer months." All patients with upper gastrointestinal hemorrhage should be questioned concerning the use of salicylates or proprietary preparations containing salicylates. This may be a lifesaving measure.

Pro-Banthine in the Treatment of Peptic Ulcer: A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies: Report of 60 Cases. J. Lichstein, M. G. Morehouse and K. L. Osmon. Am. J. M. Sc. 232:156-171 (Aug.) 1956 [Philadelphia].

Propantheline (Pro-Banthine) bromide was given over a 24-month period to 60 patients with an active or chronic recurrent duodenal ulcer who were placed simultaneously on a graduated ulcer diet and were also given some form of antacid therapy. Mild sedation was added when indicated. Doses of 60 mg. or more of propantheline four times a day were employed. Twenty patients who had received methantheline (Banthine) bromide previously served as their own controls.

Forty-six of the 60 patients were brought under control symptomatically within from 24 to 72 hours. The relief of pain was often immediate, and its duration was maintained for from three weeks to three months. Seven patients did not obtain relief, a severe intolerance to the drug developed in one, and in four patients the follow-up was unsatisfactory. Undesirable side-effects of propantheline were almost exclusively confined to dryness of the throat. Headache, constipation, and difficulty in urination were observed in only a few patients, and increased frequency in one. Three patients had transitory muscular weakness of the upper and lower extremities; but these symptoms did not require withdrawal of the drug. Wide drug tolerance was shown by the ability of the patients to take the drug steadily for many months without any untoward effects and by their ability to tolerate sudden large increases. Propantheline produced significantly fewer side-effects than methantheline in the same patients with ulcer; propantheline proved as effective as methantheline in the relief of pain; and the flexibility of dosage was greater with propantheline than with methantheline. The effect of propantheline on gastric secretion was studied in 21 patients. The drug invariably depressed the volume of secretion; the degree of acidity as measured by pH, clinical units and milligrams of hydrochloric acid was sporadically and not consistently affected. Intramuscular administration of the drug consistently inhibited gastric motility as measured by the balloon-water manometer kymograph and the strain gauge oscillograph methods. Intragastric administration of propantheline was followed by a similar but slower and less dramatic effect on motility. The results of gastroscopic examination in 3 of 13 patients indicated an effect on gastric tone similar to that observed after vagotomy. Long-term observations in the patients treated with propantheline did not suggest any reduction in recurrence rate or decrease in incidence of complications or a lessened need for surgical intervention.

The clinical effects of propantheline were also studied in 16 patients with functional dyspepsia, irritable colon, regional ileitis, chronic ulcerative colitis, peptic esophagitis, and chronic recurrent pancreatitis. The parasympathetic inhibitory effect of propantheline on gastric motility appeared to be clinically manifest only in the acute phase of the disorders in these patients. This has been most strikingly shown by the short-term effectiveness of the drug in controlling the diarrhea that periodically occurs during acute exacerbations in patients with the "unstable colon" syndrome.

Hepatic Coma. M. Bjørneboe. Nord. med. 55:894-895 (June 28) 1956 (In Danish) [Stockholm, Sweden].

The cause of liver insufficiency is most often virus hepatitis or cirrhosis of the liver, but toxic liver lesions, eclampsia, and different forms of occlusion jaundice can also lead to liver insufficiency. Clinically it is usually marked by intense itching and certain neurological symptoms, included here under the not wholly adequate term hepatic coma. The neurological phenomena consist of mental changes, of which the first symptoms are changes in personality, loss of memory, confusion, and hallucinations, and of abnormal motor activities, revealed in part by involuntary movements of a special type called flapping. Periods with flapping alternate with periods without flapping. These involuntary jerking movements are thought to be almost pathognomic for liver insufficiency. At a later stage flapping disappears, the extremities become flaccid, and extensive plantar reflexes are demonstrable. The histological picture is marked by extensive plasmocytotic astrocytosis with relatively sparse occurrence of ganglion cell lesions. Care must be exercised in treating patients who have grave liver insufficiency, liver cirrhosis and strongly developed collateral circulation, or portacaval anastomosis with a diet rich in protein or with resins containing ammonium or ammonium chloride. If in such patients symptoms of threatening hepatic coma set in, the food intake should be limited to glucose and the intestinal canal should be emptied by enemas. The administration of tetracycline derivatives can perhaps also reduce the ammonia formation in the intestine. Patients who have shown a tendency to recurring hepatic coma should receive a diet containing about 40 gm. of protein daily. Pathophysiological studies point to increased ammonia content in the blood as an essential factor in the origin of this form of coma.

The Nephropathy of Potassium Depletion: A Clinical and Pathological Entity. A. S. Relman and W. B. Schwartz. New England J. Med. 255:195-203 (Aug. 2) 1956 [Boston].

The occurrence of a previously unrecognized disorder of renal function associated with potassium deficiency is described in two men and three women with severe chronic potassium depletion that had resulted from chronic diarrhea. Severe hypokalemia was the rule, but no patient was dehydrated or sodium depleted, and none had significant acid-base disturbances. There was no evidence of renal wasting of potassium. One patient had pronounced polyuria. Blood nonprotein nitrogen levels were normal or only slightly elevated, but all patients had vasopressin-resistant hyposthenuria. Clearances of inulin, endogenous creatinine, and para-aminohippuric acid were significantly reduced. Routine urinalysis revealed minimal inconstant albuminuria and cylindruria in three patients. Replacement of potassium deficits by daily intravenous administration of potassium chloride resulted in gradual restoration of the significantly impaired renal function to normal in four patients. In the fifth patient renal function was only partially restored, but this was probably related to the complicating factor of chronic pyelonephritis, as well as to the fact that complete restoration of potassium balance could not be achieved in the course of the observation period.

Renal biopsies obtained in three of the five patients revealed hydropic and degenerative changes confined chiefly to the convoluted tubules, without significant glomerular or vascular lesions. In one patient, striking vacuolation of the tubules was observed. A second renal biopsy was carried out in two patients one year later; it revealed that restoration of the potassium balance had produced total healing of the lesion in one patient and marked improvement in the other. Observations in the five patients and in eight patients whose cases were collected from the literature suggested that the nephropathy of potassium depletion is a relatively common clinical and pathological entity that may occur as a complication in a wide variety of circumstances. Potassium depletion apparently should be added to the list of causes of reversible renal disease.

SURGERY

Development of Cancer Twice in One Stomach. K. Nicolaysen and K. Liavaag. Nord. med. 55:911-913 (June 28) 1956 (In Norwegian) [Stockholm, Sweden].

Three cases are presented in which cancer developed in the gastric stump 15, 25, and 39 years respectively after resection of the stomach for cancer of the stomach. The question is whether the condition should be considered as a recurrence of the original cancer or whether there is really a new cancer. Because of the long interval and the fact that the patients were free from symptoms of digestive disorders during the interval, the authors are inclined to regard the cases as representing a new development of cancer in the gastric stump and to consider this development in the same light as cancer developing in the resected stomach of ulcer patients with the same interval between the primary operation and the later cancer development. The patients are not to be regarded as unfit for surgical treatment, since total gastrectomy is possible as shown by the first two cases reported.

Intravenous Injections of Tetracycline in Severe Surgical Infections. L. Pattarin and V. Blini. Minerva chir. 11:509-513 (June 15) 1956 (In Italian) [Turin, Italy].

The authors studied the effect of tetracycline in 43 patients with various surgical infections. Very slow drip venous injection was employed; it never exceeded more than 20 drops a minute. Intramuscular injections or oral administration were used only in patients who needed long-continued therapy and in those whose veins did not permit the use of prolonged intravenous injection. Infections were severe in all patients. In many patients tetracycline replaced other routine antibiotics (penicillin, terramycin) that had had no effect. The best results were obtained in infections of the biliary tract. Gram-positive and gram-negative germs were present in all of the infections. The patients tolerated the drug very well. In no case was it necessary to suspend the therapy because of the occurrence of toxic phenomena.

Prophylactic Treatment of Cancer: The Use of Chemotherapeutic Agents to Prevent Tumor Metastasis. E. P. Cruz, G. O. McDonald and W. H. Cole. Surgery 40:291-296 (Aug.) 1956 [St. Louis].

The observation that, at operation, cancer cells may be disseminated as venous emboli, by implantation in suture lines, and by spread of loose cells throughout the wound as the tumor is manipulated or removed, prompted the following experiments in animals. A suspension of Walker carcinosarcoma cells was injected into the portal vein of a rat. It was noted that nitrogen mustard given by either of three routes ([1] into the portal vein, [2] into a systemic vein, or [3] intraperitoneally) on the day of the injection of the cancer cells sharply decreased the percentage of "takes." Although the results of these experiments were only preliminary, the institution of prophylactic chemotherapy in human beings with cancer was considered justifiable.

On the assumption that "floating" cancer cells are more readily killed than cells with a vascular "root," a course of nitrogen mustard, beginning on the day of operation, has been given to 20 patients with tumors of the breast, colon, rectum, and stomach that metastasize by vein as well as by lymphatics. With the exception of poor-risk patients, the first dose was given on the day of operation and three additional doses on the next three postoperative days. Patients undergoing celiotomies were given the first dose intraperitoneally, and the remaining three by systemic vein. The conventional dose of 0.1 mg. per kilogram of body weight was used, except that the daily dose was limited to 6.5 mg., and that patients over 69 or 70 years of age were not given the full course, but one or two doses.

The animal experiments were continued in an attempt to determine the relative effect when the nitrogen mustard therapy is started at varying intervals after injection of the cancer cells, and different chemicals were also utilized. Since so many chemicals with an anticancer effect are now available, the authors believe screening tests with tissue culture methods would be desirable to obtain the most effective drug for a given tumor, as removed from the patient. Such screening tests with human cells are now in progress.

NEUROLOGY & PSYCHIATRY

Isoniazid in Disseminated Sclerosis. J. L. Adams. New Zealand M. J. 55:232-235 (June) 1956 [Wellington, New Zealand].

A report that isoniazid had been used beneficially in a hospital in the Bronx, N. Y., in cases of multiple sclerosis, and a request for this treatment on the part of one of his own patients, induced Adams to try isoniazid in five patients with disseminated sclerosis. The patients were asked to accept a harmless therapeutic experiment with an open mind. The results of this small trial with isoniazid, while not so encouraging as those reported by Kurtzke and Berlin of the Bronx, indicate a small beneficial effect that is apparently nonspecific and empirical. Isoniazid appears to influence only recent features of deterioration. It seems to have a place in reestablishing ambulation when this is failing and in controlling fecal or urinary incontinence in some cases. The elevation in mood and the euphoria may be beneficial. There appear to be no significant ill effects. The continued use of the drug in a dosage of from 200 to 300 mg. a day appears warranted in selected patients with disseminated sclerosis. The therapeutic resources in this disease are so inadequate that even a drug offering a slight beneficial effect is welcome.

The Treatment of Bulbar Poliomyelitis. M. H. Seifert. Postgrad. Med. 20:168-176 (Aug.) 1956 [Minneapolis].

The author lists 10 commandments to be observed in the treatment of patients with bulbar poliomyelitis: 1. Do not give opiates or sedatives. Restlessness equals anoxia. 2. Do not allow food by mouth if there is vomiting or difficulty in swallowing. 3. Keep patients prone or in postural drainage position with the head down, and provide constant nasal suction if there is any accumulation of secretions in the pharynx. 4. If these measures do not immediately clear the pharynx and keep it clear, do a tracheostomy. 5. Do not save tracheostomy for use as a last-ditch procedure. You may win occasionally, but not often. 6. Never put a bulbar poliomyelitis patient in a respirator without a tracheostomy. 7. Any supportive measure to keep a patient with bulbar poliomyelitis alive through the acute stage is worthwhile. The author observed one patient who was just vegetating for more than two weeks, with circulation supported by Levophed; she now rides a bicycle and plays like any other child. 8. Remember that in an emergency your anesthesiologist may help by intubating the larynx, but then do the tracheostomy as soon as possible. 9. Constant watchfulness and attention to detail are necessary, and nursing care is of paramount importance. The house staff should be available at all times to meet emergencies, and a nurse must be near the patient constantly. 10. Pediatrician or internist, neurologist, anesthesiologist, laryngologist, orthopedist, physiotherapist, house staff, and nursing staff must all constitute a team in the care of these patients, and the reward is great.

DERMATOLOGY

Tinea Capitis Due to Trichophyton Sulphureum. J. M. Beare. Brit. J. Dermat. 68:193-199 (June) 1956 [London].

Beare cites a number of reports that indicate that Microsporum audouini is becoming less common as a cause of tinea capitis but that Trichophyton sulfureum infections are becoming more frequent. In a previous study, the author and an associate had isolated T. sulfureum 21 times in 1,004 patients with tinea capitis. The present report is concerned with 82 children who had ringworm of the scalp due to T. sulfureum. These 82 include the 21 noted above and were seen during the period from January, 1949, to December, 1955. They represent all the children in whom T. sulfureum was cultured from ringworm lesions of the head at the Royal Belfast Hospital for Sick Children. Most of the children came from large centers of population. There were 45 boys and 37 girls. While T. sulfureum is not expected to produce a severe inflammatory reaction, 23 of the 82 children did exhibit such a reaction and in 10 of these 23 it was especially severe. Of the remaining 59 children, 44 had no reaction and 15 had a mild folliculitis.

Infections showing a relatively noninflammatory type of reaction were difficult to diagnose. Often the patches were tiny, and only an occasional broken-off hair led one to suspect ringworm at all. Sometimes a differentiation on purely clinical grounds between this infection and mild patchy seborrheic dermatitis was impossible. The regular breaking-off of hairs at approximately one-eighth of an inch above the surface, found, classically, in microsporum infections, is not always seen with T. sulfureum. The skin within this patch may be normal or may show various degrees of inflammatory change. Usually, however, scaling is present. There is no fluorescence in Wood's light, though affected hairs will often appear dull and can be distinguished from normal hair. It seems likely, therefore, that a large number of mild scalp infections due to T. sulfureum are not recognized. In 3 of the 10 patients with severe inflammatory reactions kerion developed after from 8 to 11 weeks. While the delayed kerionic reaction may prove disconcerting, it usually hastens cure. The author feels that x-ray epilation is indicated in children who have extensive noninflammatory lesions. Watchful expectancy with anticipation of spontaneous cure probably within a year seems to be the most logical management for insignificant and noninflammatory patches.

reatment of Fungoid Dermatoses and Some Nonmonilial rmatoses by Mycostatin. C. Grupper. Semaine hôp. Paris. 2253-2263 (June 30) (In French) [Paris, France].

Fungoid dermatoses or cutaneous moniliases were formerly regarded as occurring only in patients with severe organic deficiencies such as diabetes or leukemia. No specific treatment was known before 1953. The term cutaneous moniliasis should be abandoned in favor of candidiasis, because the most highly individualized forms are caused by the vegetation in situ of Candida albicans. Interest in these conditions has increased since the era of fungoid antibiotics. The discovery of nystatin (Mycostatin) and its effectiveness in the treatment of skin diseases focused attention on the therapy of these conditions in general medicine and especially in pediatrics and in dermatology. The therapeutic effect of Mycostatin has been studied in many of the monilial dermatoses. It is at present the treatment of choice in cutaneomucous and ungueal moniliasis, whether local or generalized, profound or superficial, and it is specific for these conditions when it can be introduced into the center of the mycotic foci. It is well tolerated and completely harmless. It has also been tried in other nonmonilial dermatoses with variable results, sometimes excellent and sometimes good, but never harmful. Sixty patients with cutaneous moniliasis and 93 with various nonmonilial dermatoses were treated with Mycostatin applied locally or given by mouth. Local treatment with Mycostatin was sufficient in 25 patients with buccal, perianal, and perigenital moniliasis and intertrigo. In 31 cases of ungueal moniliasis Mycostatin seemed to be specific. In superficial generalized cutaneomucous moniliasis, local treatment should be reinforced by administration of Mycostatin by mouth. In generalized profound granulomatous moniliasis, local and general treatment with Mycostatin should be supplemented by corticotherapy. In nonmonilial dermatoses, whether Mycostatin is used as a general treatment modifying the intestinal flora or as a local treatment modifying the surface flora, the results are irregular and nonspecific, but certain dermatoses have responded favorably. The addition of hydrocortisone to locally applied Mycostatin seems to reinforce the action of the antifungal drug.

Alopecia Areata. J. C. Seelen, L. A. M. Stolte, J. H. J. Baakker and E. Verboom. Nederl. tijdschr. geneesk. 100:1790-1799 (June 23) 1956 (In Dutch) [Haarlem, Netherlands].

The authors investigated the endocrinologic functions of 12 women with alopecia areata. Their ages ranged from 15 to 47 years, all except two being less than 40 years of age. While the possibility that endocrine disturbances might play a part in alopecia areata had been suggested earlier, no systematic studies on the endocrinologic functions of such patients had been reported. The only unusual endocrinologic finding was that the excretion of 17-ketosteroids was low in four patients and at a low level in the other eight. The intravenous administration of corticotropin (ACTH) in one patient with low excretion of 17-ketosteroids did not effect an increase. In view of the fact that hair growth and alopecia areata had improved in some of the patients during pregnancies, the authors resorted to the administration of progesterone. They found that the intramuscular injection of progesterone crystals induced hair growth in three women with alopecia.

UROLOGY

Osteitis Pubis—Sudeck's Atrophy? Griessmann and F. Dammann. Ztschr. Urol. 49:321-329 (No 6) 1956 (In German) [Leipzig, Germany].

The authors show that osteitis pubis, which has become a rather frequent complication of suprapubic operations, is really an osteoporosis of traumatic origin (Sudeck's atrophy) of the rami of the os pubis. Osteitis pubis and Sudeck's atrophy after fracture are secondary forms of osteoporosis. They correspond in causation, pathogenesis, clinical course, and roentgenologic aspects. Therapeutic efforts likewise show a close relation between the two lesions. It is known that antibiotics and various chemotherapeutic agents fail to influence either of these lesions, but it has been suggested that measures inducing hyperemia might be helpful The authors point out that several other observers have suggested the possibility that osteitis pubis might be a form of traumatic osteoporosis (Sudeck's atrophy) of the rami of the os pubis

Stilbestroldiphosphate in Therapy of Carcinoma of the Prostate. H. Druckrey and K Kaiser. Deutsche med. Wchnschr. 81:1084-1086 (July 6) 1956 (In German) [Stuttgart, Germany].

The experimental demonstration that estrogens inhibit cell division suggested that their therapeutic effect in cancer of the prostate is not due to an indirect hormonal mechanism, as was formerly assumed, but is due to a direct action on the cell. In view of this fact, and because of the strong phosphatase activity of the prostatic tissues, stilbestroldiphosphate was introduced into the therapy of prostatic cancer, after it had been found that this phosphate is readily split by the phosphatase in the prostate. Investigations had demonstrated also that stilbestroldiphosphate has no cytotoxic effect. It is readily soluble in water and consequently can be given intravenously in large doses Splitting by the phosphatase then liberates the active estrogen particularly in the tissue of the prostatic cancer, and, because of its low solubility, it actually becomes concentrated there. The unsplit but water-soluble diphosphate, however, is readily eliminated, so that the other parts of the body are hardly influenced Pharmacological studies revealed that the substance is of low toxicity, whereas stilbestrol, as a phenol, is rather toxic. Phosphorylization has a detoxifying effect.

It is advantageous to administer a pharmacological substance not in an active form but rather in an inactive "transport" form, from which the body, particularly the cells to be acted on, produce the "active" form. On the basis of the structural formula, the authors show that this is the case in stilbestroldiphosphate. The authors comment on the calcium-precipitating effect of soluble phosphates to show that bleeding in patients with cancer of the prostate is due to the products of decomposition of the tumor rather than to the phosphates. They demonstrated by experiments in vitro and on animals that in therapeutic doses stilbestroldiphosphate does not impair the blood coagulation, nor did they observe clinical evidence of changes in the blood coagulation time. They conclude that the introduction of stilbestroldiphosphate signifies a decided advance in the therapy of prostatic cancer.

INDUSTRIAL MEDICINE

Mechanism of Uranium Poisoning. H. C. Hodge. A. M. A. Arch. Indust. Health 14:43-47 (July) 1956 [Chicago].

Quite apart from its radioactivity, uranium is one of the most toxic elements chemically, more toxic than arsenic or mercury. Providentially, uranium is absorbed into the body only with difficulty. If it were not so, certain workmen in the early days of the Manhattan Project would have been injured severely. Uranium in the body tends to be converted into the hexavalent uranyl ion; this is the stable valence form. In this discussion, when biological effects are being considered "uranium" usually means "uranyl ion." The uranyl ion in the blood stream is carried in part complexed with protein and in part with bicarbonate; almost none exists as uranyl ion. The uranium protein complex is nondiffusible; the uranium bicarbonate complex is diffusible. Approximately 40% of the uranium is protein bound, and 60% is bicarbonate bound. In the bone, uranium is deposited principally on the surface of the mineral crystals by exchange with calcium.

The kidney is the sole site of the characteristic histological injury. There is a lag period ranging from hours to days (depending inversely on the dose) after the administration of the uranium before the damage becomes evident either histologically in the kidney tissues or functionally in elevated blood nonprotein nitrogen, diuresis, or oliguria. From the glomerular capillary, diffusible uranium bicarbonate enters the glomerular urine. Passing through the proximal convoluted tubule, bicarbonate is reabsorbed into the venous blood, freeing uranyl ion in the tubular urine. The uranyl ion reacts with the protein membranes of the columnar cells, producing injury and—if the dose is sufficient—death of these cells. The cells rupture, and the cell contents are discharged into the urine. The most delicate indices of uranium poisoning are the concentrations of urinary proteins; the concentration of urinary amino acids (especially the amino acid nitrogen-creatinine ratio), and the catalase activity. From studies of kidney function and renal clearances, combined with histological and autoradiographic studies, the site of major uranium injury has been localized in the distal third of the proximal convoluted tubule. If the injury has not been too severe and cells of the tubule lining remain, repair and regeneration follow, and a few weeks or a month after the administration of uranium an animal may be almost completely normal by every test.

From studies of large numbers of animals exposed to a variety of soluble uranium compounds for periods of from one to two years, it has been conclusively demonstrated that there is no kidney injury when animals breathe an atmosphere containing 50 γ of uranium per cubic meter of air. This value has been set as the maximal allowable concentration. If exposures are exclusively to insoluble uranium compounds, somewhat higher dust concentrations can be inhaled without evidence of kidney injury. For insoluble compounds, "it is evident that exposures to concentrations of 50 γ or 100 γ per cubic meter would lie within the negative zone with wide margins of safety."

Bilateral Pleural Calcifications as the Result of Occupational Exposure to Dusts. W. Fehre. Fortschr. Geb. Röntgenstrahlen. 85:16-25 (July) 1956 (In German) [Stuttgart, Germany].

On investigating the histories of patients with bilateral pleural calcifications, the author found two patients who had been Xylolite (wood-tile) workers for a number of years in the same factory. These two patients had no history of pulmonary or pleural disorders that might have caused the calcifications. Xylolite workers come in contact with sawdust, mineral colors, silicate, talc, magnesite, and magnesium chloride solution. Formerly (until about the middle 20's), they also had to handle asbestos. In the preparation of Xylolite, the dry ingredients are mixed before they are put into the magnesium chloride solution. A considerable amount of dust is raised when the dry ingredients are mixed in closed rooms.

The author examined 30 workers of one Xylolite factory and five retired workers who had formerly worked in this plant. None of the 22 workers who had less than 20 years' exposure were found to have pleural calcifications, but of the remaining 13 patients, whose history of exposure ranged from 20 to 50 years, 7 had pleural calcifications, 4 of them bilaterally. These calcifications are ascribed to the inhalation of silica. They have been designated as talc plaques, and have been observed after exposure to micaceous and asbestos dusts. As regards their appearance in Xylolite workers, the author believes that the increased incidence in some and not in other factories suggests that a certain combination of dusts or the admixture of other constituents is essential for the development of the calcifications. The importance of the differential diagnosis of bilateral pleural calcifications is discussed.

THERAPEUTICS

Therapeutic and Toxic Effects of Enteric-Coated Aminometramide. W. A. Tatge, D. E. Winnik and G. N. Spencer. Am. J. M. Sc. 232:175-180 (Aug.) 1956 [Philadelphia].

Aminometramide (Mictine), a member of a group of 6-aminouracils found to produce a maximum of diuresis with a minimum of gastrointestinal irritation, was given to eight patients with portal cirrhosis, edema, and ascites and two patients in the nephrotic phase of glomerulonephritis who were hospitalized, and to 18 outpatients with heart disease and congestive failure. Four tablets of 200 mg. per day were given with or shortly after meals and at bedtime with milk. Patients who tolerated this dose daily for varying periods were given increasing amounts of aminometramide up to 1,400 mg. daily regardless of the diuretic effect.

Six patients with cirrhosis had significant diuresis. One of the patients with nephrotic edema sustained quite dramatic diuresis that may well have been spontaneous rather than induced. In 14 of the 18 cardiac patients edema disappeared or they maintained dry weight in the course of the study. Anorexia, constipation, nausea, or vomiting occurred in 19 of the 28 patients, and the remaining 9 patients did not have any of these symptoms. Although the incidence of gastrointestinal symptoms was high, these symptoms were minor in degree and usually followed the administration of high doses of the drug or long periods of administration. No harmful side-effects were observed in patients with chronic hepatic, renal, and cardiac disease. No particular correlation was noted between diuretic efficiency and symptoms of toxicity. With an individually tailored regimen consisting of an interrupted and broken dosage schedule of no more than therapeutic amounts, enteric-coated aminometramide may prove a safe and useful addition to the diuretic armamentarium. It may be effective where other diuretics are not. This appears to be particularly true in patients with portal cirrhosis and ascites.

PATHOLOGY

Supernumerary Chambers to the Left Heart. P. J. Barnard and A. J. Brink. Brit. Heart J. 18:309-319 (July) 1956 [London, England].

In two patients in whom death had resulted from cardiac failure, cardiac anomalies of an apparently developmental type that had not been reported previously were revealed by autopsy at the department of pathology of the University of Pretoria, South Africa. The first patient, a 5-year-old Bantu girl with shortness of breath since birth, spasmodic cough, dyspnea, cyanosis, and occasional vomiting, had an accessory left-sided two-chambered heart that was partially merged with a four-chambered heart. The radiological features suggested an outpouching in the region of the left atrial appendage, and the position of this shadow and its active pulsations related it to the cardiac chambers. Moreover, the pulsations had a paradoxical excursion showing lively expansion with each ventricular systole. This was interpreted as a mitral incompetence allowing distension of an atrial aneurysm during ventricular systole. It was difficult to explain the diastolic blowing murmur localized to the mitral area, but in retrospect this was apparently due to the diastolic emptying of the accessory sac into the left ventricle, and, had the significance of this been grasped, an accurate diagnosis of an accessory atrial sac with an unguarded orifice leading into the left ventricle might have been made.

The second patient, a 26-year-old Bantu man with orthopnea, generalized edema, and generalized cardiac enlargement, had a four-chambered heart, the left atrium of which had been vertically but incompletely divided into two compartments by an accessory septum, and in the lateral half of its circumference the mitral ring lacked attachment to the left ventricular myocardium. The left compartment of the bipartite left atrium was supported by a pyriform buttress of solid myocardium. The bipartite left atrium might be considered to have arisen from the formation of an accessory septum primum, or else the atrial anomaly together with its myocardial buttress might have represented a partially fused two-chambered left-sided heart.

RADIOLOGY

Leukemia Induction in Mice by Fast Neutron Irradiation. A. C. Upton, G. S. Melville Jr., M. Slater and others. Proc. Soc. Exper. Biol. & Med. 92:436-438 (June) [Utica, N. Y.].

Most cases of radiation-induced leukemia in human beings have resulted from exposure to gamma or x-rays; however, in Japanese atomic bomb survivors the possible importance of neutron irradiation in the production of leukemia has been cited. Male and female mice of the RF strain 8 to 16 weeks of age were exposed to x-rays or fast neutrons in the 86-in. cyclotron of the Oak Ridge National Laboratory. For a given dose of radiation the 30-day mortality was greater in neutron-exposed than in x-irradiated mice. The acute injuries produced by neutron irradiation were indistinguishable from those caused by x-rays except for acceleration of the 30-day mortality (the peak death rate occurred on the 5th day after single median-lethal neutron irradiation and on the 9th day after exposure to x-rays). After the first 30 days following irradiation, the death rate dropped nearly to control levels; 4 or 5 months later the survivors began to die of leukemia. Two major types of leukemia were induced, myeloid leukemia and thymic lymphoma. Thymic lymphoma was consistently more common in females than in males. Myeloid leukemia was more common in males than in females and was induced by relatively low doses of radiation. Thymic lymphomas were significantly more numerous in x-irradiated than in neutron-exposed mice, but the two types of radiation appeared, in general, to be of approximately equivalent over-all leukemogenic potency when compared at dose levels comparable in 30-day lethality. On fractionation of either neutron or x-irradiation, the incidence of thymic lymhoid tumors was noticeably elevated; however, the induction of myeloid leukemia was not correspondingly enhanced by fractionation.

The Influence of Histologic Type on Survival Following Radiotherapy of Bronchogenic Carcinoma. E. R. Kutz. J. Thoracic Surg. 32:165-170 (Aug.) 1956 [St. Louis].

Kutz reports experiences with radiotherapy on 50 patients with bronchogenic carcinoma. Twenty had undifferentiated carcinoma, 18 had squamous-cell carcinoma, 3 had adenocarcinoma, and 9 had malignant lesions in which the cell type was unknown. The survival time after radiation therapy was much longer in those with squamous-cell carcinoma of the lung than in those with undifferentiated carcinoma. The one-year survival rate was 0% for undifferentiated carcinoma and 53% for the squamous-cell lesions. The 18-month survival rate for squamous-cell carcinoma was 27%. Although the author did not have a control group of untreated cases, the literature has many reports of control groups according to which few patients with bronchogenic carcinoma survive one year after diagnosis without any type of therapy. The fact that a 53% one-year survival rate resulted after treatment indicates that squamous-cell lesions are benefited by radiation therapy. Therefore, radiotherapy should be carried out as vigorously as possible in squamous-cell carcinoma. The survival time in undifferentiated lesions is very poor, and it is doubtful whether radiation therapy increases it. There are three factors that account for the poor prognosis in anaplastic carcinoma: 1. The lesions metastasize early, as illustrated by the presence of metastases outside of the thorax in 45% of the patients treated. 2. They are rapidly growing and by nature extremely invasive. 3. Although they are radiosensitive, they recuperate rapidly.

ANESTHESIA

Viadril: A New Steroid Anesthetic: Preliminary Communication. L. H. Lerman. Brit. M. J. 2:129-132 (July 21) 1956 [London, England].

A new steroid anesthetic, 21-hydroxypregnane-3, 20 dione sodium succinate (Viadril) was given to 19 surgical patients. The duration of the operation varied from 8 to 90 minutes. The average dose of Viadril was 824 mg.; the range was from 500 to 1,250 mg. The addition of 19.8 cc. of an isotonic sodium chloride solution to 500 mg. of Viadril resulted in a 2.5% solution that was given intravenously, causing loss of consciousness, analgesia, absence of corneal reflex, and muscular relaxation, particularly of the larynx. Premedication was carried out with a proprietary preparation containing the total opium alkaloids in the form of soluble hydrochlorides (Omnopon) and with scopolamine, and maintenance was obtained by administration of nitrous oxide and oxygen. Some patients also received relaxants.

Viadril anesthesia resembles normal sleep. Relaxation is fairly good and bleeding usually much reduced. The patient is fully awake in about one hour after the operation, feeling well and without pain. Hormonal effects are absent and vomiting is rare. The disadvantages are the slowness of induction and the risk of thrombophlebitis in the arm in which the injection is given.

Value of "Hibernation" in Severely Shocked Patients. S. Kenny. Brit. M. J. 2:211-212 (July 28) 1956 [London, England].

Three men between the ages of 60 and 82 years with peritonitis, massive edema and inflammation of the pelvic colon, and aneurysm originating from the left common or internal iliac artery, respectively, were in severe shock when admitted to the Adelaide Hospital in Dublin, Ireland. Because there was no response to normal resuscitative measures and surgical intervention with the aid of standard methods of anesthesia carried grave risk, the patients were operated on with the aid of "hibernation." A mixture of 50 mg. of chlorpromazine hydrochloride, 50 mg. of N-dimethyl aminopropyl phenothiazine (Promethazine) hydrochloride, and 100 mg. of meperidine (Demerol) hydrochloride (Pethidine) in 14 cc. of isotonic sodium chloride solution was administered slowly. Dramatic improvement in the patients' condition occurred as a result of the sympathetic block and before the benefit of the restored fluid and electrolyte balance could be experienced. It is of the utmost importance to ensure that the replacement of fluid keeps step with the enlargement of the vascular bed resulting from the sympathetic block, and to this end the induction of hibernation must be performed slowly and with constant supervision of the blood pressure. The ease of fluid replacement in the course of the operation and in the postoperative period was a vital factor. The smooth course of anesthesia was impressive in all three patients. The postoperative course in two of these severely ill patients was practically without incident. They were restful and free from worry, requiring little nursing care and no sedative or analgesic drugs apart from small doses of chlorpromazine and meperidine. The operation of the patient with the aneurysm was technically extremely difficult. He died one hour after the operation. Death was apparently caused by a stainless-steel wire that had been inserted in the aneurysm. His condition during the operation was excellent and the value of the hibernation technique for such patients was clearly demonstrated.

BOOK REVIEWS

The Accident Syndrome: The Genesis of Accidental Injury: A Clinical Approach. By Morris S. Schulzinger, M.A., M.D. Cloth. $6.50. Pp. 234, with 45 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

The author, having studied some 35,000 consecutive accidents over a period of 18 years, is well qualified to speak on the causes, cure, and prevention of what he so aptly calls the accident syndrome. His conclusions are interesting and particularly timely, since we are faced with a rising tide of automobile injuries and deaths. First in importance in prevention is machine design, which should also be related to the human form, and second is education of those persons exposed to danger. The author's conclusion that most accidents occur to maladjusted young men with unbridled aggressiveness is certainly true, and the statement that the so-called accident-prone group is a rapidly changing one is most interesting. Much medical research is needed in order to understand the speeding, the drinking, and the reckless driver. He must be studied from the standpoint of behavior, habits, physical status, environment, and inheritance. For the student of accidents in general, and of automobile accidents in particular, the book is highly recommended.

Advances in Internal Medicine. Vol. VIII. Editors: William Dock, M.D., and I. Snapper, M.D. Cloth. $9. Pp. 366, with illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11; for Great Britain and Northern Ireland: Interscience Publishers, Inc., 88-90 Chancery Lane, London, W.C.2, England, 1956.

This book contains chapters on esophageal motor function disorders, peptic ulcer, digitalis and potassium, aldosterone, adrenalectomy and hypophysectomy in the treatment of advanced cancer, chemotherapy of tuberculosis, trace metals and chronic diseases, and hemoglobins and disease. Peptic ulcer is discussed from the viewpoint of its pathogenesis and clinical aspects. The authors stress that the medical treatment is still primarily concerned with the control of gastric acidity, although some modifications have been recently introduced. Strengthening the tissue defenses is done indirectly by maintaining the general health of the patient, by eliminating or lessening physical and emotional tensions, and by avoiding gastrointestinal irritants in food and medicaments. The patient with an ulcer can tolerate a wider variety of foods and more substantial meals than are usually prescribed. Cholinergic blocking agents, such as methantheline and its derivatives, are used because of their ability to act at the postganglionic effector site or at the ganglion between postganglionic and preganglionic fibers. Conservative gastric irradiation is a safe and useful, even though unpredictable, adjunct in the medical management of peptic ulcer. As to surgical treatment, gastric resection appears to be the operation of choice for gastric ulcers. Vagotomy alone is now rarely performed, the procedure almost always is combined with a posterior gastroenterostomy. The safety and the effectiveness of this operation for duodenal ulcer continues to be emphasized by Dragstedt and Woodward.

The chapter on aldosterone is particularly interesting. This adrenal cortical hormone is probably the most active so far discovered; it appears to be 20 to 30 times more active than desoxycorticosterone in its effect on mineral metabolism. Injections of this hormone produce retention of sodium and chloride and increased excretion of potassium. Adrenalectomy and hypophysectomy, when combined with oophorectomy, produces palliation in 40 to 50% of women with advanced breast cancer. The improvement lasts about nine months. The observations made on the effects of hypophysectomy in the treatment of advanced breast cancer require further experience before final appraisal can be made. The review of the subject of chemotherapy of tuberculosis emphasizes in particular the necessity of protracted, uninterrupted treatment after bacteriological conversion. Up to this time, 12 types of hemoglobin have been described. The subject is relatively new and provocative. The volume, as a whole, brings up-to-date the subjects treated; its value is further enhanced by an extensive bibliography.

Enzymes: Units of Biological Structure and Function. Edited by Oliver H. Gaebler, Head, Biochemistry Department, Edsel B. Ford Institute for Medical Research, Detroit. Henry Ford Hospital International Symposium. Cloth. $12. Pp. 624, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1956.

This symposium consists of 27 papers, each of which is by an outstanding authority, and the discussions that followed the presentation of the papers. The purpose of the symposium was to discuss the progress made in past studies and to point out the areas of promise for future studies in establishing the relationship of enzymes to the more complex aspects of cell physiology. The volume includes articles on the mechanisms of enzyme formation, the mechanisms regulating metabolic activity, and the transduction between the energy of enzyme reactions and other forms of energy. Part 1, dealing with the origin of enzymes, includes articles on enzyme-forming systems and the role or relationship of enzymes in induction mechanisms, cellular differentiation, and nucleic acid formation. Part 2, dealing with the status of the gene-enzyme relationship, contains articles on genetic structure and function in viruses and bacteria and on the role and interaction of genes in enzyme synthesis. Part 3, concerning enzymes and cell structure, contains several articles on electron microscopy; physiology, sedimentation, and biochemical characteristics of cytoplasmic bodies: nuclear products; reproduction; and the localization of photosynthesis in chloroplasts. Part 4, on the enzymatic basis of some physiological functions, includes articles on the part enzymes play in visual excitation, light-emitting organisms, excretory mechanisms, and muscular activity. Part 5, concerning cellular energy sources, contains articles on succinic dehydrogenase, the cytochrome system, electron transfer processes, adenosine diphosphate-respiration interaction, and hematin compounds in photosynthesis. Part 6, on regulation of enzyme activity, discusses enzymes from the standpoint of membrane permeability, muscular activity, nucleic acid metabolism, and drug action. Also included in the volume are lectures given by Linus Pauling on the future of enzyme research and by Albert Szent-Györgyi on mechanochemical coupling in muscle. The book should be of interest to almost any person who does research in or teaches biochemistry, biology, microbiology, biophysics, genetics, physiology, pharmacology, pathology, or nutrition. It contains both author and subject indexes

A Manual of Oral Surgery: a Step-by-Step Atlas of Operative Techniques. By W. Harry Archer, B.S., M.A., D.D.S., Professor of Oral Surgery and Anesthesia, School of Dentistry, University of Pittsburgh, Pittsburgh. Second edition. Cloth. $16.50. Pp. 877, with 1400 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5, 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1956.

This textbook is made up of two essential parts. The first deals with strictly dental problems: extraction of teeth: apicoectomy, oral, face, and neck infections, cysts of the oral cavity: and complications associated with oral surgery. The chapters in this section are well written and accurately informative and should be a valuable asset to the library of any dentist. The second part contains a long dissertation on the management of facial fractures. It is written from the dental point of view and would not be acceptable to a well-trained surgeon. Too much emphasis is placed on the use of various mechanical gadgets, such as external pin fixation and traction from plaster head-cap gear or traction suspension apparatus. A good surgeon would not subject his patient to the use of these cumbersome and antiquated procedures because of their many potential complications. If a jaw fracture cannot be treated with some type of interdental wiring, a plastic or orthopedic surgeon would carry out an open reduction as a simpler, safer, and more comfortable method for his patient. Figure 1239 depicts a gadget designed to reduce a left lateral nasal fracture by means of continuous pressure from the

---

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

side. The author apparently does not realize that to reduce any fracture the fragments must first be disimpacted and then manipulated into normal anatomic position. Once this simple maneuver has been executed, maintenance of position is easy.

Two excellent short contributions by two well-known plastic surgeons are included. These chapters deal with the surgical treatment of cleft lip and palate deformities and the surgical management of complicated oral malignancies. Although these chapters are authoritative, they seem somewhat out of place in a book written by a dentist for dentists. An unusual departure is that of including a short terminal chapter describing the American Board of Oral Surgery, a dental board, not to be confused with a medical board such as is sponsored by the American Medical Association. It would seem poor taste in the medical profession for a surgical textbook to include information on the American Board of Surgery or for a medical contribution to include an account of the American Board of Internal Medicine!

Love or Perish. By Smiley Blanton, M.D. Cloth. $3.50. Pp. 217. Simon and Schuster, Inc., 630 Fifth Ave., New York 20, 1956.

The author is co-founder with the Rev. Norman Vincent Peale of the American Foundation of Religion and Psychiatry. He has undertaken to offer the lay public a reconciliatory comparison and correlation of these two fields of thought. The principal theme of the work, that is, that the human psyche stands as sorely in need of the affection and approval of other human beings as the body stands in need of nourishment, is not likely to be disputed by the exponents of either school of thought. However, the author's inclusion of all ardor, enthusiasm, interest, and constructive energy in the single term love may meet with opposition from some psychiatrists. There is much to be said for this point of view, though—especially in a book directed to the laity. The general public has been so long exposed to all the utterances of psychiatric doctrine—presented, as a rule, by those who simplify presentation by garbling or disregarding such data as have actually been established—that the average layman's conception of psychology, psychiatry, and psychotherapy is confused almost beyond belief. The monumental works of Freud and other outstanding men in the field do not make easy reading and are not likely to hold the attention of the man in the street, who, nevertheless, is as much in need of having the meaning and conduct of life clarified as is the most devoted student of the masters. The author has steered a reasonably straight course between scientific austerity and sentimentality disguised as religion. He has neither avoided nor denied the basic discoveries of science with regard to the human mind. On the other hand, he has not yielded to the currently widespread temptation to assure the public that all questions can be answered by simple faith. Nearly all aspects of human life and human relations are touched on, invariably with the straightforward common sense of a man who knows that all questions can never be answered but who knows equally well that many of man's most disturbing mental and emotional conflicts lie within man's own power to resolve. On the whole, the book is decidedly superior to most of its kind, which seldom hesitate to promise the reader riches and power overnight if he will but follow the precepts set forth. This book promises nothing, but it does explain, in a manner any reader can understand, that there are promising aspects of human life—a fact that, despite centuries of experience, seems sometimes in danger of being forgotten.

Treatment of the Child in Emotional Conflict. By Hyman S. Lippman, M.D., Director, Amherst H. Wilder Child Guidance Clinic, St. Paul. Cloth. $6. Pp. 298. Blakiston Division, McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1956.

The author states on the jacket of this book that "one does not have to be a physician in order to do expert therapy in the field of emotional disturbances of children." By this he seems to mean that psychologists, caseworkers, teachers, and others can make excellent contributions to some aspects of child guidance and the problems of neuroses and delinquency. Fortunately, however, in other sections of the book he gives full weight to the somatic aspects of child behavior with which only a physician can adequately deal. He commendably calls attention early in the volume to the fact that often such factors may even outweigh parental influences and that a sick or disturbed child may so mistreat his parents that only secondarily do they become rejecting, overprotective, or otherwise deviant in their familial relationships. Most of the book is devoted to descriptions and formulations of various types of behavior problems in children. The logically minded physician may question such a concept as the need for punishment, when the author seems to mean desire for attention or guidance. Also he may be annoyed by the frequent use of doctrinaire stereotypes, such as ego, defense mechanisms, and superego instability, when the author means various normal or aberrant adaptations to stress that can be described in more specific and operational terms. Nevertheless, once this analytic jargon is translated, the therapeutic methods the author advocates, including scolding when necessary, make good clinical sense and can be applied by the physician or nonmedical associates under his direction. To these persons, the book should prove of value as a brief and fairly well organized and indexed introduction to the field.

Textbook of British Surgery. Volume One: The Abdomen. Edited by Sir Henry Souttar, C.B.E., D.M., F.R.C.S., Consulting Surgeon, London Hospital, London, England. Cloth. $24.75. Pp 547, with 238 illustrations Essential Books, Inc., 16-00 Pollitt Dr., Fair Lawn, N. J.; William Heinemann, Ltd., 99 Great Russell St., London, W.C.1, England, 1956.

This book is the first of three volumes that have been planned to cover the entire field of surgery. Such an undertaking is unique in this day of specialization. The contributors include more than 40 British surgeons, each a recognized authority in his particular sphere. The subjects they deal with include surgical anatomy; abdominal injuries; intestinal fistulas; the stomach, duodenum, liver, gallbladder, pancreas, and spleen; portal hypertension; peritoneoscopy; acute intestinal obstruction, the appendix; peritonitis; regional ileitis; diverticulosis of the small intestine; neonatal intestine obstruction; hernia; the colon, actinomycosis; and the rectum and anus. The function of the book is to correlate, for candidates for higher examinations, the surgical concepts current in Great Britain. The general surgeon, as well as the general practitioner, has been considered in the preparation of this volume. It is surprising that the bibliography is small and selective and not of recent date. The statistics quoted are primarily from the American literature, with little statistical information on the results obtained by British surgeons. Illustrations and line drawings are well placed and clear and have excellent legends. The chapter on regional ileitis is particularly illuminating, since it summarizes the British point of view on this disease. It is a delight to read a British composition, because split infinitives, dangling sentences, disjointed phrases, and misplaced adverbs are conspicuous by their absence. This is an excellent reference book that should serve a useful purpose in the libraries of active general surgeons, candidates for the American Board of Surgery, residents, and interns.

Clinical Orthopaedics. Number Seven. Anthony F. DePalma, editor-in-chief. With assistance of associate editors, board of advisory editors, and board of corresponding editors. Cloth. $7.50. Pp. 354, with illustrations J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5, 2083 Guy St., Montreal, Canada, Pitman Medical Publishing Co., Ltd., 39 Parker St., Kingsway, London, W.C 2, England, 1956.

This volume, similar in format to the other volumes in the series, is a convenient size, and the type makes for excellent reading. The book is well illustrated and captioned. As in previous volumes, the first part is devoted to one major subject. In this case tumors of the bone is the main subject. The first article is a biographical sketch of Dr. J. C. Bloodgood, the author is to be commended for the humanness of the presentation. After reading it, the reader should feel that he knows Dr. Bloodgood a great deal better. The articles following describe various bone tumors and ably review the subject of bone tumors in general. They are highly recommended for those who deal with such tumors and for orthopedic residents. The second portion of this book contains some interesting articles, although some of them are controversial, particularly as to their conclusions. The last section, on motorist injuries and motorist safety, should be read by everyone; it is ably done from the technical standpoint. This series of articles should be made available to the entire medical profession and especially to those who are doing traumatic surgery. For those engineers who are putting more and more speed into present motor vehicles but who have apparently neglected the necessary safety factors to go along with this speed, these articles should be required reading. The general public would also profit by reading them. This is one of the best volumes in the series.

QUERIES AND MINOR NOTES

THE "POLIOMYELITIS SEASON"

To the Editor:—*Should adults shun injections in the arm during the poliomyelitis season? A tetanus immunization program is being planned for a large industry, and the question has been raised whether the program should start during or after the poliomyelitis season. What are the criteria for determining the end of the poliomyelitis season?* *M.D., Ohio.*

Answer.—It is believed that most authorities would agree that such a voluntary program should be postponed for the same reasons, even though to a lesser degree, as prevail in similar considerations for children. A case of provocation has recently been reported by Neva in *Pediatrics* (18:59, 1956), having followed the use of diphtheria-pertussis-tetanus vaccine in early November. When one examines the poliomyelitis incidence charts of previous years, it is apparent that the curve does not begin to reach the low point until mid-November and sometimes December. One should be guided entirely by the incidence of poliomyelitis in the particular community in question. It is not the question as to whether it is the poliomyelitis season but whether poliomyelitis is prevalent in the community that should determine the answer to the question of "poliomyelitis season" in an instance such as was described.

RHEUMATIC FEVER

To the Editor:—*A boy, aged 12 years, has had repeated attacks of rheumatic fever during the past four years, with some swelling in ankles and knee joints. The family would like to know the five states in the United States according to preference that would be best for their boy.*

Samuel C. Bower, M.D., Mill Hall, Pa.

Answer.—There is no geographical region where rheumatic fever does not exist. The effect of climate on the recurrence of rheumatic fever has not been definitely established. It has been reported that there is a greater incidence of rheumatic fever in the northern states as compared with the southern sections of the country. The Mexican border and the Gulf of Mexico show a low incidence of rheumatic fever as compared with the high incidence in the Rocky Mountains and Great Lakes areas. The areas with low incidence of rheumatic fever are Southern California, Florida, Texas, Arizona, and any of the other states along the Gulf of Mexico and the Mexican border.

SPONTANEOUS CONTROL OF SOME CANCERS

To the Editor:—*A rapidly growing carcinoma of the breast can be treated by a radical mastectomy, with the patient apparently remaining well for 5 to 10 years; then a recurrence sets in, with rapid growth in distant parts of the body. What, in your opinion, would account for the long latent period without any evidence of further growth?*

M.D., New Jersey.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Two factors appear to operate in the spontaneous control of cancer of the breast. The first is the ability of stroma to restrain the extension of the neoplastic cells. The second appears to be related to the hormonal balance of the body—presumably the internal balance between androgenic and estrogenic effects. Some investigators believe that hormonal restraint operates through an effect on the stroma. Many examples are known of spontaneous regression of breast cancer following destructive invasion of the endocrine system by the neoplastic tissue or surgical or medical alteration of hormonal balance. These facts have led to extensive research work on the effect of oophorectomy, adrenalectomy, and hypophysectomy in the treatment of breast cancer.

Answer.—Three groups of factors govern the behavior of a given cancer in a given host; our concepts of these factors are vague at best. 1. The inherent virulency of the neoplasm: About 20% of the breast cancers will have a normal course; about 55% will have a virulent course; and the remaining 25% can be influenced by promptness of diagnosis and adequacy of treatment. 2. Response present or stimulated in the tumor: There are immunologic responses of the host to the tumor. There is a difference in the susceptibility of different tissue to malignant invasion—for example, the spleen and the heart have a lower incidence of primary and metastatic cancer than do the liver and the lungs. Endocrine changes in the body with aging, or such states as pregnancy, may stimulate tumor growth. 3. The treatment given: Removal of the mother tumor sometimes produces temporary quiescence of the satellites. Irradiation therapy occasionally seems to encase the cancer cells in a fibrous scar within which the cells may remain viable for long periods only to escape later and grow again. Alteration of the endocrine balance within the host may have a stimulating or depressive effect on some neoplasms.

EFFECT OF TONSILLECTOMY ON SINGING

To the Editor:—*I would like to know the consensus regarding tonsillectomy affecting a singer's voice. My question concerns a 20-year-old male with a baritone voice.*

Odell J. Kirksey, M.D., Mulberry, Ark.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Tonsillectomy, done with a careful dissection technique and with a minimum of scarring and attention to preservation of the plica triangularis at the base of the anterior pillar, cannot result in alteration of the voice of a singer or any other individual. Difficulties have arisen from the fact that an individual who had not attained desired success in a singing career blamed his failure to succeed on tonsillectomy. One should be sure, therefore, that any singer for whom tonsillectomy is contemplated is a well-adjusted person.

Answer.—It is the consensus at the present time that tonsillectomy does not affect a singer's voice permanently in any unfavorable way. There may, however, be a temporary impairment of short duration, until the pharyngeal muscles readjust themselves.

ACNE AND SUNLIGHT

To the Editor:—*A girl, aged 19, has mild acne. She reached a late puberty. She has been under treatment by two reputable dermatologists, who agree as to therapy, namely, orally given estrogen, low-fat diet, no chocolate, good bowel hygiene, and carbon dioxide snow administered at intervals with astringent lotions; however, one tells her never to expose her skin to the sun and the other tells her to sun bathe frequently. What is your opinion as to the best therapy and diet and as to sun exposure?* *T. H. Wallis, M.D., Ocala, Fla.*

Answer.—The management of the individual case of acne depends on the probable factors that seem to be involved. For example, systemic antibiotic therapy with one of the tetracycline preparations may be indicated and effective for certain types of cases and of no value in others. The same statement may be made in regard to estrogen therapy, which, in general, is reserved for female patients who have distinctive premenstrual exacerbations. Almost all dermatologists agree that interdiction

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

of nuts and chocolate is mandatory. Other therapeutic approaches that are in order for most patients with acne include appropriate local therapy, which must be individualized for a given patient, proper cleansing of the skin, treatment of the scalp if there is seborrheic dermatitis, and attention to systemic factors such as constipation and anemia.

The specific question regarding exposure to sunlight has been asked. Here again, the effect of sunlight exposure in patients with acne is highly individualized. Many patients with acne note that the condition is markedly improved on exposure to sunlight, while others note an exacerbation of the process on exposure to sunlight during summer months. Dermatologists in the Southwest, in particular, observe patients who have acne lesions only in summer and refer to the condition as "summer acne." Increased heat results in increased sebaceous secretion. Increased exposure to sunlight results in an increase in the keratin layer of the skin; this might account for the fact that some patients with acne note an exacerbation of the condition under these circumstances, due to obstruction of the pilosebaceous apparatus orifice. It is the opinion of this consultant that exposure to sunlight should not be interdicted in patients with acne unless it is evident that the condition is made worse by such exposure. Certainly, a young girl with acne should not deprive herself of outdoor activities that involve exposure to the sun unless this results in an obvious exacerbation of the disease or unless it appears that the condition is not improving despite other adequate therapy, in which case it might be justified to try avoidance of sunlight exposure for a trial period of at least several weeks; further instructions about exposure to sunlight for the patient in question depend on the results of such trial observation.

PROLONGED USE OF CORTICOSTEROIDS

To the Editor:—*What danger is there for a child of one year to be on prolonged Meticortelone medication for severe asthma? What dosage is safe and for how long? By danger I refer to endocrine changes, temporary and permanent, such as precocious development and stunted growth.*

Edwin A. Mickel, M.D., Drain, Ore.

Answer.—There are a number of hazards in the prolonged use of the corticosteroids for persons at any age. Prednisolone (Meticortelone) and prednisone have practically the same hazards as the older corticosteroids (cortisone and hydrocortisone), with the exception that they have less effect on sodium retention and potassium depletion. The question of special dangers in young children and infants has been in debate. The general feeling is now that such changes as the questioner describes are unlikely to occur. Even if they should, there is no reason to believe that discontinuance of the use of the drug would not cause a reversal. On weight basis the dose in children is proportionately greater than in adults. A one-year-old would take about one-half of an adult dose. This might mean 10 to 15 mg. in divided doses daily at first, gradually reduced to a maintenance dose of 2.5 to 7.5 mg.

ROPHYLAXIS OF RHEUMATIC HEART DISEASE

o the Editor:—*Is the administration of penicillin tablets to patients who have had a rheumatic infection of the heart in childhood recognized therapy? Is the administration of sulfonamides on and off recognized as good therapy?*

Herman Cohen, M.D., Bronx, N. Y.

Answer.—It is generally agreed that the initial and recurrent attacks of rheumatic fever and rheumatic heart disease are caused by the group A beta-hemolytic streptococci. The recurrence of the infection can be prevented through the use of either penicillin or a sulfonamide. Either drug should be administered daily, until the patient has reached the age of 18, or for a period of at least five years in all patients who have had rheumatic fever after the age of 13. Penicillin should be given orally, in doses of 300,000 units twice daily. Sulfadiazine is given in 0.5-to-1-gm. doses daily, depending on the weight of the patient. Some workers in this field advocate lifetime prophylaxis. Whichever of the two drugs is used, the administration must be continuous and not "on and off."

SIMPLE (WIDE-ANGLE) GLAUCOMA

To the Editor:—*An acute postanesthetic episode of glaucoma occurred recently in a patient with a wide-angled anterior chamber who occasionally developed a high intraocular pressure after administration of Cyclogyl. This patient had been given scopolamine in preparation for an operation and required some very active measures in the immediate postoperative course for the control of the tension. Have any measures been instituted, considering this possibility, in a patient with a history of glaucoma or in older patients who show rather dilated pupils at the end of anesthesia?*

S. B. Forbes, M.D., Tampa, Fla.

Answer.—By definition, etiology, and physiology, simple (wide-angle) glaucoma is not characterized by a marked increase in the intraocular pressure when the pupil is dilated. A characteristic rise occurs in the angle-closure type of glaucoma, in which pupillary dilation induces closure of the angle of the anterior chamber due to crowding of the iris into the angle and the creation of a relative pupillary block. In such a person undergoing general anesthesia, every effort must be made to maintain maximum pupillary miosis. Cholinergic blocking agents such as scopolamine and atropine should be used minimally and miotics should be used routinely to maintain constriction of the pupil. Usually, a more frequent instillation of the miotic usually used by the patient is all that is required. General anesthesia will not overcome this drug-induced miosis except in a very deep stage, usually not approached clinically.

HEMIPLEGIA AND YAWNING

To the Editor:—*In three recent cases of hemiplegia due to cerebral vascular accidents the following incidents occurred: When each of these three patients yawned the paralyzed arm flew upward and over the head. In two the hemiplegia is on the right side, and in one the left side is effected. Can you name this phenomenon?*

M.D., Indiana.

Answer.—The phenomenon of yawning associated with forcible lifting of the paralyzed arm to the area of the head is a quite common one. It is due, of course, to a mass reflex, which undoubtedly originates in the lower cervical and upper thoracic portions of the spinal cord and is motivated by movement of the lower jaw and the platysma, sternocleidomastoid, and scalenus muscles. So far as is known to this consultant, the phenomenon does not bear a proper name.

OXSORALEN

To the Editor:—*I am interested in the use of Oxsoralen in the treatment of vitiligo, the local application of which produced a marked erythema, which has persisted for a month and caused considerable annoyance. Is this a safe preparation to use?*

M.D., Illinois.

Answer.—Oxsoralen in either capsule form for oral administration or in solution for topical use is a potent chemical. In addition to irritation of certain internal organs, its oral administration can cause, in some people, dependent upon length of exposure to sources of actinic rays, variable degrees of hyperpigmentation and dermal ulceration. In its topical use it is also a strong irritant; more so when exposed to sunlight. It is also capable of producing a local sensitivity to an area treated, so that local itching and burning can occur for a variable time thereafter on exposure to sunlight—natural or artificial. The preparation is safe to use. On first application dilute the original solution one-half with a diluent composed of equal parts of propylene glycol and water. The second application should be three-fourths Oxsoralen and one-fourth water; thereafter use full strength. The exposure for each application should begin with one minute measured time; increase one minute for each subsequent application. For the sensitized areas, application of sunburn preventive creams will usually be of aid in reducing the pruritus. For more details see New and Nonofficial Remedies, 1956, page 526.

USE OF ANTIBIOTICS INTRAPLEURALLY

To the Editor:—*It has been our custom to use penicillin and streptomycin intrapleurally both after intrathoracic operations and for acute and chronic pleural infections. In many cases the patient is sensitive to penicillin and occasionally to streptomycin, and the use of another preparation or combination of preparations would be desirable. Some of the more recently developed effective antibiotics are quite irritant when in solution and probably should not be used intrapleurally. Can you supply information regarding which of these antibiotics can be used intrapleurally in solution and what strengths should be used? What antibiotic or combination would be as effective as 1 million units of penicillin and 1 gm. of streptomycin left in the pleural space after a pulmonary resection, in which there was definite evidence of contamination, as may occur in resections for bronchietasis or other lung infections?*

John C. Crenshaw, M.D., Shreveport, La.

Answer.—While it is true that some of the antibiotics are irritant to the pleural cavity, probably all of them have been used to some extent. Erythromycin, the tetracyclines, polymyxin B, and bacitracin all have had limited use. Specific information concerning the use of erythromycin can be found in Antibiotics Annual 1955-1956 (New York, Medical Encyclopedia, Inc.), which gives instances in which a 1% solution was used with dosages varying from 250 to 1,000 mg. Without clinical trial it is not possible to recommend a dose of an antibiotic or combination that would be as effective as "1 million units of penicillin and 1 gm. of streptomycin," however, certain broad principles can be laid down. Bacitracin and erythromycin are active primarily against gram-positive bacteria, while polymyxin B and streptomycin are primarily active against gram-negative bacteria. Therefore, combinations of either erythromycin or bacitracin with either polymyxin B or streptomycin should cover the same general bacterial spectrum as penicillin and streptomycin. The tetracyclines are active against both gram-positive and gram-negative bacteria and may be used successfully alone. The efficacy of each antibiotic or combination depends on many factors, including the sensitivity of the offending organisms, the length of time that they would be exposed, the diffusion and excretory rate of the antibiotic, and the rapidity of the development of resistance.

PLASTIC BAGS FOR STORAGE OF BLOOD

To the Editor:—*We are interested in the use of disposable plastic transfusion sets that include a bag for collection of blood and plastic tubing for taking and giving this blood, as made in the United States. What type of plastic is used in making these sets, and how are they sterilized, by heat or by chemical process?*

M.D., India.

Answer.—Plastic bags for collection and storage of blood are allowed to be sold in the United States only after the manufacturer has presented adequate data to the Food and Drug Administration to obtain an effective New Drug Application. The sterilizing process used depends upon the type of plastic incorporated in the infusion set. Some plastics are autoclaved; others are chemically sterilized by using a gas such as ethylene oxide. It may be helpful to the reader to know that the United States Pharmacopeia, 15th revision, outlines certain test procedures covering final quality of plastic or nonplastic infusion sets.

BELL'S PALSY

To the Editor:—*Has the cause of Bell's palsy been determined? Is there any proof that exposure to cold drafts and inclement cold weather play a part in the etiology? Is there any statistical information as to the incidence of Bell's palsy in temperate and cold climates versus the incidence in hot climates?*

Townsend W. Baer, M.D., Pittsburgh.

Answer.—The term Bell's palsy is often used as a synonym for the lower motor neuron variety of facial paralysis, but the term should be used only if the paralysis is the result of a lesion peripheral to the geniculate ganglion. Peripheral facial paralysis, including the type usually referred to as Bell's palsy, may be due to a number of different causes, and it is not possible to state that any single cause has been determined. The current concepts of etiology include edema or periostitis of the facial canal, ischemia of the nerve, a parenchymatous neuritis, and infection by a neurotropic virus. On decompression of the facial canal in cases of Bell's palsy, the nerve has been found to be either enlarged or edematous. Consequently, most observers believe that edema, periostitis, and/or ischemia of the nerve are the most important factors in the majority of cases and that any or all of these may cause a physiological or even anatomic block of the nerve.

Because there is sometimes a history of exposure to the wind or cold on the involved side of the face, either such exposure alone or low temperature has been cited as a cause of the paralysis. There is, however, no factual proof that exposure to cold drafts and inclement cold weather are actual causes, although one can postulate that they may be precipitants, if either infection, edema, or ischemia is the underlying cause. No statistical reports of the incidence of Bell's palsy in temperate and cold climates versus that in hot climates are available, but most of the reports on large series of cases do come from the northern parts of the United States and of Europe. Three such recent studies from England, which might indicate the frequency of the condition there, are by James and Russell (*Lancet* 2:519, 1951), Taverner (*Brain* 87:209, 1955) and Wyburn-Mason (*Brit. M. J.* 2:679, 1954).

PHENYLALANINE IN FOODS

To the Editor:—*We have run tests for phenylpyruvic acid in the urine of 868 feebleminded patients and found nine cases of phenylpyruvic oligophrenia. Could you tell us what foods contain phenylalanine?*

M.D., Mississippi.

Answer.—Phenylalanine is an essential amino acid, and the complete elimination of it from the diet would be unwise. However, it has been demonstrated that tyrosine (hydroxyphenylalanine), a nonessential amino acid, apparently has a phenylalanine-sparing effect, since up to 50% of the phenylalanine requirement can be met by tyrosine. This is probably due to the fact that tyrosine is converted in the body into phenylalanine. According to Rose (*Federation Proc.* 8:546, 1949), the minimum daily requirement for phenylalanine is 1.1 gm. and the recommended daily intake is 2.2 gm. The following table adapted from the book "Nutrition and Diet in Health and Disease" by McLester and Darby (Philadelphia, W. B. Saunders Company, 1952) indicates the amount of phenylalanine present in some common foods.

Amount of Phenylalanine in Some Common Foods

Food	Phenylalanine (Gm./100 Gm.)
Whole egg	0.8
Egg albumin	0.9
Egg yolk	0.7
Milk	0.2
Liver	1.2
Pork, fresh	0.5
Steak, cooked	0.8
Leg of lamb, fresh	0.6
Leg of lamb, cooked	0.8
Corn	0.5
Whole wheat	0.5
Oats	0.7
White potatoes	0.1
Peas and beans	1.0

DIARRHEAS

To the Editor:—*I would like to know how much potassium to give in diarrheas or protracted illnesses in pediatric cases. Also please indicate the proper fluids to use, with amounts, in severe diarrheas.*

M.D., Massachusetts.

Answer.—The amount of potassium that should be administered in diarrheas and related conditions depends on the duration of the disease entity in question, the physical state of the patient, and the degree of plasma potassium depletion, all in relation to the total extracellular fluid and other electrolyte status at the time. The normal plasma potassium value is 4.0 to 5.6 mEq. per liter. The extent of depletion would have to be evaluated in view of this norm and in relation to the other cations—sodium, calcium, and magnesium—and in some degree to the anions—chloride, bicarbonate, proteinate, phosphate, sulfate, and organic acids of the plasma. The limited space here afforded precludes an answer to the "proper fluids to use in severe diarrheas." Many criteria would have to be established to answer this question intelligently. The inquirer is referred to the following less complicated references for an answer to this general question: The A B C's of Fluid Balance by Snively and Wessner (*J. Indiana M. A.* 47:957, 1954); Systematic Approach to Fluid Balance by Snively, Sweeney, and Wessner (*GP* 13:74, 1956); and either or both of two monographs covering the subject in an elementary way: "Simplified Parenteral Fluid Therapy" and "Fluid Therapy in Infants and Children," which may be obtained from Mead Johnson & Company, Evansville, Ind.

PRESBYOPIA AND TARGET SIGHTING

To the Editor:—*A patient, aged 54, has difficulty in sighting across a pistol. Because of presbyopia, he can see his distant target but cannot get a clear view of his sights. This problem has arisen before, and no answer has been found in the literature.*

Karl J. Chiapella, M.D., Chico, Calif.

Answer.—Experience has shown that those who shoot with both eyes open see the target brighter, clearer, aim faster, and avoid spasm of accommodation and the handicap of left-eye dominance if present. In binocular sighting, when no significant ocular muscle imbalance is present, the impressions from the two eyes are synthesized to the same direction as is demonstrated in the following experiment. Place in front of the front sight a card just large enough to obstruct the view of the target. With both eyes open the target is seen through an apparently transparent card, and, if the aim is true, the bull's eye is hit even though the target is seen with one eye and the sights are coordinated with the other. Hence one eye can be focused for the sights while the other sees the target. For viewing the sights, Obrig (Modern Ophthalmic Lenses and Optical Glass, New York, T. E. Obrig, 1935, p. 269) suggests a small round segment, 16 to 20 mm. in diameter, placed near the nasal border of the lens and centered horizontally with the center of the pupil. With the arm extended, if the distance of the front sight from the spectacle level is 67 cm., the vergence is 100/67 or 1.5 D., the addition required. Since this patient has 0.50 to 0.75 D. of available accommodation, he should sight clearly across the barrel. The addition determined can be incorporated in a Behr spectacle loupe, an inexpensive contrivance used by jewelers, which can be clipped to his distance spectacles and rotated readily in or out of position. To test for the precise addition, place the distance correction in the left cell of a trial frame and the shooting correction in the right cell, while the marksman aims his pistol at a target seen through the window. Among the contributors to this subject are G. A. Berry (*Edinburgh M. J.* 10:486, 1913), R. O'Connor (*Ophthalmology* 11:745, 1915), R. W. Doyne (*Ophthalmoscope* 13:119, 1915), and J. E. Lebensohn (*U. S. Nav. M. Bull.* 40:590, 1942).

CESAREAN SECTION IN PATIENT GIVEN PENTOTHAL

To the Editor:—*In doing a cesarean section for which the patient has been given only Pentothal, what is the maximum time one can allow for extracting the baby and clamping the cord? In other words, how long does it take for Pentothal to pass the placental barrier in sufficient amount to interfere with spontaneous breathing on the part of the baby?*

M.D., Virginia.

Answer.—In a study of maternal and infant cord level in patients who had received Pentothal during labor, this consultant and associates found equal levels of concentration within two minutes after injection. An incident is known of an infant, delivered by elective cesarean section, who had definite signs of cerebral anoxia one minute after the drug was given. A "placental barrier" that interferes with the transmission of most barbiturates probably, in a true sense, does not exist. Blood oxygen concentration at the placental site of undelivered babies, the brain center and respiratory mechanism of the individual fetus, the known higher incidence of respiratory difficulties in infants delivered by elective cesarean section, and the question of immaturity and prematurity all are pertinent to this discussion.

HYPERTENSION AND ENLARGED TONSILS

To the Editor:—*A 57-year-old man was found to have a systolic blood pressure of 245 mm. Hg. The patient had no symptoms of hypertension, except a mild degree of forgetfulness. His blood pressure had been taken a year previously, before he was operated on for the repair of an inguinal hernia, and was found to be 145/80 mm. Hg. After the incidental finding of high systolic pressure, the patient was examined physically and was found to be normal. His urinalysis and blood nonprotein nitrogen level were within normal limits. A course of treatment with reserpine, testosterone, and nicotinic acid failed to alter his pressure considerably. A colleague advised the removal of his tonsils, which were found to be enlarged. After tonsillectomy in another city, his systolic pressure was reported to have dropped to 170 mm. Hg and to have remained at that level for a month or two. However, on his arrival at his native town, his systolic pressure was 235 mm. Hg. His systolic pressure has remained elevated since then and fluctuates between 225 and 245 mm. Hg, despite regular ingestion of reserpine and nicotinic acid tablets. An explanation for the high blood pressure in this patient would be appreciated. Also, is there any relation between the enlarged and inflamed tonsils and high blood pressure? The altitude of the town at which the patient lives is 1,450 m.*

Ahmed Khosrowshahi, M.D., Tehran, Iran.

Answer.—There is no established relation between enlarged tonsils and hypertension. Tonsillectomy should be performed only if infection or a similar indication exists, not because of hypertension. It is well known that a nonspecific temporary reduction of blood pressure often follows an operation. The reduction after tonsillectomy would not be related to the cause of hypertension. The clinical summary did not indicate that any tests had been used to rule out pheochromocytoma. Phentolamine (Regitine) hydrochloride or piperoxan (Benodaine) should be given in test doses and the patient observed for reduction of blood pressure. Also pulses and blood pressure in the legs should be evaluated to rule out aortic obstruction by coarctation. High altitude can cause an increase of the number of red blood cells. It should be determined whether this patient has such an increase or even a true polycythemia, since this could be related to the altitude and the hypertension. If these examinations are negative, the patient should then be considered as having the usual type of arterial hypertension.

BCG VACCINATION

To the Editor:—*In* The Journal, *March 31, page 1183, and June 30, page 926, in Queries and Minor Notes, questions about BCG vaccinations were raised. In the answer to the March 31 query, the writer states, "Inasmuch as an attack of tuberculosis, either mild or severe, does not produce dependable immunity, there is no premise for attempts to produce immunity artificially by any one of the several agents now available in this country and abroad, including BCG." It has been shown repeatedly that a healed primary infection in a young adult produces a definite increased resistance against subsequent exposure to the tubercle bacillus. The study of Bates and Davey at the University of Michigan (*Am. Rev. *Tuberc. 63:332, 1951) clearly demonstrates the resistance of tuberculin reactors among students of nursing and medicine to tuberculosis. In a 10-year observation period there were 20 cases of tuberculosis, ranging from minimum to moderately advanced with cavity formation. All of these students were negative reactors to tuberculin (up to 0.005 mg. of purified protein derivative) on admission to school. There were no cases of tuberculosis in the students with positive tuberculin reactions at the start of training. Similarly, Dr. J. Arthur Myers and his group (*Ann. Int. Med. *14:873, 1940) found that during training in one nursing school with 12 weeks of tuberculosis service, one case of pleurisy with effusion developed in the 48 originally positive reactors (up to 1 mg. of old tuberculin), whereas 11 cases (6.2%) of clinical tuberculosis developed in 178 originally negative reactors. Seven of the latter were hospitalized for periods up to two years, and two died of tuberculosis. A small percentage of individuals who are infected with tubercle bacilli develop clinical disease that subsequently relapses. These individuals are most probably a highly susceptible group who have little capacity for developing resistance against tuberculosis, much the same as Lurie (*Proc. Soc. Exper.*

Biol. & Med. *39:176, 1938; ibid. 39:181, 1938) demonstrated in his susceptible rabbits. Rich (Pathogenesis of Tuberculosis, Springfield, Ill., Charles C Thomas, Publisher, 1944) states, "It is an example of the treachery of terms that the statement on the part of some authoritative writers that there is no acquired immunity in tuberculosis (meaning that thereby one resisted infection does not confer complete and permanent protection against subsequent disease) has led many to believe that a tuberculous infection confers no protection at all [Myers, J. A.:* J. Pediat. *10:267, 1937] in spite of the great evidence to the contrary." (See also the more recent article by Myers [*J. A. M. A. *146:1492 (Aug. 18) 1951].) That BCG vaccination confers an increased resistance against tuberculosis in all age groups has been well demonstrated in the United States and abroad (Aronson and Aronson:* J. A. M. A. *149:334 [May 24] 1952. Rosenthal and Leppmann:* Tr. Nat. Tuberc. A. *49:161, 1953. Rosenthal:* J. A. M. A. *157:801 [March 5] 1955). The most recent study (1956) conducted by the National Research Council of Great Britain in some 57,000 adolescents again confirms unequivocally the effectiveness of BCG vaccination. They found a reduction of 82% in the incidence of tuberculosis in the BCG-vaccinated group as compared with the tuberculin-negative group not vaccinated. In regard to the harmfulness of BCG—there have been over 100 million vaccinations with relatively few complications and no absolutely proved cases of death as a result of the BCG itself. However, even if we accept the five cases referred to in the answer to the query (March 31), it is much less than the complications following smallpox vaccination (1 case of encephalitis in 15,000 vaccinations). The fact that BCG vaccination is mandatory by law in such countries as France, Norway, Denmark, Finland, Brazil, and Japan and that it has been accepted by the World Health Organization, the National Tuberculosis Association, and the National Research Council of Great Britain—all highly conservative bodies—speaks highly for its safety. It is of interest that the University of Illinois and the Research Foundation supply vaccine to some 390 users in 46 states. This includes 37 medical schools, 104 schools of nursing, and 230 hospitals. These users employ the multiple puncture disk for vaccination. In tens of thousands of vaccinations, none have reported local or general complications of any consequence. This is in sharp contrast to the remarks of the June 30 query, where it is stated that "abscesses and ulcers at the site of administration [of BCG] and clinical disease of the regional lymph nodes occur with considerable frequency following its administration."*

Sol Roy Rosenthal, M.D.
Director, University of Illinois
Institution for Tuberculosis Research
Chicago 12.

Dr. Rosenthal's letter was referred to the consultant who answered the two queries and minor notes under discussion, and his reply is, in part, as follows.—Ed.

To the Editor:—*Your correspondent's statement to the effect that it has been shown repeatedly that a healed primary infection in a young adult produces increased resistance against tubercle bacilli is obsolete. There is no way to determine that a given primary lesion is healed except through biopsy or autopsy. Moreover, if one primary lesion were found to be healed, numerous others are present in the same body that may contain necrotic tissue harboring virulent tubercle bacilli. Calcific deposits in the lungs seen by shadows on x-ray films by no means indicate that the lesions are healed. Calcification is not a specific process. Moreover, calcium deposits are laid down in dead tissue. There may be an abundance of necrotic tissue around them harboring tubercle bacilli or even active tuberculosis in living tissues in adjacent areas without being revealed by x-ray shadows. Longitudinal studies of both tuberculin reactors and nonreactors have shown that clinical lesions develop only in tuberculin reactors. About as soon as persons who have been nonreactors become infected and react to tuberculin, a small percentage show primary pulmonary infiltrates, large and dense enough and so located as to cast visible x-ray shadows. They should never be classified as clinical lesions, as they are Ghon tubercles in the inflammatory stage. It is usually months and more often years before these recent reactors who are destined to develop clinical tuberculosis do so.*

J. E. Perkins, managing director, National Tuberculosis Association, recently stated that between 50 and 60 million people in the United States are tuberculin reactors and that these people are harboring the seeds, thus constituting a stockpile of tuberculosis. He states that, if the rate of breakdown with active disease among these infected individuals continues as at present, then 2,700,000 people who are tuberculin reactors today will have active tuberculosis during their lifetime. This is a sound statement and is based on careful study and long periods of observation by students of tuberculosis.

In citing the findings of J. Arthur Myers and his group, the correspondent referred to a paper written 16 years ago, before it was so well known that demonstrable lesions found about the time individuals become sensitive to tuberculin are always primary infiltrates (Ghon tubercles). Although this act has now been well established, Ghon tubercles in the inflammatory stage are still being classified by some workers as clinical lesions, resulting in misinformation and much confusion. A more recent reference could have been made to J. Arthur Myers and his group. For example, in a paper entitled "Tuberculosis in Physicians," in The Journal, *May 7, 1955, page 1, they stated that throughout their period of observation, from 1927 to 1953, more physicians had developed clinical tuberculosis among those who had reacted to tuberculin on admission to school than among those who became reactors while in school or subsequently. Also, among the physicians who had graduated from their medical school between 1919 and 1932, 92 had developed tuberculosis, of whom 11 died, while in school or after graduation, whereas, in the past 10 years, only one student had developed a pulmonary lesion large enough to be found by its x-ray shadow, and he had been known to be a reactor to tuberculin since the age of 14 years.*

It is only tuberculin reactors who can develop clinical disease and have subsequent relapses. Allergy produced by the first infection converts tuberculoprotein into a violent poison to cells and tissues, and it is this that results in necrosis when tuberculoprotein comes in contact with sensitized tissues, which is clinical tuberculosis. Endogenous reinfections are responsible for all of the acute rapidly progressive forms of tuberculosis, such as meningitis and miliary disease, and, there is reason to believe that endogenous reinfections are responsible for the bulk of chronic tuberculous processes. The committee on vaccination of the National Research Council of Great Britain outlined a splendid study, but it neglected the most crucial point, namely, differentiation between primary pulmonary infiltrates, which are Ghon tubercles in the inflammatory stage, and clinical reinfection type of pulmonary lesions. Had this differentiation been made, it would have accounted for most of the difference reported between lesions found among the naturally infected and the artificially infected adolescents. Moreover, the period of two and one-half to four years of observation was too short to justify conclusions. Ten years would not have been enough, since tuberculosis is a lifetime disease.

*Last year, James (*Am. Rev. Tuberc. *71:321, 1955) wrote from the Dungannon Chest Hospital in northern Ireland, "I believe that BCG is the most dangerous substance which has ever taken shelter behind the principle of protective inoculation, and I can only suppose that its harmless reputation is based on the propagandists' axiom that, if a statement is repeated sufficiently often, it will eventually reach the status of truth." Many persons who have had BCG have subsequently developed clinical tuberculosis, and a number have died from this disease. It does not seem unreasonable to expect BCG to produce mild, serious, and fatal disease in people, since it produces progressive and often killing disease in mice on deficient diets (Dubos: editorial,* Am. Rev. Tuberc. *60:670, 1949), guinea pigs with silicosis (Vorwald and others:* Am. Rev. Tuberc. *62:455, 1950), normal golden hamsters (Hauduroy and Rosset:* Compt. rend. Acad. sc. *232:445, 1951), and ground squirrels (Hauduroy and Rosset:* Experientia *9:267, 1953).*

*No report yet made on the efficacy of BCG has been adequately documented, and the bulk of the work on the 100 million the correspondent refers to has had so little follow-up of cases as to be worthless. Khairat (*Journal-Lancet *74:128, 1954) said, "In Egypt, possibly the reported low incidence of abscess formation after BCG vaccination since 1950 was partly due to* *exposure of the vaccine to direct sunlight, but was mainly attributed to the impossibility of collecting accurate statistics, especially since adenitis and suppuration occur late—sometimes seven months after vaccination, and not necessarily at the site of the injection, so that the victims do not associate the late complication with the earlier injection. Moreover, the average Egyptian peasant is not usually anxious to take the trouble to notify the statisticians, so that their statistics may be accurate! I have received many letters from parents of school children who were inoculated, and even from government doctors who injected BCG describing the occurrence of these abscesses in Egypt. It is regrettable that the poor peasants were not informed of the true nature of the vaccination, but were told instead, it was a 'health-giving' injection." From available evidence, the follow-up work has been no better in most nations where mass BCG administration has been employed.*

With reference to the BCG produced and distributed by the University of Illinois and the Research Foundation, it should have been stated that the culture was found to be from 10 to 100 times weaker than the one produced in other laboratories. Moreover, the Research Foundation's culture is said to contain so few living bacilli that difficulty has often been experienced in producing tuberculin reaction in the recipients. The meaning of the statement, "None have reported local or general complications of any consequence," is not clear. How serious must complications be before they are of "any consequence"? Reactions at sites of administration are tuberculous lesions with regional lymph node components. Moreover, every individual who becomes a tuberculin converter has such lesions whether or not they are in evidence superficially. Vorwald and associates (Am. Rev. Tuberc. *62:455, 1950; ibid. 69:766, 1954) produced progressive and killing tuberculosis in guinea pigs with silicosis with this culture of BCG just as readily as with the Aronson culture. It seems paradoxical that this correspondent should be strongly recommending the use of BCG in the United States at a time when nations that have had most experience with it, including Scandinavian countries, are proposing its discontinuance (Wallgren:* Acta paediat. *44:237, 1955; Scandinavian Symposium: Is Mass BCG Vaccination Still Justified in Scandinavia?* Nord. med. *55:21, 1956).*

FRAGILITAS OSSIUM

To the Editor:—*The following case may interest physicians who read the reply in reference to bone fragility in* The Journal, *June 23, 1956, page 773. In 1928, I saw a boy aged 13 who had had 13 fractures, all but one related to his large extremities, the exception being of a finger. The first one occurred when he was 14 months old and the next four months later. He had been nursed by his mother for nine months. His brother, then 6½ years old, had never had a fracture. The father and the mother of these children were first cousins. The parents of these parents, on both sides, had also been related, in the same way. The parents of the above child were about the same age. There had been two miscarriages, both in the third month, before the patient was born. Both boys were delivered by cesarian section, the mother being rachitic. Between the ages of 7 and 11½, our patient had had no fractures. The last fractures occurred in both elbow joints, one of them being quite complicated. Among the immediate causes of the fractures was a fall from the roof of a small house, but the others were apparently insignificant, such as slight fall, hurt, or pulling of hand.*

The patient weighed 111 lb. (50.3 kg.) and was 26 lb. (11.8 kg.) overweight. The cranium was extraordinarily large and the neck short. There were no other signs of rickets. Otherwise, the child was in good health. He had had measles, whooping cough, and chickenpox. "He never catches cold," the mother said. A hospital report from the same year stated: "Admitted with fracture of right olecranon process. There seemed to be no evidence of rickets, rather fragilitas ossium. Blood count was normal, so was the urine analysis; nose and throat smears were negative for diphtheria."

A plan was devised and instructions given about methods of living and eating, including use of hydrotherapy. They seem to have been followed. No fractures occurred after that time. In 1932, the patient complained of gradual loss of hearing, which had been subnormal earlier. He could not hear the teacher in the classroom. Deafness was developing equally on both sides, and it could not be explained by any local cranial fractures. His blood pressure was somewhat higher than normal. The mother, 27 years old at this child's birth, was short and squat, had a large skull, and was and had apparently always been almost totally deaf. The patient's brother, while not suffering from the bone disease, was also hard of hearing. When seen again in 1939, the patient had been treated elsewhere for deafness. Therapy was endocrinological and was unsuccessful. At this time, deafness was complete. He was 24 years old and his blood pressure was 170/60 mm. Hg. In 1944, a hospital report, after a thorough consultation study, stated: "Otosclerosis, basal metabolic rate 10%, severe psychoneurosis." The latter statement was erroneous. The patient was not only highly intelligent but also mentally and emotionally normal. In 1948, he was married to a healthy, nonrelated girl. Four years later, when I saw them, they had two children, one about 2 years old and one under a year. The first baby had suffered three lower extremity fractures already, and the youngest was born with two fractures, one in each leg. I was told that, except for the fractures, which healed easily, these babies were in good health. Also, so far, their hearing did not seem to be affected. The literature on this subject, with which I am acquainted, is poor and unsatisfactory.

Benzion Liber, M.D., Dr. P. H.
65 W. 95 St.
New York 25.

MILD DIABETES

To the Editor:—*In* The Journal, *July 7, 1956, page 1031, under the heading "Mild Diabetes," there is a query about the necessity of giving insulin to patients with mild diabetes. In the answer, the indications for insulin are discussed properly, but it is said that, in a middle-aged patient, the question may arise "whether one, two, or three sulfonamide tablets a day would control the blood sugar level." The consultant apparently had in mind the hypoglycemic sulfonamides (tolbutamide [Orinase] or carbutamide [Orabetic]), which are presently being investigated for their efficacy in controlling mild diabetes. The general reference to sulfonamides, however, may cause the impression that any sulfonamide is hypoglycemic. This is certainly not correct. Most of the conventional sulfonamides do not affect the blood sugar level at all; some even elevate it.*

Martin G. Goldner, M.D.
Jewish Chronic Disease Hospital
East 49th Street and Rutland Road
Brooklyn 3, N. Y.

VAGINAL DOUCHES

To the Editor:—*In* The Journal, *Aug. 25, 1956, page 1718, there is a question about douching with Burow's solution in a case of "simple, clear, not infected oversecretion of mucus" from the vagina. I agree with the second answer but must point out that some of the statements are not pertinent to a "clear, not infected oversecretion." Such a condition is the result of local congestion, the cause of which may be anything from constipation to psychic factors. We see it in schoolgirls, particularly in ambitious girls, around examination time and see it clear up spontaneously during vacation time. Douches often transform such an increase of normal secretion, the result of an increased lymph transudate from perivaginal sources, into a real discharge by introducing pathogenic bacteria and reducing the normal, protective vaginal acidity. Furthermore, douching tends to focus attention on a harmless symptom and leads to overrating the importance of the disturbance. In the case cited, Burow's solution apparently, so far at least, has prevented infection; however, it is, as was pointed out by your consultant, "unphysiological" to say the least. The only way to treat a case of the type cited is to find the cause for the pelvic congestion and remove it.*

G. L. Moench, M.D.
27 W. 55th St.
New York.

« Washington News »

Draft of Medical and Scientific Personnel • •
Seven Federal Research Grants Total $765,159 • •
Modifications of Disability Payments Plan • •
1953 Grants to Nonprofit Research Institutes • •
Fourth Annual Symposium on Antibiotics • •

THE SPECIAL DOCTOR-DRAFT ACT

Officials of the Defense Department already have started discussions with professional groups concerning the call-up of medical and scientific personnel after next July 1, when it is expected the special doctor-draft act, passed in 1950, will be allowed to expire. Called in for an exchange of views have been representatives of the American Medical Association, the American Dental Association, the Association of American Medical Colleges, and the surgeons general of the Army, the Navy, the Air Force, and the U. S. Public Health Service. The discussions were initiated by Dr. Frank Berry, Assistant Secretary of Defense for health and medical matters, who is responsible for advising Secretary Wilson on policy regarding the procurement of medical personnel.

One of the questions to be discussed is whether any change in the basic selective service act will be necessary to facilitate the selective call-up of certain physicians and other specialists, including scientists, who are deferred for educational and occupational reasons. This is the present situation: Although all physicians registered under the regular draft technically will continue to be liable for service up to age 35, few if any of those over age 30 are apt to be called, as the Defense Department estimates that the majority of its needs can be met by recent graduates of medical schools.

FEDERAL RESEARCH GRANTS

More than 200 medical institutions of various types have made inquiry concerning federal research grants under the new 30-million-dollar-a-year program authorized by the last Congress. Money, to be matched 50-50, can be used for buildings or equipment for medical research. The first grants totaled only $765,159, going to seven institutions. Twenty-four other applications were considered by the National Advisory Committee on Research Facilities at its first meeting, but, according to the Public Health Service, information furnished on which to make a decision was inadequate. Surgeon General Burney said the seven requests honored were the only ones that contained complete data and were the only projects that warranted "immediate support."

Amounts of the first grants and recipients were as follows: Massachusetts General Hospital for a neurosurgical floor, $95,045; Albany Medical College of Union University (Albany, N. Y.), new animal quarters, $45,000; Christ Hospital Institute of Medical Research (Cincinnati), additional floor in medical research building, $184,000; University of Pennsylvania, radiology center, $179,000; University of Minnesota, $26,110 for anatomy research facilities and $161,000 for research facilities for physiological chemistry, physiology, and pharmacology; and Georgetown University, animal research laboratories, $75,000. The next council meeting is in December, at which time the PHS expects most of the remaining money out of the first year's 30 million dollars will be allocated. Grants are approved and announced by the surgeon general, but only after the council has acted.

DISABILITY PAYMENTS PLAN

Possible modifications in medical policy and medical administrative aspects of the new disability payments section of the social security act were discussed at a two-day meeting of the medical advisory committee to the Social Security Administration. The disability payments plan, providing OASI payments at age 50 to persons certified as totally and permanently disabled, was enacted by the last Congress. Also a part of the law is a "waiver of premium" program, passed in 1955, which "freezes" the OASI records of a disabled person so his ultimate pension is not reduced because of unemployment in the time before he becomes eligible for payments.

The chairman of the committee is Dr. J. Duffy Hancock, Louisville, Ky. Other members are Miss Pearl Bierman, Chicago; Dr. Philip D. Bonnet, Boston; Dr. Donald Covalt, New York City; Dr. Charles L. Farrell, Pawtucket, R. I.; Dr. J. S. Felton, Oklahoma City; Dr. Herman E. Hilleboe, Albany, N. Y.; Dr. Lemuel C. McGee, Wilmington, Del.; Dr. Kenneth B. McIntyre, Detroit; Dr. William A. Pettit, Los Angeles: Dr. Leo Price, New York City; Dr. William Harold Scoins, Fort Wayne, Ind.; Mr. Carroll Shartle, Columbus; Ohio; Mr. Byron Smith, Minneapolis; and Dr. David Wade, Austin, Texas.

Two representatives of the American Medical Association attended the sessions as observers. They are Dr. William Kennard of the A. M. A. Washington Office and George Cooley, Assistant Secretary of the

(Continued on page 22)

From the Washington Office of the American Medical Association.

'LANOXIN'
brand
DIGOXIN

formerly known as Digoxin 'B.W. & Co.'®

for prompt digitalization and dependable maintenance

Dear Doctor:

The new name for Digoxin 'B. W. & Co.' is 'LANOXIN'. This change will now make it easier for everyone to distinguish digoxin from digitoxin.

Now, simply write...

'Lanoxin' Tablets
0.25 mg. or 0.5 mg.

to provide the safety and predictability afforded by the uniform potency, uniform absorption, brief latent period and optimum rate of elimination of this crystalline glycoside.

A pure, stable, crystalline glycoside isolated from Digitalis lanata...

(cont'd) ↗

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

Washington News—Continued

A. M. A. Committee on Medical Service. At the session, operational reports were received on the disability freeze program to date, the new (disability payments) program was explained, and reports were received on state agency operations. Also, proposed changes in medical standards for disability evaluation were discussed.

RESEARCH IN NONPROFIT INSTITUTES

In 1953 scientific research and development programs, including medical, in nonprofit institutes and commercial laboratories totaled an estimated 85 million dollars. Commercial laboratories spent about 35 million dollars for scientific research, while the nonprofit institutes spent more than 50 million dollars. The basic research and development effort in commercial groups amounted to 4 million dollars and in nonprofit organizations to over 3 million dollars.

This information is included in the National Science Foundation's report, "Research and Development by Non-Profit Research Institutes and Commercial Laboratories, 1953." The report, prepared by the Maxwell Research Center, Syracuse University, is one part of an extensive survey of research and development in all known U. S. nonprofit institutes and in a sampling of the commercial laboratories. The report notes that most of these research groups have been founded since 1941. This rapid increase largely can be attributed to the expansion of the federal government research programs and to federal aid to the private research groups. In 1953 the government granted to the commercial laboratories one-half of their expenses and to the nonprofit groups two-thirds.

SYMPOSIUM ON ANTIBIOTICS

The Food and Drug Administration, in association with the journals *Antibiotics and Chemotherapy* and *Antibiotic Medicine and Clinical Therapy*, will sponsor the fourth Annual Symposium on Antibiotics in Washington late this month. Medical scientists from the United States and nine foreign countries will report in 156 papers on recent discoveries in antibiotics. New antibiotics not yet commercially available and the use of combined antibiotic therapy will be described. An entire day's program will be devoted to the problem of antibiotics in food and their use in the preservation of foods. The panel discussion, to be moderated by W. A. Randall of the Food and Drug Administration, will consider in detail the use of chlortetracycline (Aureomycin) and oxytetracycline (Terramycin) in extending the shelf life of foods such as poultry and fish.

VA CONSTRUCTION PROJECTS

The Veterans Administration will open bidding in October and November on 22 construction projects costing a total of $4,425,000 to $6,320,000. The total cannot be determined until bids are accepted. The three major projects include alterations and additions to the VA hospital at Tuskegee, Ala., and the construction of a recreation and theater building at the center in Bath, N. Y. The cost of these projects will range between $1,500,000 and $2,000,000. The third project, alterations to four buildings at Dallas, Texas, will cost an estimated $1,500,000.

PERSONNEL

Dr. Donald George Marquis, chairman of the department of psychology at the University of Michigan, and Dr. Howard Wieland Potter, director of psychiatry at Kings County Hospital, have been appointed members of the National Advisory Mental Health Council.... The winner of the American Academy of Neurological Surgery award for 1956 is Lieut. Hubert L. Rosomoff, M. C., U. S. N. R. His paper will be presented at the annual meeting of the American Academy of Neurological Surgery.... Dr. John M. Whitney, director of the health office of the Federal Civil Defense Administration, will be the U. S. delegate to the NATO medical committee that discusses health and medical planning and organization.... Dr. Thomas M. Rivers, newly named medical director of the National Foundation for Infantile Paralysis, has reiterated support for Salk vaccine, stating: "The Salk vaccine is safe, effective and available today. The Sabin vaccine still is in an experimental stage.... *It is impossible to estimate* how long it might take to test and prove the effectiveness of the new vaccine in human beings."

MISCELLANY

Federal agencies have been granted $468,025 for research activities in community air pollution work by the Public Health Service.... The PHS also announces a new program of postdoctoral training in the basic neurological sciences. The program, intended to increase the number of scientists in teaching and research, will be implemented by grants to training institutions. . . . Courses in the latest concepts of civil defense rescue training will be held in late October at the seven regional headquarters of the Federal Civil Defense Administration. The FCDA's rescue program will be presented to small groups of public safety workers who can serve as a nucleus for larger forces in case of an enemy attack. . . . A U. S. Public Health Service survey in 11 western states shows that the demand for dental care will increase more rapidly than the number of practicing dentists. By 1975, it is estimated that 95,000 dentists will be practicing in the U. S. but only 16,000 in the West. . . . New evidence from the heart research laboratories of the PHS indicates that hyperlipemia may result from deficiency of the enzyme lipoprotein lipase. . . . The national consultants to the Air Force surgeon general have held their 10th annual meeting at Wright-Patterson Air Force Base. . . . The AEC, having amended its byproduct material regulation, will permit the possession and use of additional types of low-level radioactive sealed sources. . . . A one-week institute of registrars was held in early October at the Walter Reed Army Medical Center. Registrars and allied medical record personnel discussed the actual and prospective changes in the Army's system of medical records and reports.

(cont'd)

'LANOXIN' continues to offer the same advantages—only the name has been changed.

The full effects of each dose develop quickly to permit rapid appraisal of the need for additional drug. Moreover, the limits of the patient's therapeutic range, which may be reduced in the seriously ill, may be approached with relative safety because toxicity, if it develops, soon abates. For true balance and uniformity of therapeutic effect, prescribe 'LANOXIN' brand Digoxin.

Sincerely,

'B.W.&Co.'

TABLETS: 0.25 mg. (white) and
0.5 mg. (green)

ELIXIR PEDIATRIC: 0.05 mg. in each cc.

AMPULS: 0.5 mg. in 2 cc.

'LANOXIN'
brand
DIGOXIN

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1956 Clinical Meeting, Seattle, Nov. 27-30.
1957 Annual Meeting, New York, June 3-7.
1957 Clinical Meeting, Philadelphia, Dec. 3-6.
1958 Annual Meeting, San Francisco, June 23-27.
1958 Clinical Meeting, Minneapolis, Dec. 2-5.
1959 Annual Meeting, Atlantic City, June 8-12.

American Academy for Cerebral Palsy, Congress Hotel, Chicago, Nov. 17-19. Dr. Robert A. Knight, 869 Madison Ave., Memphis 3, Tenn., Secretary.

American Academy of Dental Medicine, Hotel New Yorker, Dec. 2. Dr. George Witkin, 45 South Broadway, Yonkers 2, New York, Secretary.

American Academy of Dermatology and Syphilology, Palmer House, Chicago, Dec. 8-13. Dr. James R. Webster, 55 East Washington St., Chicago 2, Secretary.

American Academy of Neurological Surgery, Camelback Inn, Phoenix, Ariz., Nov. 7-11. Dr. Eben Alexander Jr., Bowman Gray School of Medicine, Winston-Salem, N. C., Secretary.

American Association of Medical Clinics, Mayflower Hotel, Washington, D. C., Oct. 26-28. Dr. Edwin P. Jordan, Box 58, Charlottesville, Va., Executive Director.

American Association of Nursing Homes, Shamrock-Hilton Hotel, Houston, Texas, Oct. 22-25. Mr. Ira O. Wallace, P. O. Box 366, New Castle, Ky., Secretary.

American Cancer Society, Scientific Session, Park Sheraton Hotel, New York, Oct. 29-30. Dr. Charles S. Cameron, 521 West 57th St., New York 19, Medical Director.

American Clinical and Climatological Association, Skytop Lodge, Skytop, Pa., Nov. 1-3. Dr. Marshall N. Fulton, 124 Waterman St., Providence 6, R. I., Secretary.

American College of Cardiology, Interim Session, Webster Hall Hotel and Mellon Institute, Pittsburgh, Nov. 28-30. Dr. Philip Reichert, Empire State Building, New York 1, Secretary.

American College of Chest Physicians, Interim Session, Seattle, Nov. 25-26. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Executive Director.

American College of Obstetricians and Gynecologists, Palmer House, Chicago, Nov. 7-9. Dr. Paul Hodgkinson, 116 South Michigan Blvd., Chicago 3, Secretary.

American College of Preventive Medicine, Atlantic City, N. J., Nov. 14-15. Dr. John J. Wright, School of Public Health, Univ. of North Carolina, Chapel Hill, N. C., Secretary.

Annual Conference on Electrical Techniques in Medicine and Biology, Governor Clinton Hotel, New York, Nov. 7-9. Mr. E. Dale Trout, General Electric Company, X-Ray Dept., Milwaukee 1, Chairman.

American Fracture Association, Drake Hotel, Chicago, Nov. 29-Dec. 2. Dr. Homer D. Junkin, Paris Hospital, Paris, Illinois, Secretary.

American Heart Association, Music Hall and Netherland-Hilton Hotel, Cincinnati, Oct. 26-Nov. 2. Mr. Rome A. Betts, 44 East 23d St., New York 10, Executive Secretary.

American Public Health Association, The Ambassador, Atlantic City, N. J., Nov. 12-16. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American School Health Association, Atlantic City, N. J., Nov. 12-18. Dr. A. O. DeWeese, 513 East Main St., Kent, Ohio, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Kentucky Hotel, Louisville, Ky., Oct. 22-25. Dr. Harold Hodge, University of Rochester, Rochester 20, N. Y., Secretary.

American Society for the Study of Arteriosclerosis, Palmer House, Chicago, Nov. 11-12. Dr. O. J. Pollak, P. O. Box 228, Dover, Del., Secretary.

American Society of Tropical Medicine and Hygiene, Jung Hotel, New Orleans, Oct. 31-Nov. 3. Dr. John E. Larsh Jr., Dept. of Parasitology, School of Public Health, University of North Carolina, Chapel Hill, N. C., Secretary.

Annual Conference on Electrical Techniques in Medicine and Biology, Governor Clinton Hotel, New York, Nov. 7-9. Mr. E. Dale Trout, General Electric Company, X-Ray Dept., Milwaukee 1, Chairman.

Association of American Medical Colleges, The Broadmoor, Colorado Springs, Colo., Nov. 12-14. Dr. Dean F. Smiley, 185 N. Wabash Ave., Chicago 1, Secretary.

Association of Life Insurance Medical Directors of America, Hotel Roosevelt, New Orleans, Oct. 23-25. Dr. Henry B. Kirkland, P. O. Box 594, Newark 1, N. J., Secretary.

Association of Military Surgeons of the United States, Hotel Statler, Washington, D. C., Nov. 12-14. Colonel Robert E. Bitner, Room 718, 1726 Eye St., N.W., Washington 6, D. C., Secretary.

Association for Research in Nervous and Mental Diseases, Hotel Roosevelt, New York, Dec. 7-8. Dr. Rollo J. Masselink, 700 West 168th St., New York 32, Secretary.

Association of State and Territorial Health Officers, Hotel Washington, Washington, D. C., Nov. 2-10. Dr. Franklin D. Yoder, State Board of Health, Cheyenne, Wyo., Secretary.

Central Society for Clinical Research, Drake Hotel, Chicago, Nov. 9-10. Dr. Robert H. Ebert, 950 East 59th St., Chicago 37, Secretary.

Congress of Neurological Surgeons, Palmer House, Chicago, Nov. 1-3. Dr. Philip D. Gordy, 1007 Delaware Ave., Wilmington, Del., Secretary.

Eastern Psychiatric Research Association, Waldorf-Astoria Hotel, New York, Oct. 27. Dr. Theodore R. Robie, 676 Park Ave., East Orange, N. J., Secretary.

Gerontological Society, Hotel Hamilton, Chicago, Nov. 8-10. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

Interstate Postgraduate Medical Association of North America, Hotel Statler, Cleveland, Oct. 22-26. Mr. Roy T. Ragatz, Box 1109, Madison 1, Wis., Executive Director.

National Society for Crippled Children and Adults, Statler Hotel, Washington, D. C., Oct. 28-Nov. 1. Dr. Dean Roberts, 11 South LaSalle St., Chicago 3, Executive Director.

New England Postgraduate Assembly, Hotel Statler, Botson, Oct. 30-Nov. 1. Dr. Robert P. McCombs, 22 Fenway, Boston 15, Chairman, Program Committee.

Omaha Mid-West Clinical Society, Sheraton-Fontenelle Hotel, Omaha, Oct. 29-Nov. 1. Mrs. Anne K. Ramsey, 1031 Medical Arts Bldg., Omaha 2, Executive Secretary.

Pacific Coast Fertility Society, El Mirador Hotel, Palm Springs, Calif., Nov. 8-11. Dr. Edward T. Tyler, 10911 Wayburn Ave., Los Angeles 24, Secretary.

Pennsylvania, Medical Society of the State of, Chalfonte-Haddon Hall, Atlantic City, N. J., Oct. 21-26. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

Puerto Rico Medical Association, San Juan, Dec. 4-9. Dr. Rafael Gil, Box 9111, Santurce, Secretary.

Radiological Society of North America, Palmer House, Chicago, Dec. 2-7. Dr. Donald S. Childs, 713 East Genesee St., Syracuse 2, N. Y., Secretary.

Regional Meetings:

American College of Physicians:
  Kentucky-Tennessee, Nashville, Tenn., Dec. 1. Dr. Rudolph H. Kampmeier, Vanderbilt University Hospital, Nashville, Tenn., Governor.
  Michigan, Ann Arbor, Dec. 1. Dr. H. Marvin Pollard, Ann Arbor, Mich., Governor.
  Midwest, Minneapolis, Oct. 27. Dr. Wesley W. Spink, 412 Delaware St., S.E., Minneapolis 14, Governor.
  Montana-Wyoming, Great Falls, Mont., Nov. 16-17. Dr. Harold W. Gregg, 103 N. Wyoming St., Governor.
  New Jersey, Newark, Nov. 7. Dr. Edward C. Klein Jr., 6 South Kingman Rd., South Orange, Governor.
  North Carolina, Chapel Hill, Dec. 6. Dr. Elbert L. Persons, Duke Hospital, Durham, N. C., Governor.

Southern Medical Association, Sheraton-Park Hotel, Washington, D. C., Nov. 12-15. Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Ala., Executive Secretary.

Southern Surgical Association, Boca Raton Club and Hotel, Boca Raton, Fla., Dec. 4-6. Dr. George G. Finney, 2947 St. Paul St., Baltimore 18, Secretary.

Southern Thoracic Surgical Association, Hotel Fontainebleau, Miami Beach, Fla., Dec. 7-9. Dr. Hawley H. Seiler, 442 West Lafayette St., Tampa 6, Fla., Secretary.

Southwestern Cancer Conference, Hilton Hotel, Fort Worth, Texas, Oct. 26-27. Dr. John J. Andujar, 1404 Pennsylvania, Fort Worth 4, Texas, Chairman.

Symposium on Abdominal Conditions, Hotel Charlotte, Charlotte, N. C, Nov. 8. Dr. Philip Naumoff, 407 Doctors Bldg., Charlotte 7, N. C, Chairman Program Committee.

Western Cardiac Conference, Cosmopolitan Hotel, Denver, Nov. 5-10. For information address: Mr. A. Seikel, Executive Director, Colorado Heart Association, 901 E. 17th Ave., Denver 18.

Western Orthopedic Association, Arizona Biltmore Hotel, Phoenix, Ariz., Oct. 31-Nov. 3. Dr. John H. Ricker, 926 East McDowell Rd., Phoenix, Ariz., Secretary.

Western Surgical Association, Netherlands Plaza Hotel, Cincinnati, Nov. 29-Dec. 1. Dr. John T. Reynolds, 612 North Michigan Blvd., Chicago 11, Secretary.

FOREIGN AND INTERNATIONAL

Assembly of Association of French Speaking Doctors, Great Hall, Faculty of Medicine, 85 Boulevard Saint-Germain, Paris, France, Oct. 16-18, 1957. For information address: General Secretary, Congrés Francais de Médecine, Prof. G. Boudin, Paris, France.

Bahamas Medical Conference, Princess Margaret Hospital, Nassau, Bahamas, Dec. 1-15, 1956. For information address: Dr. B. L. Frank, 4th Floor, 550 Fifth Avenue, New York 36, New York, U. S. A.

Canadian Medical Association, Edmonton, Alberta, Canada, June 17-21, 1957. Dr. A. D. Kelly, 150 St. George Street, Toronto 5, Ont., Canada, General Secretary.

Conference of All India Medical Licentiates Association, Delhi, India, Dec. 18-20, 1956. Dr. B. B. Lal Dikshit, Dikshit Niwas, Rakabganj, Agra., India, Secretary.

Congress of French Society of Ophthalmology, Paris, France, May 12-16, 1957. Dr. Marcel Kalt, 81 rue Saint-Lazare, Paris 9e, France, Secretary.

Congress of International Anesthesia Research Society, Phoenix, Ariz., U. S. A., April 1-4, 1957. For information address: Dr. A. William Friend, Wade Park Manor, Cleveland 6, Ohio, U. S. A.

Congress of International Association for Study of the Bronchi, Lisbon, Portugal, May 25-26, 1957. For information address: Prof. F. Lopo de Varvalho, 138 rua de Junqueira, Lisbon, Portugal.

Congress of International Society of Audiology, St. Louis, Missouri, U. S. A., May 14-16, 1957. For information address: Dr. S. Richard Silverman, 818 South Kingshighway, St. Louis 10, Missouri, U. S. A.

Congress of International Society for Cell Biology, St. Andrews, Fife, Scotland, Aug. 28-Sept. 3, 1957. Prof. H. G. Callan, Bell Pettigrew Museum, The University, St. Andrews, Fife, Scotland, Secretary General.

Congress of International Society of Orthopedic Surgery and Traumatology, Barcelona, Spain, Sept. 16-21, 1957. For information address: International Society of Orthopedic Surgery and Traumatology, 34, rue Montoyer, Brussels, Belgium.

Congress of International Society of Surgery, Mexico City, Mexico, Oct. 27-Nov. 2, 1957. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

(Continued on page 26)

THE JOURNAL
of the American Medical Association
Published Under the Auspices of the Board of Trustees

VOL. 162, NO. 8
CHICAGO, ILLINOIS
OCTOBER 20, 1956

COPYRIGHT, 1956, BY AMERICAN MEDICAL ASSOCIATION

PALLIATION OF MAMMARY CARCINOMA WITH PHOSPHORAMIDE DRUGS

Jeanne C. Bateman, M.D.
and
Harry N. Carlton, M.D., Washington, D. C.

• *Where prolonged palliation of mammary carcinoma is indicated, especially with but not limited to extensive disease, and without regard to prior therapy, the phosphoramide drugs may be useful. Medication may be administered by various routes to effect an intratumor application, and also orally to suit the needs of the patient. The ability to use the drug on an outpatient basis, even with extensive disease, provides an economic and psychological advantage to the patient concurrent with the objective response. Hematopoietic depression occurring as a side-effect also serves as a guide in determining dosage.*

A comprehensive survey of cancer statistics reveals an increase in incidence, morbidity, and mortality[1] in spite of improved x-ray techniques, increasingly extensive operative procedures, and education regarding early detection. It appears that the problem of the so-called hopeless case will remain large for some time to come. Because of the frequency of mammary cancer, patients with disseminated metastases secondary to this neoplasm present a challenging problem. Hormone therapy of various types[2] affords objective palliation in approximately 20 to 45% of cases for an average duration of eight to nine months. Unfortunately both androgens and estrogens may be tumor accelerators.[3] The need for other palliative agents is therefore obvious.

Regression of skin metastases after treatment with triethylenethiophosphoramide in patients with disseminated mammary cancer was first reported by Shay.[4] Our early observations[5] confirmed Shay's work and encouraged us to extend our series of patients. The following report concerns 122 cases of far-advanced mammary cancer treated for 1 to 24 months with N, N′, N″-triethylenethiophosphoramide and/or N-(3-oxapentamethylene)-N′, N″-diethylenephosphoramide.

The age distribution of the 122 patients included in this study is given in figure 1. The youngest patient was 26 years old and the oldest was 85. Thirty-eight individuals were in the fifth decade of life; there was progressive diminution in numbers in each subsequent decade.

The interval between diagnosis and institution of chemotherapy ranged from 1 to 14 years. Thirty-six patients were started on phosphoramide therapy less than one year after diagnosis. This group includes five individuals in whom oral chemotherapy was begun postoperatively because of extensive axillary node metastases encountered at the time of mastectomy. Conditions of the other 31 individuals were either out of control with conventional therapy or too far advanced for such. Twenty-five patients were treated one to two years after the initial diagnosis, 20 two to three years, 17 three to four years, 8 four to five years, 6 five to six years, 4 six to seven years, and 3 seven to eight years after diagnosis. Three additional patients had been treated for mammary carcinoma 14 years prior to chemotherapy; however, each of these individuals had had a second mastectomy performed two, five, and six years, respectively, before being referred to us. Although neoplastic disease involving the contralateral breast was a frequent finding in the entire group, the three last-mentioned patients were considered to have had two primary lesions. It is also of interest that, of the 122 patients, 5 had a second remote primary lesion, 3 in the gastrointestinal tract and 2 of the cervix.

Table 1 summarizes previous therapy in this group of cases. Surgery included biopsy only in 22 patients and mastectomy in 100 patients. Eight of the latter group had a second mastectomy, 1 to 14 years following the first. The procedure was classed as simple in 10 instances, radical in the remainder. Surgery was employed for treatment of metastatic disease from one to six times in 32 patients. X-ray therapy was given as the primary form of therapy in 14 patients, postoperatively in 36. One to six courses were administered to 62 patients for metastatic lesions. Thirteen patients were

---

From Garfield Memorial Hospital, George Washington University College of Medicine, Glenn Dale Hospital, and St. Elizabeth's Hospital (Dr. Bateman).

castrated by x-ray, 14 by a surgical procedure. Hormone therapy, including adrenalectomy in 2 patients and large doses of cortisone in 4 patients, had been employed in 70 patients, 58% of the whole group. Other modalities of therapy were radioactive gold (Au^{198}) in three patients, triethylene melamine in one patient, nitrogen mustard in three, and propylthiouracil in one. Conditions of all patients except the five patients treated postoperatively with triethylenethiophosphoramide given orally were considered to be out of control at the time chemotherapy was instituted.

Triethylenethiophosphoramide was given in water solution with 10 mg. of the drug per cubic centimeter; oxapentamethylene in a solution containing 20 mg. per cubic centimeter. The solutions were filtered to achieve sterility. Table 2 summarizes the routes of therapy and the dose schedule for both drugs. A white blood cell count was obtained prior to each dose; hemoglobin determinations and platelet counts were obtained at frequent intervals. The initial dose of the drug depended on the route of therapy. Larger doses were employed for intrapleural, intraperitoneal, and intratumor injections than for other routes. Dosage of oxapentamethylene was usually one and one-half to two times larger than that of triethylenethiophosphoramide. The sudden severe drops in hemoglobin levels and platelet counts, which occurred not infrequently with prolonged therapy with oxapentamethylene, necessitated close observation of the hematological picture while this drug was used.

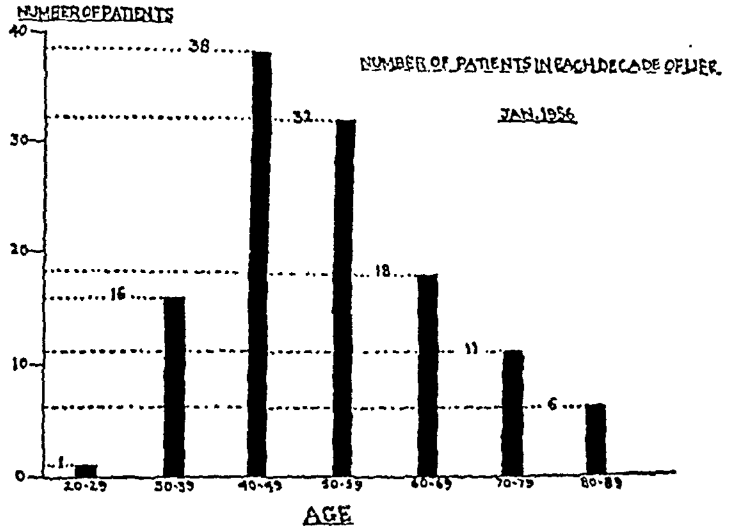


Fig. 1.—Age distribution of the 122 patients with mammary carcinoma.

Whenever possible the phosphoramide was given into a tumor site. The intramuscular route occasionally used early in the study was subsequently abandoned. Oral administration was employed in special situations, as when maintenance therapy was needed during vacation trips or whenever injections by needle were intolerable to the patient, and in the very small group of patients treated postoperatively previously mentioned. In the presence of extensive disease, oral, intramuscular, and sometimes intravenous administration appeared to be inadequate. Intratumor injections were usually preceded by a small dose of local anesthetic.

In therapy with triethylenethiophosphoramide, the total doses administered ranged from 15 to 1,145 mg.; duration of therapy ranged from 1 to 103 weeks. The average dose administered was 336 mg., and the average duration of therapy was 22 weeks. From 5 to 430 mg. of oxapentamethylene were given for periods ranging from 1 to 37 weeks, the average total dose being 139 mg. and the average duration of therapy 7 weeks. There is some overlap between those receiving therapy with triethylenethiophosphoramide and those in whom therapy was oxapentamethylene, since the latter drug had to be substituted for the former during periods of drug shortage. Most of the patients originally started on oxapentamethylene therapy were subsequently shifted to a regimen of triethylenethiophosphoramide when the hematological hazards of the former drug became apparent. After it became apparent that the phosphoramides were palliative and not curative agents, therapy was maintained indefinitely in all cases. Except for short initial, interval, or terminal periods of hospitalization, patients were treated on an ambulatory basis.

TABLE 1.—*Previous Therapy in 122 Patients with Mammary Carcinoma Subsequently Treated with Phosphoramides*

Therapy	Patients, No.	Therapy	Patients, No.
Surgery		Castration	
Biopsy only	22	X-ray	13
Mastectomy	100 (7*)	Surgical	14
For metastases		Hormone	
1 time	26	Estrogens	23†
2 times	1	Androgens	41
3 times	1	Adrenalectomy	2
4 times	3	Cortisone	4
6 times	1	Other	
Irradiation		Triethylene melamine	1
Primary	14	Mechlorethamine hydrochloride	3
Postoperative	36 (2*)	Propylthiouracil	1
For metastases			
1 course	39		
2 courses	12		
3 courses	7		
4 courses	3		
6 courses	1		
Au^{198}	3		

* Bilateral.
† Primary therapy.

TABLE 2.—*Dose Levels in Phosphoramide Therapy in 122 Patients with Mammary Carcinoma**

Route	Dose Level, Mg.		Dose Interval, Wk.
	Triethylenethiophosphoramide	Oxapentamethylene	
Intravenous	5-30	5-40	1-4
Intrapleural	10-40	15-60	1-4
Intraperitoneal	10-40	....	1-4
Intrapericardial	20-25	30	Occasional
Intratumor	3-50	3-80	1-4
Intramuscular	10-20	....	1-4
Oral	5-10	10-20	1-7 days

* White blood cell count was taken prior to each dose and dose reduced if white blood cell count was less than 5,000. Therapy was discontinued if white blood cell count was less than 2,000 with triethylenethiophosphoramide or less than 4,000 with oxapentamethylene.

Observations

Subjective improvement of some degree was noted in the majority of cases. There was improvement in appetite, weight gain, control of dyspnea, cough, pain, and pruritus. Such improvement is difficult to evaluate in chronically ill patients, since it can be achieved at times by such nonspecific measures as good nursing care and sympathetic understanding. Other criteria for judging response to therapy therefore were used.

These included types and duration of objective improvement and survival time. Eighty-one patients manifested some type of objective improvement for periods varying from 1 to 21 months, while 41, or 34% of the patients, showed no objective signs of improvement. Of the 81 with objective responses, 41 showed improvement for 1 to 5 months, 22 for 6 to 10 months, 11 for 11 to 15 months, and 7 for 16 to 21 months.

TABLE 3.—*Objective Response to Phosphoramide Therapy in 122 Patients with Mammary Carcinoma*

Patients, Total No	Type of Lesion	Total Improved No	Total Improved %
20	Ulceration	14	70
7	Tumor of Breast	7	100
44	Metastatic nodules	32	72
11	Metastatic nodes	11	100
10	Inflammatory spread	9	90
3	Facial edema	3	100
36	Hydrothorax	29	80
2	Pericardial effusion	2	100
3	Ascites	2	66
25	Osseous metastases	10	40
11	Pulmonary metastases	5	45
5	Central nervous system involvement	3	60
6	Hepatic metastases	0	0

Duration of improvement averaged 5.4 months in the group of patients who were dead or lost to follow-up and a little more than 8 3 months in the living patients examined. As has been frequently pointed out by others, progression and regression of different lesions can take place simultaneously in the same patients. This makes evaluation quite difficult at times.

Table 3 lists types of lesions and the number of patients in whom improvement was achieved as compared to the number of patients in whom the lesions were seen. Healing of ulceration and partial to complete regression of primary tumors and metastatic nodules and nodes were observed in two-thirds or more of the patients manifesting such lesions. Inflammatory carcinoma was extremely widespread in all but one case, in which it involved the breast only. Injections of phosphoramides resulted in nine cases in decrease or disappearance of pruritus and cessation of spread, if not regression, of the erythematous infiltration so characteristic of this lesion.

Facial edema secondary to large neck nodes in three patients disappeared completely. Recalcification of osseous metastases was achieved by chemotherapy alone in five cases. After it became apparent, however, that this lesion was more quickly controlled by a combination of irradiation and chemotherapy, this type of management was employed. Decrease in size with occasional disappearance of pulmonary metastases was observed in 5 of 11 patients manifesting this complication. It was observed that three to four months of chemotherapy were required to achieve roentgenographic evidence of regression of both pulmonary and osseous lesions

Five patients with signs and symptoms of central nervous system metastases were treated. In two, there was rapid and complete regression of ataxia and weakness of an extremity; in a third there was incomplete regression of visual symptoms. Patients who were started on therapy at a time when massive involvement of the liver was apparent showed no response to therapy and died within a few days or weeks from their disease. There was no way in which to evaluate possible effect of chemotherapy on small metastatic lesions in the liver.

Control of accumulation of serous cavity fluid by local injection of phosphoramide after withdrawal of fluid was achieved in approximately two-thirds of the cases so treated. As previously reported,[5c] it is a simple procedure that requires neither hospitalization nor any special apparatus. Phosphoramide therapy was given in 36 patients with pleural fluid caused by metastatic mammary carcinoma. In 26 no further taps were required for periods of 1 to 21 months after one or more intrapleural injections of drug. Eight of these patients are living. The rate of effusion was slowed in three patients and was unaffected in seven. The last group includes five patients who died within one month after institution of therapy, one patient who had been given Au^{198}, and another who was given mechlorethamine hydrochloride (HN_2) intrapleurally. In 13 patients only one intrapleural injection was required for control, in 6 two were required, in 5 three, in one four, and in one patient eight. The largest number of injections, eight, were given a patient previously treated on two occasions with Au^{198}. Twelve patients developed pleural effusion while receiving phosphoramides by other routes. Intrapleural injections were required to control the effusion.

Results of intrapericardial and intraperitoneal injections of phosphoramides are outlined in table 4. Two patients with pericardial effusion were tapped on one and two occasions respectively. The first patient died two weeks after intrapericardial instillation of oxapentamethylene. At postmortem examination the pericardial sac contained a normal amount of fluid and the serosa was smooth and glistening. The second patient required two taps and injection of triethylenethiophosphoramide one month apart. For the last four months of her life, there was no further accumulation of fluid at this site.

TABLE 4.—*Treatment of Mammary Carcinoma in Six Patients with Pericardial Effusion and Ascites Treated with Phosphoramides*

Condition	Patient	Tap of Fluid Cc	Tap of Fluid No	Triethylene thiophosphoramide, Mg	Oxapentamethylene Mg	Results
				(Intrapericardial)		
Pericardial effusion	1	500			30	Died in 2 wk, no abnormal fluid post mortem
	2	350 450†		20 25†		Controlled 4 mo
				(Intraperitoneal)		
Ascites	3		7 in 3 mo	Injected		Controlled 2½ mo
			3 in 1 mo	Injected		Controlled 2 mo
	4*		Every 2 wk for 7 mo	Injected		Controlled 2 mo
	5		Weekly for 2 mo			Died
	6					Died after 1 wk

* Recurrent ascites of 1 yr duration not controlled by Au^{198}, irradiation, and mercurials

† Interval of 1 mo after preceding course

Response to intraperitoneal injections of phosphoramides for ascites secondary to metastatic mammary carcinoma was less satisfactory. In the first patient listed, control was not achieved until injections were made into some large abdominal masses. The second patient had recurrent ascites in spite of intracavitary administration of Au ^{198}, therapy with mercurials, and x-ray therapy. Control was eventually achieved. Conditions of the third and fourth patients were terminal.

Duration of survival in this series of patients with advanced cancer is given in table 5. Forty-three patients were still alive after 1 to 21 months of follow-up. Seventy-nine patients are listed as having died; this group includes 23 individuals who were lost to follow-up. Of the 43 still alive, over half the patients had been alive for 7 to 21 months after institution of therapy. In spite of the high death rate in the first month of therapy, average survival time in patients who died or were lost to follow-up was six months and median survival time was five months. Average survival time in patients still living was more than eight months and median survival time more than seven months.

TABLE 5.—*Duration of Survival in 122 Patients with Mammary Carcinoma Treated with Phosphoramides*

Mo.	Alive	Dead or Lost to Follow-Up
1	1	16
2	5	6
3	4	8
4	4	6
5	2	3
6	5	6
7	4	5
8	3	7
9	1	8
10	0	3
11	3	3
12	4	1
13	1	2
15	0	1
16	2	0
19	1	1
20	2	1
21	1	0
24	0	1
Total	43	79

Side-Effects of Therapy

Triethylenethiophosphoramide and oxapentamethylene are notable for their lack of clinical side-effects. In this series an occasional patient complained of mild post-treatment nausea. Pain at the site of injection was unpredictable and probably was attributable to mechanical factors. To avoid such pain, a local anesthetic agent was usually employed. The phosphoramide drug was injected with the same needle.

Hematopoietic depression was the one serious side-effect of phosphoramide therapy. It should be pointed out that the patients in this series had, with few exceptions, extremely widespread disease. In such cases, obviously, larger doses of drug were needed to achieve control than might have been required in cancer in earlier stages. Spacing therapy to weekly or longer intervals permitted better evaluation of blood cell counts than when treatment was given more often. The white blood cell count was found to be a valuable guide in determining the dose of triethylenethiophosphoramide. Thrombopenia accompanied leukopenia; our experience it was never at a dangerous level en the white blood cell count exceeded 2,000, in e of occasional minor bleeding episodes. Because white blood cell counts can be performed with ease and accuracy by most technicians, this laboratory procedure was adopted as a guide to therapy. However, frequent complete blood cell counts were found to be necessary when oxapentamethylene was administered for more than two months in a patient.

Adjuvant Therapy

Even when the white blood cell count was lower than 2,000, antibiotics were not given unless the patient showed signs and symptoms of infection. In such cases an attempt was made to administer appropriate therapy promptly and adequately. Transfusions were employed when hemoglobin determinations dropped below 7 to 8 gm. per 100 cc. Red blood cells alone were used in preference to whole blood. Two of the patients in this group died from homologous serum jaundice. Originally chemotherapy alone was used for all lesions. Later supplemental irradiation to osteolytic lesions in long bones and in the vertebrae was employed to help avoid fractures and control pain. Patients with such lesions were kept out of bed, on crutches or with a cane if necessary, in order to avoid decalcification of bones from bed rest.

Chlorpromazine (Thorazine) in small doses was found to be helpful in controlling cough, dyspnea, and apprehension in some of these patients. However, patients with advanced cancer appeared to be unusually susceptible to the sometimes serious hypotensive effects of this drug. The only agents that appeared to aid significantly in protecting the hematopoietic system from the depressant effects of phosphoramide drugs were the adrenal cortical hormones. Of these, cortisone proved most satisfactory. Well-being and appetite were improved. Patients who demonstrated general debility and hematopoietic depression were started on a dose schedule of 25 mg. of cortisone twice a day. This was subsequently reduced, occasionally to as low as 5 mg. twice a day if the patient showed signs of fluid retention. Vitamin C was administered to patients whose dietary intake of citrus fruits was impaired, and B-complex was administered to patients demonstrating overt signs of deficiency. However, because of their possible stimulating effect in experimental tumors, vitamin B_{12} and folic acid were carefully avoided.[6]

Comment

The slow response to phosphoramide drugs is deceptive and may precipitate inadvisable frequency of treatment. This slowness makes the drug useless in moribund patients. If a life span of at least six to eight weeks can be anticipated, a trial of this form of chemotherapy is warranted. Subsequent to maximum improvement as manifested by no further regression of disease, therapy probably should be continued on a maintenance basis to avoid relapse. Such maintenance therapy can be achieved by administration of the drug at two-to-three-week intervals. Because of considerable range in sensitivity of tumors to these agents, each case must be handled somewhat individually.

It is of interest that age and type of previous therapy seemed not to influence response in any particular direction in this series. Patients previously treated with female or male hormones or adrenalectomy showed varying degrees of response. The fact that the two adrenalectomized patients were somewhat depressed after injection of the phosphoramide and that one required an increase in dosage of cortisone on the day of therapy suggested that the nonspecific stimulating effect of the phosphoramides may be mediated through the adrenals.

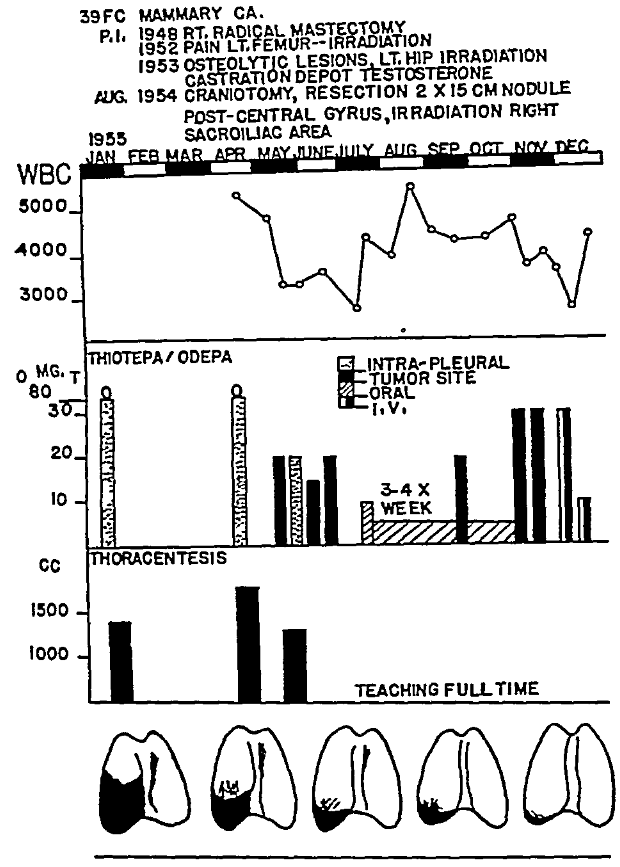


Fig 2.—Laboratory data on patient (case 1) with pleural effusion treated with oxapentamethylene initially and then with triethylenethiophosphoramide.

Enough data are not available to substantiate an impression that prolonged therapy with the phosphoramides will have a castrating effect. There is evidence, however, that suggests such an effect occurs. Two patients purportedly castrated by irradiation a substantial period prior to initiation of chemotherapy developed marked vasomotor and psychic menopausal-type symptoms after several months of therapy. One 23-year-old female treated for a primary spinal cord tumor and therefore not included in this series developed signs and symptoms of menopause after receiving triethylenethiophosphoramide by the intravenous route for 12 months.

Skin changes somewhat resembling late irradiation pigmentation were observed. They were limited to epidermis overlying tumor infiltrates. A buffy or brownish coloring was characteristic. Epilation such as was seen following regional intra-arterial injections of mechlorethamine[7] was not observed. On the other hand, beginning new hair growth at the site of a large, smooth scalp nodule treated by local injections of triethylenethiophosphoramide occurred in one patient. Just as tumor response could not be correlated with age or previous therapy, neither could it not be correlated with cell type. Nor is an explanation apparent why some mammary tumors failed to respond. Dense fibrous tumors appeared to regress appreciably more slowly than did very vascular tumors. More study is needed on this point.

Triethylenethiophosphoramide is much preferable to oxapentamethylene for prolonged therapy. The latter drug is an effective and useful agent for short periods of therapy, but periods extending to two to three months may be attended by a sudden severe anemia and thrombopenia. Triethylenethiophosphoramide is a valuable agent because of ease of administration and lack of clinical toxicity. Accumulation of fluid can be cared for and treated in a clinic or office. Conditions of patients with extensive disease can be maintained on an outpatient basis, which is not only an economic but also a psychological advantage.

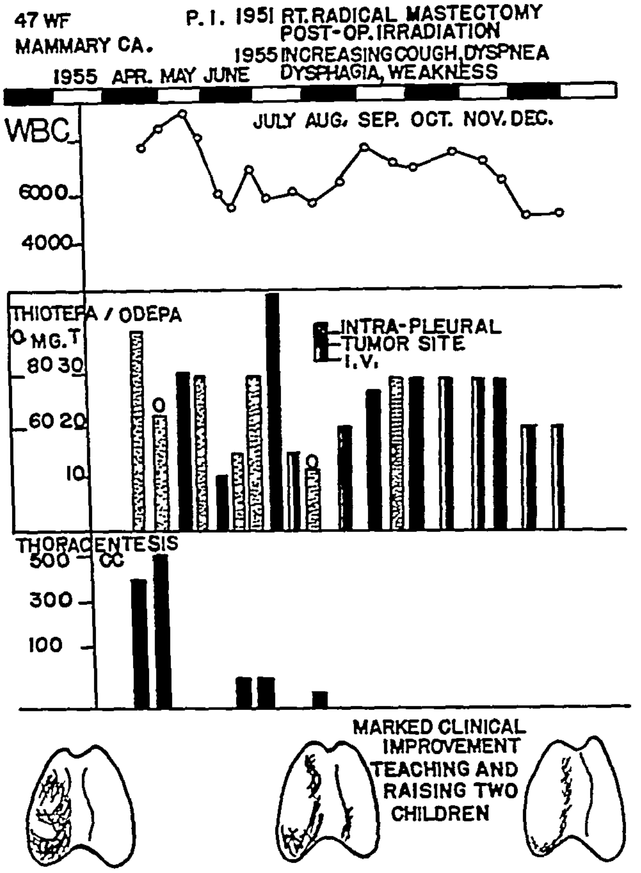


Fig. 3.—Laboratory data on patient (case 2) with pleural effusion treated with triethylenethiophosphoramide.

Report of Cases

Case 1.—A 39-year-old woman (fig. 2) had a radical mastectomy in 1948, received irradiation for osseous metastases in 1952, was castrated by irradiation and was given testosterone for recurrent osseous metastases in 1953, and had a craniotomy for a cerebral metastasis and another course of irradiation to the hip in August, 1954. In January, 1955, she developed progressive dyspnea due to pleural effusion. One tap followed by injection of 80 mg. of oxapentamethylene controlled the effusion for three months. Thoracentesis with injection of the drug was done two more times in the following two months. Subsequently intravenously given or locally injected triethylenethiophosphoramide was administered for maintenance at one-week to four-week intervals, except for a short period of oral administration of the drug. There was no further accumulation of pleural fluid. Thirteen months after the first tap, the patient was asymptomatic except for mild postcraniotomy clumsiness of the right hand and was teaching school full time.

Case 2.—A 47-year-old woman (fig. 3) had a radical mastectomy in 1951 followed by postoperative irradiation. She was dyspneic, weak, and apprehensive when first seen in April, 1955. Several chest taps were performed, and triethylenethiophosphoramide was instilled into the pleural space. Only a few cubic centimeters of fluid were obtained after the first two taps. Triethylenethiophosphoramide was subsequently administered intravenously or into a thickened area in the left supraclavicular region at one-week to three-week intervals. The pulmonary lesion had largely cleared and accumulation of pleural fluid was controlled 10 months after institution of therapy. The patient was not only teaching school but keeping house for her husband and two children.

Case 3.—A 49-year-old female (fig. 4) had had a radical mastectomy on the left in 1949, followed by yearly recurrences treated surgically or by irradiation. When she was seen in March, 1954, there were two large masses on the left anterior chest wall and rapidly recurring bloody pleural effusion containing cancer cells. The patient was treated with one intrapleural and three intratumor injections of triethylenethiophosphoramide during the following month. She was then lost to follow-up and was not seen again for 21 months. During this time the lesions apparently completely regressed. A small recurrent tumor on the left anterior chest wall (fig. 4B) in an area of marked telangiectasia and recurrent dyspnea caused the patient to return for more therapy. Again bloody fluid was obtained from the left pleural space. Triethylenethiophosphoramide was injected on two occasions (50 mg. and 40 mg. one week apart). The skin lesion was subsequently injected with 10 and 15 mg. at two-week intervals. Two months after the beginning of this second course of therapy, the chest was clear and the skin nodule had disappeared.

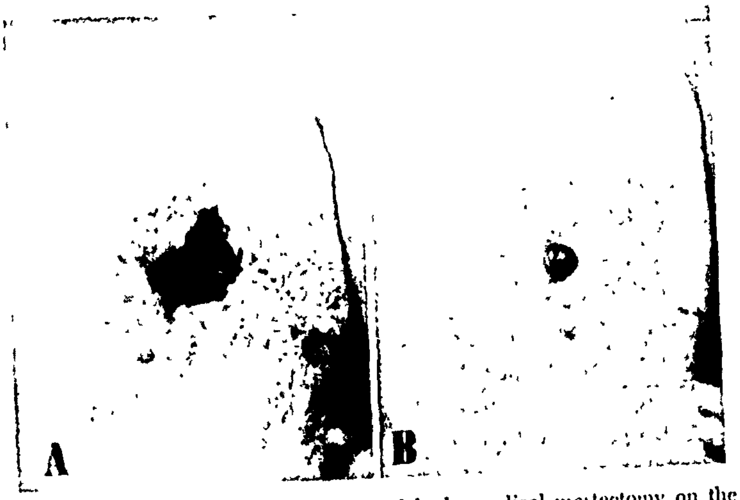


Fig. 4.—*A*, patient (case 3) who had had a radical mastectomy on the left and who had recurrences. Two large masses were on the left anterior chest wall, and there were rapidly recurring bloody pleural effusions. Patient was treated with triethylenethiophosphoramide for one month. *B*, when patient was next seen, after 21 months, lesions had completely regressed, although patient had small recurrent tumor on left anterior chest wall, recurrent dyspnea, and pleural effusion.

Summary and Conclusions

A total of 122 patients with mammary carcinoma were treated with N, N′, N″-triethylenethiophosphoramide and/or N-(3-oxapentamethylene)-N′, N″-diethylenephosphoramide for periods ranging from 1 to 24 months. Of these, 117 patients had extensive primary or recurrent disease. Five patients received oral chemotherapy after a radical mastectomy that revealed multiple metastatic axillary nodes. Chemotherapy was administered by intramuscular, intravenous, intrapleural, intraperitoneal, intrapericardial, intratumor, and oral routes. Except with the last-mentioned route, therapy was given with few exceptions at one-week to three-week intervals on outpatient basis.

Prior treatment in this group included surgery, irradiation, and use of various types of hormones. Type of previous therapy did not seem to alter response to chemotherapy significantly. Responses to phosphoramides included healing of ulceration, regression of soft tissue masses, control of serous cavity effusions, recalcification of bone lesions, and control of signs and symptoms of central nervous system metastases. The phosphoramides are useful agents in the prolonged palliation of advanced mammary carcinoma. Because of a more predictable hematological response, triethylenethiophosphoramide is preferable to oxapentamethylene.

1816 R St. N. W. (9) (Dr. Bateman).

This study was aided by a grant from the Lederle Laboratories Division of the American Cyanamid Company, Pearl River, N. Y., which also supplied the N, N′, N″-triethylenethiophosphoramide and the N-(3-oxapentamethylene)-N′, N″-diethylenephosphoramide.

References

1. Heller, J. R.; Cutler, S. J., and Haenszel, W. M.: Some Observations on Epidemiology of Cancer in the United States, J. A. M. A. **159:** 1628-1634 (Dec. 24) 1955.

2. (*a*) Pearson, O. H., and others: Management of Metastatic Mammary Cancer, J. A. M. A. **159:** 1701-1704 (Dec. 31) 1955. (*b*) Kasdon, S. C., and others: Methylandrostenediol in Palliative Treatment of Breast Cancer, ibid. **148:** 1212-1216 (April 5) 1952.

3. Laszlo, D., and others: Effect of Testosterone on Patients with Bone Metastases: Metabolic Study, Particularly of Breast Carcinoma: Report to Council on Pharmacy and Chemistry from Committee on Research, J. A. M. A. **148:** 1502-1507 (April 26) 1952. Footnote 2*a*.

4. Shay, H., and others: Treatment of Leukemia with Triethylene Thiophosphoramide (Thio-Tepa): Preliminary Results in Experimental and Clinical Leukemia, A. M. A. Arch. Int. Med. **92:** 628-645 (Nov.) 1953.

5. (*a*) Bateman, J. C.: Cancer Chemotherapy, M. Ann. District of Columbia **24:** 55-62 (Feb.) 1955; (*b*) Chemotherapy of Solid Tumors with Triethylene Thiophosphoramide, New England J. Med. **252:** 879-887 (May 26) 1955. (*c*) Bateman, J. C.; Moulton, B., and Larsen, N. J.: Control of Neoplastic Effusion by Phosphoramide Chemotherapy, A. M. A. Arch. Int. Med. **95:** 713-719 (May) 1955.

6. Oleson, J. J., and Little, P. A.: Effect of Pteroylglutamic Acid and Vitamin B_{12} on Growth of Rous Tumor Implants, Proc. Soc. Exper. Biol & Med. **71:** 226-227 (June) 1949.

7. Klopp, C. T., and others: Fractionated Intra-Arterial Cancer Chemotherapy with Methyl Bis Amine Hydrochloride: Preliminary Report, Ann. Surg. **132:** 811-832 (Oct.) 1950.

Cervical Carcinoma.—The finding of two types of carcinoma, an epidermoid carcinoma, and an adenocarcinoma, comes as no surprise in an organ such as the cervix, which has both squamous and columnar epithelium. It is natural to conclude that epidermoid carcinoma would arise from the stratified squamous epithelium of the exocervix and that adenocarcinoma would arise from the columnar epithelium of the endocervix. There is evidence which seemingly strongly corroborates this viewpoint. For many centuries cervical carcinomas have been known to involve that portion of the cervix which could be seen or felt with ease—the exocervix. In recent years the recognition of intraepithelial carcinoma and the various grades of basal-cell hyperplasias of the squamous epithelium has provided the apparently intermediate stages between normal squamous epithelium and epidermoid carcinoma. This has resulted in widespread acceptance of this mode of origin of epidermoid carcinoma of the cervix. Despite this, however, a number of investigators have implicated an additional source of origin of epidermoid carcinoma of the cervix in the endocervical epithelium, either in the subcylindrical basal cells or in metaplastic cells.—M. Marsh, M.D., Original Site of Cervical Carcinoma, *Obstetrics and Gynecology*, April, 1956.

TUMORS OF THE SPINAL CORD

OCCURRENCE IN PATIENTS WITH PERNICIOUS ANEMIA AND SUBACUTE COMBINED SCLEROSIS

David G. Hanlon, M.D., Henry W. Dodge Jr., M.D., Robert G. Siekert, M.D.
and
Frances E. Bull, M.D., Rochester, Minn.

The neurological changes that may accompany pernicious anemia are well known. The lesions usually develop in both the posterior and lateral columns of the spinal cord. In addition, definite alterations may be observed in the peripheral nerves, and in a few instances cerebral involvement with mental symptoms occurs.

Most physicians experienced in the care of patients afflicted with pernicious anemia hold that both the hematological and neurological manifestations of the disease can be treated effectively with adequate amounts of either a potent liver extract or cyanocobalamin, if these preparations are given intramuscularly. Common experience also indicates that the progress of the neurological symptoms that result from alterations in the spinal cord can be arrested in most, if not all, patients by such optimal parenteral therapy. Varying degrees of recovery from the neurological manifestations will occur with adequate treatment, although complete recovery may not follow when irreversible damage to the spinal cord has already taken place. The degree of improvement that will follow adequate treatment is inversely related to the length of time that the neurological abnormalities have been present rather than to the severity of the neurological abnormalities existing at the time treatment is first instituted. The greatest improvement in the neurological signs usually occurs between the third and sixth months after the start of appropriate therapy, and maximal improvement almost always will occur within one year. The usefulness of supplementary physical therapy and coordinated muscle-training exercises has been observed repeatedly.

Up to the present time we have not observed progression of the signs of subacute combined sclerosis in patients who have received adequate maintenance treatment for pernicious anemia. The regular administration by the intramuscular route of either a potent liver extract or cyanocobalamin in adequate dosage has seemed virtually a guarantee against further progression of the neurological symptoms. However, we recently observed two patients with pernicious anemia who showed initial improvement and later progression in their neurological difficulties, although they were following adequate maintenance programs. The results of the neurological examinations suggested the presence of focal lesions in the spinal cord. Both patients had tumors of the spinal canal. These cases are being reported because they illustrate certain problems in the diagnosis and management of patients who had pernicious anemia with subacute combined sclerosis and tumors of the spinal cord.

• *The diagnosis of pernicious anemia with dorsolateral spinal degeneration was made in two patients, and the progress of the neurological symptoms was halted by treatment with cyanocobalamin. Both patients, however, suffered exacerbations of these symptoms after a lapse of time, which was 13 months in one case and six years in the other. Neither responded to intensified medical treatment. In the first case, an extramedullary, intradural psammomatous meningioma at the 10th thoracic level was found at operation, and removal of the tumor was followed by marked improvement. In the second case, the lesion proved to be an extradural neurofibroma. In both, the initial diagnosis of pernicious anemia was corroborated by a test depending on the absorption of cyanocobalamin labeled with radioactive cobalt. These experiences illustrated the usefulness of the cyanocobalamin-absorption test, the response of patients with pernicious anemia to cyanocobalamin therapy, and the possibility that two unrelated causes of neurological symptoms may coexist in a single patient.*

Report of Cases

Case 1.—A 65-year-old woman was first examined at the Mayo Clinic in September, 1955; her chief complaint was increasing difficulty in walking. She always had enjoyed good health until the summer of 1953, when she first noticed gradually increasing unsteadiness in gait and numbness of the legs. She soon began to stagger and to fall easily when walking alone. Simultaneously she had upper abdominal fulness and bloating and soreness of her tongue. The diagnosis of pernicious anemia was made at that time.

Histamine-resistant achlorhydria was present, and examination of a peripheral blood smear revealed the morphological features of pernicious anemia. Therapy with parenterally given cyanocobalamin was begun, and the patient received 1,000 mcg. daily for one week, then twice a week for a few weeks; subsequently she followed a continuous maintenance program of cyanocobalamin given intramuscularly twice a month. Within two weeks after treatment was started, she could walk normally without assistance and the soreness of her tongue had disappeared. The patient remained well until about November, 1954. At that time numbness, which she believed was more noticeable in the left leg, developed in her legs and gradually became worse. Soon thereafter the legs became weak, and within a short period she again needed support while walking. She also had to watch her feet to be certain where they were. Abdominal bloating reappeared, but soreness of the tongue did not.

In January, 1955, the dosage of cyanocobalamin was increased to 1,000 mcg. intramuscularly two times a week. In spite of this, the neurological symptoms worsened. In May, 1955, 500 units of crude liver extract every other day was prescribed in addition to an increased amount of cyanocobalamin given parenterally. The neurological symptoms continued to increase. About this time intermittent vesical and rectal incontinence developed. Physical examination on admission to the clinic revealed normal findings except for the neurological abnormalities. Her gait was broad based, ataxic, and spastic to such a degree that she could walk only when aided. The unsteadiness was present on standing and

---

From the Mayo Clinic (Drs. Hanlon, Dodge, and Siekert) and the Mayo Foundation, Graduate School, University of Minnesota (Drs. Hanlon, Dodge, Siekert, and Bull).

was worse when her eyes were closed (positive Romberg's sign). Muscular reflexes were slightly overactive and equal in the upper limbs, markedly enhanced at the knees, where the left was more active, and absent at the ankles. Extensor plantar reflexes were present bilaterally and were more marked on the left. The epigastric skin reflex was normal on the right and depressed on the left. The midabdominal, hypogastric, and anal skin reflexes were absent bilaterally. Tests for coordination and diadochokinesia were well performed in the upper limbs. A sensory type of ataxia was seen on heel-to-knee tests, and alternate motion rate was slowed at the ankles. Slight weakness of the muscles of the lower extremities was observed, more apparent distally, and more on the left. The tone of the anal sphincter was decreased.

Vibratory sensibility was absent at ankles and knees and at the left iliac crest and was decreased though present at the right iliac crest. Joint sensibility was absent at the toes and depressed at both ankles, but more so on the left. Light touch sensibility was minimally decreased in the lower limbs, particularly over the feet; the decrease was greater on the left than on the right; a sensory level was noted at the 11th thoracic dermatome on the left and at the 3rd lumbar on the right. Pain and thermal sensibilities were markedly depressed on the right side below the level of the 12th thoracic dermatome posteriorly and the 10th thoracic anteriorly and only slightly depressed on the left below the level of the 5th lumbar dermatome posteriorly and the inguinal ligament anteriorly.

Clinically there could have been made a neurological diagnosis of combined sclerosis with peripheral neuritis, but submerged and altered by an incomplete Brown-Séquard type of lesion at the level of the 10th thoracic segment of the spinal cord on the left.

Urinalysis yielded normal results. The value for hemoglobin was 13.5 gm. per 100 ml. of blood; the erythrocyte count was 4,720,000 and the leukocyte count 4,200 per cubic millimeter. The sedimentation rate of erythrocytes was 13 mm. in one hour (Westergren method), and a serologic test for syphilis gave negative results. The peripheral blood showed no morphological evidence of pernicious anemia. The value for urea was recorded as 30 mg. per 100 ml. of blood. Histamine-refractory achlorhydria was present. The roentgenogram of the thorax showed thickened pleura in the left costophrenic angle. A roentgenogram of the stomach showed normal conditions. Roentgenograms of the spinal column revealed a narrowed sixth cervical interspace and mild generalized osteoporosis.

A cyanocobalamin-absorption test was done utilizing the Schilling[1] technique of oral administration of 0.5 mcg. of cyanocobalamin labeled with radioactive cobalt (Co^{60}) followed in two hours by the parenteral injection of 1,000 mcg. of inert cyanocobalamin and then by measurement of the radioactivity of the subsequent 24-hour specimen of urine. The 24-hour specimen of urine contained the equivalent of 3.4% of the oral dose (range in pernicious anemia, 0 to 3.5%). Repetition of the test dose with gastric juice as a source of intrinsic factor resulted in the excretion of 16.4% of the oral dose (normal range, 8.5 to 38%). The clinical impression of pernicious anemia, therefore, was confirmed.

Examination of the cerebrospinal fluid revealed 45 mg. of protein per 100 ml. of fluid, and myelography with iophendylate injection (Pantopaque) demonstrated partial obstruction to the cephalad flow of iophendylate at the level between the 9th and 10th thoracic vertebrae. Laminectomy was performed, and at the level of the 10th thoracic segment the spinal cord was found to be markedly compressed, severely thinned, and pushed posteriorly and to the right by an extramedullary, intradural tumor. The tumor was attached in the region of the dentate ligament on the left side and was about the size of a small plum. Microscopically, it proved to be a psammomatous meningioma.

The patient convalesced well. A maintenance program of 30 mcg. of cynanocobalamin a week given parenterally was recommended. The patient also was instructed in a program of physical therapy. The patient was reexamined in January, 1956. She stated that in all ways she had made excellent progress. Muscle strength in her legs had steadily improved, and three weeks prior to this examination she was able to walk without the aid of a walker. Her sense of balance was better, and subjectively the sensation in her legs was nearly normal. Vesical and rectal sphincters functioned normally.

Objectively the central nervous system was much improved. A moderate amount of ataxia and spasticity was seen in the gait, but she walked easily without aid. Slight Rombergism was noted. The quadriceps reflexes were increased slightly on both sides, although more on the left. The left plantar reflex was equivocally extensor. No muscular weakness was noted in the right lower limb and only a slight amount in the left. Vibratory sensibility was as before operation. Position sense was now normal at the ankles, only moderately depressed on the right toe and still absent in the left toe. Slight hypesthesia was present over the feet. Pain and thermal sensibilities were moderately decreased on both feet but more on the right. Alternate motion rate of the left foot was slowed. Tone of the anal sphincter was normal.

Case 2.—A 58-year-old woman was first examined at the clinic in June, 1955. She had always enjoyed good health until 1949, when anorexia, easy fatigability, numbness and tingling in the fingers of both hands, and weakness of the right leg developed. A diagnosis of pernicious anemia was made in 1949. Erythrocytes then numbered 2,300,000, and gastric achlorhydria was noted. Large amounts of cyanocobalamin and liver extract were given parenterally; within two months the erythrocyte level had risen to 4,800,000 and the numbness and weakness had disappeared. A maintenance dosage of 1 cc. of cyanocobalamin and 1 cc. of liver extract every three weeks was recommended. The patient followed this program faithfully.

In 1951 the patient first became aware of dull pain and muscle cramping over the right scapular area. This occurred intermittently, was usually worse on arising, was aggravated by coughing, sneezing, and straining at stool, and could always be relieved by aspirin. Phenylbutazone (Butazolodin) and cortisone had been administered for these symptoms in the fall of 1952. She continued to have intermittent aching in the right scapular region until admission, although it never was incapacitating and actually caused her little concern.

In January, 1955, after an emotional upset, the peculiar sensations in her legs returned, and her husband noticed that her gait was unsteady at times. In March, 1955, she awakened one morning unable to use her legs satisfactorily, and the numbness, which had been present only in her feet and legs, now extended to the waist. Her gait was unsteady. The dosage of cyanocobalamin was increased, and vitamin B complex was given intravenously. Over the next two or three weeks the numbness lessened, but her legs still felt stiff and her gait remained ataxic.

General physical examination on admission to the clinic revealed normal findings. Neurological examination disclosed a markedly spastic gait, sensory ataxia of the lower limbs, and Rombergism. The patient could not stand or hop on either foot. Muscular reflexes were overactive in the lower limbs, and extensor plantar reflexes were seen bilaterally. No clear-cut muscular weakness could be demonstrated. Abdominal reflexes were absent. Joint and vibratory sensibilities were depressed in the toes and ankles, more so on the right. Rectal tone was normal. Superficial sensation was subjectively depressed in the lower limbs, but this could not be clearly demonstrated objectively. Neurologically, it was felt that subacute combined sclerosis of the cord could have been present in 1949. The recent myelopathy with sudden exacerbation five months before admission and with marked spasticity was considered to be the result of a mass in the upper thoracic portion of the spinal canal.

Urinalysis yielded normal results. The erythrocyte count was 4,670,000, the leukocyte count 6,300, and the value for hemoglobin 12.6 gm. The serologic test was negative for syphilis. The peripheral blood showed no morphological features of pernicious anemia. Histamine-refractory achlorhydria was present. An electrocardiogram showed normal conditions. Roentgenogram of the chest was negative; roentgenogram of the spinal column revealed mild diffuse osteoporosis and minimal hypertrophic changes at the lower cervical and midthoracic levels.

A cyanocobalamin-absorption test, with the same technique used as in the preceding case, revealed urinary excretion of 0.5% of the oral dose of radioactive cyanocobalamin. Repetition of the test, using intrinsic factor with the oral dose, resulted in excretion of 9.5% of the oral dose. The clinical impression of pernicious anemia, therefore, was confirmed.

Observations at lumbar puncture revealed evidence of a partial block. The cerebrospinal fluid removed contained 1,058 mg. of protein per 100 ml. Myelography with iophendylate injection disclosed an obstruction to the cephalad flow of mediums at the level of the third thoracic vertebra. Laminectomy was performed, and a large extradural neurofibroma was removed.

Comment

These cases were of interest to us because two diverse etiological mechanisms could be responsible for the neurological findings. Historically, at least, the original neurological difficulties in both patients appeared to be the result of pernicious anemia. Their prompt disappearance with appropriate therapy certainly supports this contention.

However, since it is unusual for the neurological status of a patient to worsen while he is following an adequate maintenance program of therapy with parenterally given cyanocobalamin or liver, it seemed likely that some cause other than pernicious anemia must be responsible for the recurrent neurological symptoms and findings. This was further suggested in case 1 by the neurological examination, which disclosed evidence of an incomplete Brown-Séquard syndrome. This syndrome may be observed in cases in which lesions are compressing the spinal cord. A meningioma was removed at operation. In case 2 the clinical course with rather sudden reappearance of numbness and poor use of the legs, with marked spasticity in the legs, and root pain suggested a rootlet mass lesion pressing on the spinal cord. An elevated value for protein in the spinal fluid was found. At exploration a neurofibroma was discovered.

Tests with cyanocobalamin labeled with Co ^{60} helped confirm the existence of pernicious anemia, since without this test only a presumptive diagnosis would have been warranted. This test is helpful to the clinician in establishing a diagnosis of pernicious anemia at a time when the disease is in remission because it has been modified by previous parenteral therapy with either cyanocobalamin or liver extract. In our opinion, in addition to careful neurological examination, study of the spinal fluid and often myelography should be considered in all cases of pernicious anemia when progression of the neurological dysfunction is evident in the face of adequate parenteral therapy with cyanocobalamin or liver extract.

Summary

In two reported cases pernicious anemia and tumors of the spinal cord coexisted. In both, the history was compatible with a diagnosis of subacute combined sclerosis of the cord with improvement on adequate therapy. It is emphasized that the progress of subacute combined degeneration in pernicious anemia can be arrested in every case by adequate parenteral therapy with either cyanocobalamin or a potent liver extract.

If, in spite of an adequate maintenance program with these agents, the number and severity of the neurological symptoms or signs increase, or if the neurological symptoms recur after initial improvement in spite of continuous adequate therapy, some cause other than pernicious anemia should be suspected. Neurological and neurosurgical consultation should be obtained in all such cases and appropriate studies should be carried out. The test with radioactive cobalt–labeled cyanocobalamin is useful in confirming the diagnosis of pernicious anemia in cases in remission due to previous parenteral therapy with liver extract or cyanocobalamin.

References

1. Schilling, R. F.: New Test for Intrinsic Factor Activity, J. Lab. & Clin. Med. 42: 946-947 (Dec.) 1953.

FOLLOW-UP REPORT ON RESECTION OF THE ANGINAL PATHWAY IN THIRTY-THREE PATIENTS

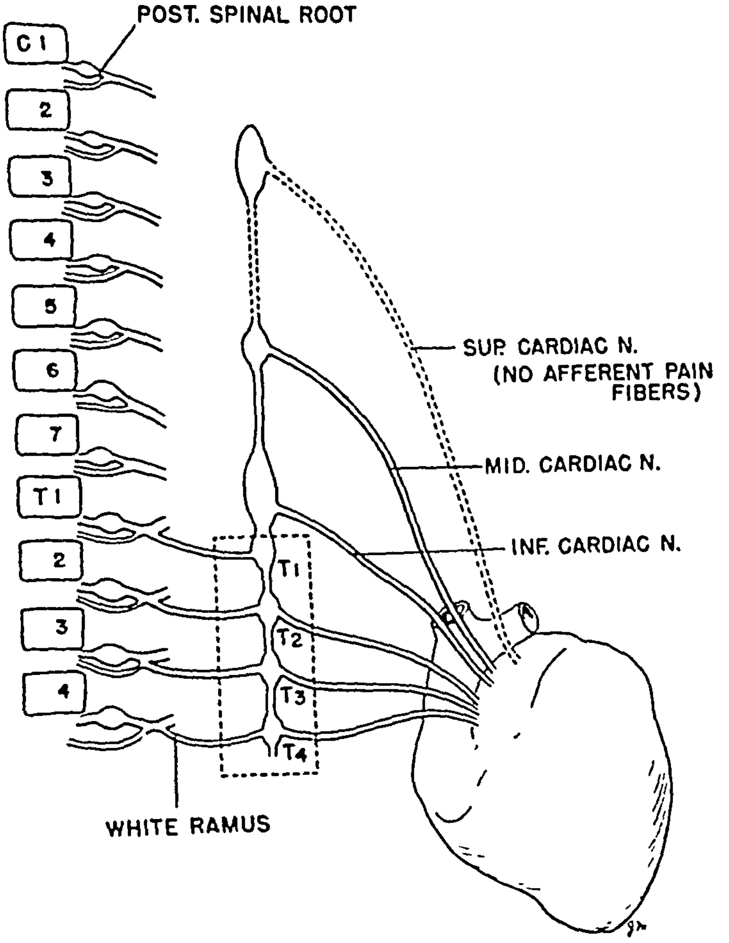
Clem F. Burnett Jr., M.D.
and
James A. Evans, M.D., Boston

• *The results of surgical treatment were studied in 33 patients who had angina with or without hypertension. The cases were severe and included four with angina decubitus and one with status anginosus preoperatively. The operations, designed to interrupt the nervous pathways transmitting the pain, consisted of unilateral or bilateral sympathectomies at various levels from the third lumbar to the inferior cervical ganglion. There were three operative deaths; six additional deaths occurred during the ensuing 16 to 84 months of observation. The tabulated details of these cases show a wide variety of responses, some dramatic, some definite but temporary. Occasionally the unilateral operation gave relief; in one patient, the unilateral operation did not give relief but the subsequent contralateral resection did. Of the 30 patients who survived the operation, 18 had complete relief from anginal pain for one to 11 years.*

In spite of recent advances in medical science, angina pectoris remains one of the serious problems for the cardiologist. Use of glyceryl trinitrate (nitroglycerin) offers relief for the patient with moderate angina of effort, but in some patients there seems to be an overalarm mechanism (that is, the provocation of pain is out of proportion to the need for protection of the heart), producing severe anginal pain on the slightest effort or during rest. One such patient was unable to turn over in bed or feed herself without severe angina. In a search for a method to help these unfortunate patients, various surgical procedures have been devised. This communication will deal with only one of these procedures, resection of the anginal pathway, the first to the fourth thoracic ganglions on both sides (see figure).

From the Lahey Clinic. Dr. Burnett is now in Mayfield, Ky.

In 1953, Evans and Poppen [1] followed a procedure for resection of the anginal pathway, advocated and best described by White,[2] and reported on 16 patients who were treated in this manner. We now have further follow-up studies on these patients and have added 17 new patients to the series. Table 1 records the results of the operation in each case. The first 16 patients constituted Evans and Poppen's original series. Sixteen of the 33 patients were operated on for hypertension with angina; the remaining 17 were operated on primarily for intractable angina. There were three operative deaths in the entire series, or an operative mortality of 9%; one of these deaths occurred on induction of anesthesia.



The cardiac afferent pain pathway. Note how the anginal pathway is funneled through the first, second, third, and fourth thoracic ganglions

Six patients who survived the immediate postoperative period have since died, 16 months to seven years after operation. The patient in case 1 (see table 1), whose left anginal pathway only was resected, continued to have angina in her right arm until her death three years after operation. The patient in case 2 died of congestive failure five years after operation. She had had no recurrence of angina during these years. The patient in case 6 remained virtually free of pain for three years after operation and then died of a cerebrovascular accident. The patient in case 16 had been free of pain for about one year, when pain characteristic of a myocardial infarction developed, but his electrocardiogram revealed no change. A Beck operation was performed elsewhere, and he died after operation. The patient in case 25 died of an unknown cause after five years of freedom from anginal pain after operation. The patient in case 27, with hypertension, died of a cerebrovascular accident. She never had had freedom from anginal pain for the seven years that she lived after operation. She was a patient operated on early in the series, however, who in 1944 had had only the left first and second thoracic ganglions resected.

Of the 24 surviving patients, 14 (58.3%) have had no anginal pain, 7 (29.2%) have had occasional discomfort on exertion, and 3 (12.5%) have continued to have severe anginal pain. The follow-up period on these living patients is 1 to 11 years. The percentage of good results among those living (87.5%) remains about the same as when those who have died are included—26 (86.6%) of the series of 30 obtained adequate relief for 1 to 11 years, whether or not they later died. Of all 30, 18 (60%) obtained complete relief, while 8 (26.6%) experienced mild exertional discomfort. Two patients obtained adequate relief, one completely so until an infarction occurred, when anginal pain on effort returned. Four patients (13.3%) experienced no relief.

Of the 30 patients who survived operation, 10, or 77% of the 13 patients without hypertension, were relieved of pain, while 16, or 94% of the 17 with associated hypertension, obtained relief. Preexisting myocardial infarction was noted in five patients, and four, or 80% of them, obtained fair to complete relief of angina. Four patients with severe angina decubitus had remarkable relief and were restored to reasonable activity (cases 5, 18, 22 and 29).

An attempt was made to account for failure of the surgical procedure to relieve pain in some of the patients (table 2). In the first patient in the series, the anginal pathway was not resected on the right side, and pain persisted only on that side. The necessity for resecting both sides, as borne out in this patient, is again emphasized. This was also noted in the patient in case 7, who obtained no relief from the first procedure when the first, second, and third thoracic ganglions were not resected on the right. This patient was again operated on six years later, and the remaining right anginal pathway was resected, with complete relief. Another patient (case 17) had a resection of the right side only, for pain in the right chest and shoulder, temporary relief having been obtained by procaine block of the first through the fourth thoracic ganglions. He now has pain occasionally in the left shoulder, which is relieved by glyceryl trinitrate. It was noted, however, that three patients (cases 5, 9 and 10) had little or no angina, although the complete pathway was not resected on the right side. Inadequate resection of the left side only (first and second thoracic ganglions) resulted in no relief in the patient in case 27, the patient operated on early in the series and mentioned above.

The patient in case 12 had an adequate resection of the anginal pathway and was relieved of pain for four months. She then had a myocardial infarction, and after this severe angina decubitus developed. A sweat test showed sympathetic activity, indicating regrowth of sympathetic fibers. The patient in case 16 had a similar experience, pain being relieved for about a year, when he probably had a myocardial infarction, followed by recurrence of angina.

Patients in whom the emotional component predominated did not obtain much relief from surgical intervention. The patient in case 20 had a severe emotional overlay and was subject to frequent asthmatic attacks. She described her postoperative attacks as mild and occurring only two or three times a week. Before operation she had had anginal attacks while dressing or cooking In spite of the apparent difference in her symptoms, she repeatedly wrote letters to us stating that she was no better. The patient in case 23 had atypical pain, but it was dramatically relieved by sympathetic block. She was operated on, although there was considerable apprehension about the outcome. Temporary relief was obtained, but she noted a gradual return of the pain, and severe angina decubitus developed. A "talc" operation was performed else-

TABLE 1.—*Results of Resection of Anginal Pathway in Thirty-Three Patients with Angina Pectoris*

			Ganglionic Level of Sympathectomy			
Case	Age and Sex	Preoperative Status	Left	Right	Follow Up Period, Yr	Result
1	42 F	Grade 3 hypertension; angina	T 2 to L 2, 8/20/46	T-6 to L 2 9/3/46	3	Died, coronary occlusion; had angina in right arm until death
2	46 F	Grade 2 hypertension; angina	T-1 to L-2 1/8/47	T-3 to L 3, 1/20/47	5	Angina relieved; died 1/19/52 congestive failure
3	47 F	Grade 2 hypertension; angina	T-2 to L 2, 4/5/47	T-2 to L 2, 4/14/47	7½	Occasional exertional pain, but glyceryl trinitrate not used
4	42 M	Grade 3 hypertension; angina	T-2 to L 2, 4/12/47	T-2 to L 2, 4/21/47	7½	No angina; had cerebrovascular accident with partial recovery; fundi 2; blood pressure 210/100 mm Hg
5	49 F	Grade 3 hypertension; diabetes mellitus, angina decubitus; unable to feed self in bed	T-1 to L 2, 12/1/47	T-4 to L 2, 12/11/47	2	No pain; no use of glyceryl trinitrate; blood pressure 140/100 mm Hg
6	42 M	Grade 2 hypertension, angina	T-7 to L 2, 1943; T-1 to T-12, 2/12/48	T-7 to L 2, 1943; T-1 to T-6, 2/26/48	3	Died of cerebrovascular accident 2/18/51; rare anginal pain in throat after resection of anginal pathway in 1948 until death (glyceryl trinitrate three times in 7 mo)
7	50 F	Grade 2 hypertension; old myocardial infarct; angina, obesity	T 2 to L 2, 8/21/48; T 1 to T 4, 9/24/54	T-4 to L 2, 8/30/48; T-1 to T-4, 9/24/54	6½ 1¼	Little relief from first procedure; complete relief from second; much postural hypotension; recent nonfatal coronary infarct
8	54 F	Grade 3 hypertension; angina, severe postprandial	T 1 to L-2, 10/27/48	T-1 to L 2, 11/8/48	7	No angina; two cerebrovascular accidents, in 1952 and 1955; nonfatal coronary infarct in 1956
9	45 M	Grade 2 hypertension; Dupuytren's contracture; angina	T 3 to L-3, 7/5/49	T-3 to L 2 7/14/49	5	No angina; blood pressure 140/90 mm Hg; contracture improved
10	44 F	Grade 3 hypertension; angina; cardiac enlargement, left ventricular strain	T-1 to L-2, 9/25/49	T-4 to L 2, 9/28/49	5½	Blood pressure 120/76 mm Hg; no chest pain except when walking rapidly uphill; rarely takes glyceryl trinitrate
11	46 M	Grade 2 hypertension; angina of effort and emotion, psoriasis	T 1 to T 12, June, 1950	T-1 to T 12, June, 1950	4½	No angina; Master's test negative; blood pressure 135/85 mm Hg
12	54 F	Grade 2 hypertension, angina 4 yr, 10 glyceryl trinitrate tablets per day; diabetes	T 1 to T-12, September, 1950	T-1 to T 12, September, 1950	4	Relieved about 4 mo, then had myocardial infarct with severe angina decubitus; glyceryl trinitrate 124 times per month
13	44 M	Grade 2 hypertension; cerebrovascular accident, angina; obesity	T 2 to T 12, 10/24/50	T-1 to L 1, 11/7/50	4½	Myocardial infarct (?) postoperatively with temporary heart block; no angina; mows lawn without pain
14	34 M	Grade 2 hypertension; angina; positive exercise tolerance test	T 1 to T 12, 5/17/51	T-1 to T 12, 5/26/51	3½	Occasional angina but can walk up two flights of stairs; still has positive Master's tolerance test
15	38 F	Angina, congenital syphilis	T 1 to T-4, April, 1951	T-1 to T 4 April, 1951	3	No angina
16	40 M	Angina myocardial infarction	T 1 to T 4, November, 1951	T 1 to T-4, November, 1951	1⅓	Died; pain relieved for 1 yr, until probable fresh infarct, although electrocardiogram and sedimentation rate negative; Beck operation for third infarct, with postoperative death
17	52 M	Anterior and posterior myocardial infarct, angina, 1949	0	T 1 to T-6	5¾	Rare angina—remarkably relieved from status anginosus; pain in left shoulder; relieved by glyceryl trinitrate
18	44 M	Angina decubitus	T 1 to T-4 6/23/53	T-1 to T 4, 6/23/53	2	No angina; nocturnal dyspnea relieved by glyceryl trinitrate
19	57 F	Angina 9 years, diabetes	T 1 to T 3 November, 1943	T 1 to T 3, September, 1944	11	No angina
20	42 F	Angina, asthma, pain while dressing or cooking; obesity	T 1 to T-4, 1/23/52	T 1 to T-4, 1/23/52	2½	Angina, mild; glyceryl trinitrate two to three times a week
21	44 F	Severe angina	T 1 to T 3, February, 1949	0	Died	Died 10 min after operation
22	40 F	Angina decubitus, incapacitated	T 1 to T-4, 1/29/53	T 1 to T 4, 1/29/53	2½	No angina
23	47 F	Angina; myocardial infarct (2 yr ago); relieved by sympathetic block	T 1 to T 4, 4/18/53	T 1 to T 4, 4/18/53	1½	Temporary relief; then again had angina decubitus with positive exercise tolerance test; "talc" operation elsewhere in June, 1954—no relief
24	54 M	Intractable angina 10 yr, electrocardiogram showed infarct		..	Died on table	Died during induction of anesthesia
25	54 F	Scleroderma; angina, Raynaud's disease	T 2 to T 3 1947	T-2 to T 3, 1948	5	No angina until before death, Jan 7, 1954
26	52 M	Angina (?), diagnosis never certain	T 1 to T 3, 9/16/50, inferior cervical ganglions	T-1 to T 3, 9/26/50	4½	Relieved for 6 mo; then pain returned; addiction to meperidine hydrochloride; pain relieved only by meperidine hydrochloride
27	60 F	Angina, grade 2 hypertension	T 1 to T 2, 8/1/44	0	7	Relieved for 2 wk; then had pain in jaw and precordium; died 9/2/51, cerebrovascular accident
28	38 F	Angina 2 yr; peripheral arterial insufficiency, angina when eating	T 1 to T 4 July 1954	T 1 to T 4, July 1954	4 mo	Much improved; no pain on eating
29	60 M	Angina decubitus esophageal hernia	T 1 to T 3	0	4½	No pain, occasional sensation of pressure in right shoulder
30	57 M	Angina	T-1 to T-4 October, 1953	T 1 to T 4 December, 1953	1	No angina; severe pain in scars; not working
31	49 M	Angina, 40 glyceryl trinitrate tablets a day	T 3 to T-4 and thoracic branches of stellate		2 wk	Died 2 wk after operation, congestive failure
32	39 F	Grade-3 hypertension; angina	T 2 to L-2, January, 1949	T 2 to L 2, January, 1949	5½	Rarely has angina; occasionally uses glyceryl trinitrate
33	43 M	Grade 3 hypertension; angina	T 2 to L-2, 1/8/51	T 1 to L-1, 1/17/51	4	Blood pressure 120/75 mm Hg; no angina; normal activities

where, with no relief. Addiction to meperidine hydrochloride was an important factor in the patient in case 26, and we were never quite sure of the diagnosis of angina. Operation resulted in relief of pain for six months; then the pain returned and was "relieved" only by meperidine hydrochloride.

Five patients had subsequent coronary infarctions, one fatal. In two patients severe angina returned. One of the five patients had myocardial infarction four months after discharge with return of anginal pain. She had demonstrable regrowth of sympathetic fibers by the sweat test. Another had complete relief for one year until infarction occurred. Regrowth of sympathetic fibers was demonstrated by the sweat test. The patient died after a Beck operation. A subsequent infarction did not affect a third patient, and in a fourth the infarction is too recent to know the result.

TABLE 2.—*Reasons for Failure of Eight Patients to Obtain Relief*

	Patients, No
Failure to resect right side (resection on right later done in 1 patient, with complete relief)	2
Only ganglions at T-1 and T-2 on left resected	1
Regrowth of sympathetic fibers	1*
Recurrence of angina after subsequent infarctions	2
Emotional overlay (1 with addiction to meperidine hydrochloride)	3

* This patient also had a subsequent infarction.

Summary and Conclusions

Thirty-three patients with severe disabling angina pectoris were subjected to resection of the anginal pathway. Three patients, or 9%, died of the operative procedure. Of the 30 patients surviving the operation, 18 had complete relief of anginal pain for one to 11 years, 8 noted mild exertional discomfort but were considered to have satisfactory results, and 4 obtained no relief from the procedure for a period of up to four months.

Failure to obtain immediate or permanent adequate relief was noted in eight patients. Two of these eight however, had complete relief for several months until infarction recurred. A third patient later obtained complete relief by a second more complete resection of the pathway. Two of these eight patients did not have both sides of the pathway resected; one of them had the other side resected later, with complete relief. A third had only the first and second thoracic ganglions on the left resected. There was regrowth of sympathetic fibers in one. Three failures were marked by an emotional overlay. In two of these the diagnosis of true angina was questionable. Five patients had subsequent coronary infarctions, one of which was fatal.

Although resection of the anginal pathway is not the final answer to the problem of disabling angina pectoris, it does offer relief to certain carefully selected patients. Probably the best results are obtained in patients with angina with hypertension, especially when the procedure is combined with extensive sympathectomy and splanchnicectomy. It is also of benefit to the patient with the overalarm type of anginal pain, provided a strong emotional overlay can be eliminated, admittedly a difficult calculation. This overalarm type of angina pectoris seems to bear some resemblance to reflex sympathetic dystrophy, which may account for the higher degree of response to sympathectomy. The operation may offer great relief to patients with angina decubitus who have not had a recent coronary occlusion or a great functional overlay.

References

1. Evans, J. A., and Poppen, J. L.: Resection of Anginal Pathway for Relief of Anginal Pain, New England J. Med. **249**: 791-796 (Nov. 12) 1953.

2. White, J. C.; Garrey, W. E., and Atkins, J. A.: Cardiac Innervation: Experimental and Clinical Studies, Arch. Surg. **26**: 765-786 (May) 1933

PROMETHAZINE IN SURGERY

PRELIMINARY REPORT

Max S. Sadove, M.D., Chicago

• *Clinical impressions based on more than 1,000 administrations of promethazine in surgical patients showed that this drug is useful in anesthesiology as a sedative preoperatively, as a supplement to the milder anesthetics in producing the lighter planes of anesthesia and the hypothermic state, as a means of combating emesis and hiccups, and as a sedative postoperatively. The recommended procedure for premedication in the average case includes the intramuscular injection of 50 mg. of promethazine 120 minutes before induction, intramuscular injection of 50 mg. of meperidine 60 to 45 minutes before induction, and 0.4 mg. of either scopolamine or atropine 30 minutes before induction. The drug, with or without meperidine, has been used with excellent effect in children, and few side-effects have occurred when it has been given in usual dosages.*

Since the initial description of promethazine hydrochloride [N-(2-dimethylaminopropyl) phenothiazine hydrochloride], an antihistaminic derivative of phenothiazine originally designated as compound RP 3277,[1] a great many experimental studies of the pharmacological action of this and other phenothiazine derivatives have been carried out. Halpern and Ducrot showed that promethazine possesses the antihistaminic and antianaphylactic properties of other antihistamines and exerts a somewhat more prolonged effect than most of the other compounds of the phenothiazine group.[2]

The anticholinergic action of promethazine was described by Danielopolu.[3] Halpern and co-workers[4] demonstrated that promethazine exerts a local anes-

---

From the Department of Surgery, Division of Anesthesia, of the University of Illinois College of Medicine.

thetic action three times that of cocaine. Winter[5] showed that promethazine prolongs the hypnotic effect of barbiturates by about 40%. Laborit[6] described routine use of promethazine as a sedative the night before operation and at the time of the procedure to reduce the amount of anesthesia required. Numerous workers have demonstrated the antiemetic properties of promethazine in various situations associated with nausea and vomiting. Jacquenod and Mercier[7] reported reduction in postanesthetic vomiting by giving patients 50.0 mg. of promethazine in combination with 0.2 mg of scopolamine hydrobromide and 6.0 mg. of morphine administered subcutaneously before operation.

Promethazine resembles, in some respects, but is milder in action than, chlorpromazine hydrochloride, another phenothiazine compound that has been used, in conjunction with chlorpromazine and meperidine hydrochloride, for preoperative sedation in a small series of patients subjected to gynecologic surgery.[8] Laborit and co-workers[9] showed that administration of promethazine in combination with chlorpromazine and meperidine, under the proper circumstances, reduced body temperature and metabolism so that in some instances radical operations could be performed on elderly patients and on patients who were poor surgical risks.

At the present time promethazine appears to be a valuable part of the surgical armamentarium. Although there is little in the current literature on the usefulness of the drug in surgery, and further clinical trial will be required, it is felt at this time that a preliminary summary of clinical experiences is justified, on the basis of accumulating cases and increasingly stronger and more vivid clinical impressions. It is hoped that other workers in the surgical field who have access to laboratory facilities and sufficient clinical material will initiate studies to evaluate further, in a truly controlled manner, these clinical impressions based on more than 1,000 administrations of the drug.

A clinical trial was devised, during which promethazine was used in the following ways: (1) for preoperative sedation, alone and as a supplement to the commonly used agents; (2) as a supplement to the milder anesthetics, for production of the lighter planes of anesthesia and the hypothermic state, popularly known and loosely termed "artificial hibernation"; (3) as an antiemetic in patients experiencing nausea and vomiting or hiccups during general, spinal, or regional anesthesia; and (4) for postoperative sedation.

Preoperative Sedation

As emphasized in an earlier paper,[10] psychological preparation of the patient for any type of surgery is extremely important. Medication to relieve tension and dread on the day of operation is essential to the patient's emotional and physical well-being, so that he will arrive in the operating room in a calmer, more relaxed, and more cooperative frame of mind. In the immediate preoperative period, sedation should be adequate to allay anxiety and fear. The desired quieting effect should be achieved without depressing the medullary[10] and/or vital functions. Promethazine, in a dose of approximately 50 mg. orally, exerts a mild sedative action similar to that of the barbituates in the dosage generally recommended for preanesthetic medication in the average adult. However, if promethazine is used alone for preoperative sedation, much larger doses are required to produce a really satisfactory effect. Therefore, it was decided to try a combination of promethazine and meperidine, and this combination was used in a large number of adult patients subjected to cardiac, vascular, abdominal, and other major surgery.

Work sheets were prepared and completed on over 700 unselected patients. The drug was made available to the resident and attending staff at the University of Illinois Research and Educational Hospitals and to the residents and staff at St. Luke's Hospital. Work sheets were frequently incomplete and in many instances were not utilized at all, so that only impressions were available in at least another 500 cases. On review of the work sheet, it was felt that the data should not be tabulated here in the absence of specific controlled studies. Impressions, even though statistically significant, are, in the last analysis, only impressions. However, it is interesting that all who used the drug in the manner described agree with the over-all conclusions. Controlled studies are being done to evaluate these initial clinical impressions.

The following routine is now employed: 50 mg. of promethazine is injected intramuscularly two hours before administration of the anesthetic. An intramuscular injection of meperidine, usually in a dose of 50 mg., is then given 45 minutes to one hour before the anesthetic and scopolamine or atropine (0.4 mg., or 1/150 grain) one-half hour prior to induction of anesthesia. For preoperative sedation this combination is considered almost ideal, since a desirable calming effect is produced. The patient, while not actually asleep, lies in a state of tranquility, without interest in his environment and unaffected by external stimuli but with the ability to respond readily to questions.

Supplement to Anesthetics

Evidence is accumulating that seems to indicate that the amount of anesthetic needed can be reduced by supplementation with promethazine. If one uses certain of the other more potent phenothiazine derivatives to supplement the usual premedicaments and then adds to the procedure the usual induction with pentothal sodium or other depressant agents, one frequently sees an undesirable fall in blood pressure and tachycardia prior to induction. These conditions are aggravated by induction of anesthesia. With promethazine, however, the hazards of hypotension and tachycardia are materially lessened. Fall in blood pressure has not been noticeable in patients treated under this routine.

At present it is believed that in using promethazine there is little need, in the average case, to exceed a total dosage of about 80 mg., including the dose given for preoperative sedation. Promethazine can easily be administered by intravenous injection, as required, in divided doses of approximately 20 mg. Rarely is it necessary to administer a total dose of more than 100 mg. A satisfactory working basis for the dosage of promethazine used to supplement the anesthetic would be the administration of 15 to 25 mg. of a diluted solution in an early phase of anesthesia and, if necessary, an additional 5 or 10 mg. later in the procedure. The dosage should be determined by bioassay of the patient rather than by rule of thumb.

It has been observed that if one inadvertently gives a dose of promethazine that is larger than usual there is rarely an untoward reaction. One rarely sees the tachycardia, fall in blood pressure, and other evidences of overdosage that occur with more potent phenothiazine compounds. In a number of neurosurgical and general surgical procedures performed with the patient under local anesthesia, 25 to 50 mg. of promethazine has been administered before operation, with or without addition of scopolamine. Patients who were uncooperative and troublesome to the neurosurgeon or the general surgeon utilizing a local anesthetic soon became tranquil and tractable when increments of 10 mg. of meperidine and 10 mg. of promethazine were intermittently administered intravenously. The peak of action was present in 10 to 15 minutes.

Antiemetic Action

Also of interest to surgeons is the observation that, on several occasions when nausea and vomiting began to develop during spinal and regional anesthesia, promethazine controlled the disturbance and provided excellent sedation. In such instances, administration of even as little as 20 mg. will produce a surprising response in 10 to 12 minutes; all evidences of nausea and the threat of vomiting will frequently disappear. In one case, the antiemetic effect of the first dose wore off in approximately 15 to 20 minutes; an additional dose of 10 mg. again produced an excellent effect in depressing the tendency to emesis. In two patients who had hiccups during spinal anesthesia, 20 mg. of promethazine administered intravenously on two separate occasions gave excellent results in quieting the hiccups. This response may, of course, have been purely coincidental, but it is worthy of further investigation and utilization.

Postoperative Sedation

As a tranquilizing agent in the postoperative period, promethazine has a great deal to offer the patient. It has been my impression that there is less complaint of pain. Under the influence of this agent when it is combined with an analgesic, patients seem detached from their discomfort. They rest tranquilly, with rather stable blood pressure, pulse, and respiration; but they respond readily to any stimulus. Postoperative sedation with promethazine thus seems to lack many of the undesirable side-effects seen with the common sedatives and also seems to smooth out the effects of many of the narcotics. A small amount of promethazine given intramuscularly three times a day in the postoperative period will reduce the amount of meperidine or other analgesic required. The combination provides essentially the same amount of pain relief as larger doses of narcotics alone, with less depression of vital functions. It must be emphasized, however, that, when promethazine is used as a supplement in the postoperative period, narcotics should be given in smaller doses than those ordinarily used; that is, as little as one-sixth to one-half of the usual amount.

Comment

Promethazine, a phenothiazine derivative apparently capable of influencing the central nervous system in a rather benign and predictable fashion, lends itself well to the anesthetic techniques commonly used in surgery. The compound acts rapidly and produces an excellent degree of sedation of fairly prolonged duration. There is little or no sign of interference with the medullary functions; no flushing and no respiratory or cardiovascular depression are seen. A mild hypotension may occur when promethazine is used with atropine or a heavy dosage of meperidine or morphine. The pulse tends to be slow and strong rather than rapid. There is also a distinct impression that this compound affords protection against stress, as do chlorpromazine and other similar nervous system depressants. Future experience should provide more adequate evidence to support this impression.

Few side-effects have occurred when promethazine is used in the usual clinical dosage. It is the clinical impression at this time that the drug is extremely safe. Since children tolerate the compound well, it is often given to them for sedation. It is useful also for elderly patients, who seem to experience less confusion with the use of promethazine than with many other sedatives. This observation should be of interest to those who are called on to treat children and patients in the older age group.

In children who need only slight sedation, 0.25 mg. to 0.5 mg. per pound of body weight has been found to work well. This dosage is usually combined with administration of atropine or scopolamine. When there is extreme fright or pain, or when actual sleep is desired, this same dosage of promethazine may be combined with an equal dosage of meperidine. This combination has been used with excellent effect in many debilitated children. When the combination is used, the dosage of both drugs tends to be closer to 0.25 mg. per pound; to this is added the atropine or scopolamine. In the adult, the best sedation is probably gained by a combination of promethazine and a narcotic, reinforced either by scopolamine or atropine.

From this preliminary survey, it is concluded that this compound is a valuable agent for use with spinal and regional anesthesia. Production of basal anesthesia with promethazine is one of the safest techniques available. Further investigation is indicated to confirm these observations.

840 S. Wood St. (12).

The promethazine used in this study was supplied as Phenergan by Wyeth Laboratories, Philadelphia.

References

1. Halpern, B. N., and Ducrot, R.: Recherces experimentales sur une nouvelle serie chiminique de corps doues de propriets antihistaminiques puissantes: Les derives de la thiodiphenylamine, Compt. rend. Soc. biol. **140**: 361-363, 1946.

2 Halpern, B. N · Recent Advances in Domain of Antihistamine Substances Phenothiazine Derivatives, Bull New York Acad Med 25:323-330, (May) 1949. Halpern, B. N., Grabar, P., and Perrin, G.: Antihistaminiques de synthèse et taux des anticorps, Ann. Inst. Pasteur 76:288-291 (March) 1949.

3 Danielopolu, D. Efficacy of So-Called Anti-Histaminic Drugs in Paraphylastic (Anaphylactic) Shock Does Not Prove Its Histaminic Origin, Acta med scandinav. 130:183-188, 1948.

4 Halpern, B. N, Perrin, G., and Dews, P. B Pouvoir anesthésique local de quelques antihistaminiques de synthèse Relation entre l'action anesthésique et l'action antihistaminique, Semaine hôp. Paris 24:2561-2564 (Oct. 26) 1948.

5. Winter, C. A.: Potentiating Effect of Antihistaminic Drugs upon Sedative Action of Barbiturates, J. Pharmacol. & Exper. Therap 94:7-11 (Sept) 1948

6. Laborit, H., and Leger, L.· Utilisation d'un antihistaminique de synthèse en thérapeutique pré, per, et post-opératoire, Presse med. 58:492 (April 29) 1950.

7. Jaquenod, P., and Mercier, Y.: Prevention des vomissements post-anesthésiques par les anti-histaminiques, Semaine hôp. Paris 28:3443-3444 (Nov. 18) 1952

8. Donovan, D.· Study of Use of Phenothiazine Derivatives, J. Irish M A. 36:45-47 (Feb) 1955.

9. Laborit, H., Huguenard, P., and Alluaume, R.: Un nouveau stabilisateur vegetatif (LE 4560 RP), Presse med. 60:206-208 (Feb. 13) 1952.

10 Sadove, M. S ; Wyant, G. M., Julian, O. C., and Dye, W. S.: Anesthesia for Mitral Commissurotomy, Anesthesiology 16:133-141 (Jan.) 1955

BREATHLESSNESS IN COAL MINERS

Joseph E. Martin Jr., M.D., Elkins, W. Va.

- *Of 230 soft-coal miners who presented some form of cardiorespiratory symptoms, over half were found to have x-ray evidence of coal workers' pneumonoconiosis. These findings, over a one-year period, and repeated in the following year, showed the incidence of this condition represented almost 31% of a total hospital population of coal miners. This deposition of coal dust and fibrosis, which can cause disability and even death, is significantly different from classic silicosis therapeutically and prognostically.*

Chest x-rays alone, while presenting characteristic lesions, do not necessarily indicate the degree of disability. Vital capacity, timed vital capacity, and maximal breathing capacity, expressed as a percentage of the estimated normal, appear to demonstrate disability inversely proportional to the decrease in maximal breathing capacity. Miners who had less than 35% of the estimated normal could do little more than walk slowly on a level plane. The studies seem to indicate that this condition poses a significant hazard to those in the coal industry.

During the year of 1954, 230 soft-coal miners, in a 100-bed general hospital in the soft-coal fields of West Virginia, were studied with particular reference to their cardiopulmonary systems. Attention was directed to their chests either by symptoms or by abnormal chest x-rays. The most common symptoms were exertional dyspnea, coughing, wheezing, and chest pain. Of the 230 miners, slightly less than 20% were found to have significant cardiovascular abnormality other than strain or hypertrophy of the right side of the heart. Five were found to have open pulmonary tuberculosis; four had carcinoma of the lung. In roughly three-fourths of the miners no causes were found for symptoms or chest x-ray abnormalities other than those referable to the respiratory system. One hundred thirty-four, or 58%, had chest x-rays showing coal workers' pneumonoconiosis.

Coal workers' pneumonoconiosis is defined as a chronic respiratory disease that may cause disability and death. It is caused by the inhalation of coal dust and has characteristic x-ray and pathological patterns. Much of the investigation in establishing the specific x-ray and pathological findings in this disease has been done by British workers, particularly those of the Pneumoconiosis Research Unit of the Medical Research Council.

Forms of Pneumonoconiosis

Pathologically, coal workers' pneumonoconiosis occurs in two separate but related forms: simple pneumonoconiosis and infective or complicated pneumonoconiosis, or progressive massive fibrosis. Microscopically, the essential lesion of this disease is focal deposition of coal dust and a little fibrosis about the respiratory bronchioles and their accompanying blood vessels. In early lesions the dust occurs in phagocytes enmeshed in a little reticulin fibrosis. As the lesion progresses, the outline of the phagocytic cells disappears and a few collagen fibers, occasionally arranged in bundles, may be seen. This deposition of dust is primarily interstitial, but it does extend into surrounding alveoli and alveolar walls. A little of it collects around some of the venules underneath the pleura. To the naked eye the coal dust appears as black spots (coal macules) measuring from 0.5 to 7.0 mm. or slightly larger and having a stellate or "Medusa-head" outline. These are rather sharply defined and are fairly uniformly distributed throughout the lungs. The bronchioles in cross section are insheathed by deposits of coal dust and fibrosis. As a result of a dilatation of these coal-insheathed bronchioles, small emphysematous areas are clearly visible. This emphysema, called focal emphysema, is a striking feature of many cases of coal workers' pneumonoconiosis and always occurs in relation to the coal macules. Further progression is characterized by an increases in the number of small coal macules and, to a much lesser extent, by an increase in the size of the individual macules. They occur earliest and most frequently in the midlung fields.[1]

The second form of the disease, infective or complicated pneumonoconiosis, or progressive massive fibrosis, shows rounded or elongated masses of dense black tissue frequently occupying the whole or greater portion of a lobe. Microscopically, these masses consist of dense collagen fibers in bundles that tend to be

---

From the Department of Medicine, Golden Clinic.

Read before the Section on Preventive and Industrial Medicine and Public Health at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956

arranged in a parallel of radial fashion rather than in whorls as in classic silicosis. There are varying amounts of coal dust and inflammatory cells enmeshed in these fibers. These masses are found most frequently in the upper and midportion of the lungs. Further progression of the disease leads to gross distortion of the lungs, with elevation of the hili and formation of bullous emphysema in the bases. Rather characteristic changes in blood vessels have been described.[2] Changes in arteries due to aging are usually more marked, even in cases of simple pneumonoconiosis, than in comparable age groups. Invasion of various layers of blood vessels by fibrosis, cells, and coal dust causes obliteration of capillaries, arterioles, venules, and larger blood vessels. Thrombosis of larger vessels may occur.

Simple Pneumonoconiosis.—Simple pneumonoconiosis is caused by retention of coal dust in the lungs. The exact fraction of coal dust that causes it is unknown, but silica is not thought to be the most important.[3] With exposure to dust of varying silica contents, lesions with varying amounts of fibrosis may be seen. With higher silica contents, the lesions may approach those of classic silicosis in appearance. Thus, there may be a whole spectrum of lesions, with simple pneumonoconiosis, characterized by much dust and little fibrosis, at one end and classic silicosis, characterized by much fibrosis and little dust, at the other.

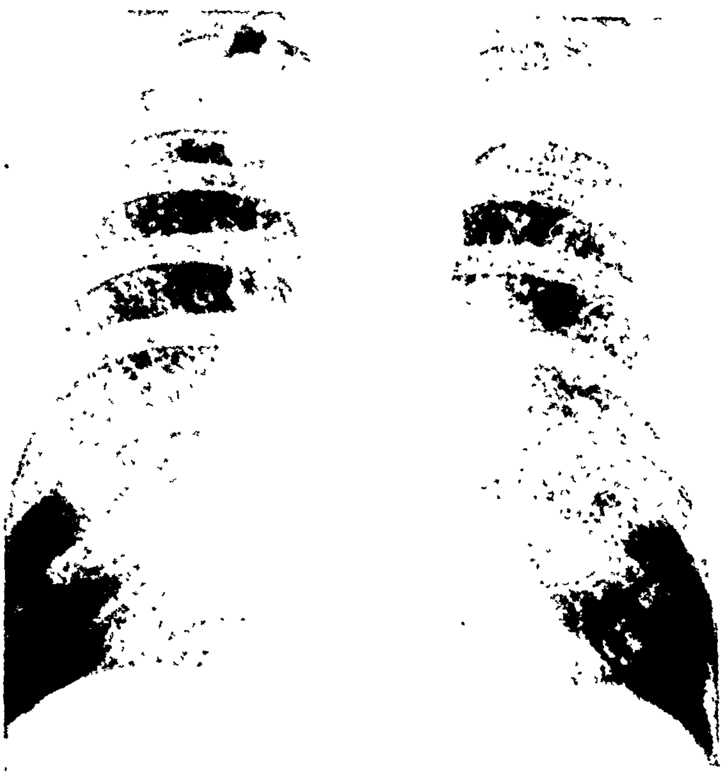


Fig. 1.—Chest x-ray of a 53-year-old soft-coal miner who worked underground 20 years, showing coal miners' pneumonoconiosis, category 3/-/-. (For explanation of code see Fletcher.[6])

Progressive Massive Fibrosis.—After sufficient dust has been deposited to cause simple pneumonoconiosis, the lungs are liable to an infectious process that produces the appearances of progressive massive fibrosis. There is much pathological, bacteriological, and epidemiological evidence to indicate that this infection frequently is tuberculosis. However, reaction of the body to tuberculosis is modified by coal dust so that the manifestations are usually those of mechanical interference with the flow of blood and air rather than toxic effects. Occasionally ordinary pulmonary tuberculosis is seen.[4] Simple pneumonoconiosis progresses only with continuing exposure to dust; progressive massive fibrosis may worsen whether or not there is further exposure to dust. It must be emphasized that progressive massive fibrosis, though thought to be due in part to infection, occurs only in those lungs that already have retained sufficient dust.

X-Ray Findings and Classification

The characteristic x-ray lesion of coal workers' pneumonoconiosis is a small, more or less circular density.[5] These opacities are less circular, less dense, and more poorly defined than those caused by silica. They measure 0.5 to 4.0 mm. in diameter and occasionally somewhat larger. By aggregation of these small masses, granular densities up to 5 mm. in diameter may occur. These densities usually occur in groups of contiguous opacities that may be joined by fine linear opacities, resulting in a lace-like or reticular pattern. These opacities are fairly uniformly distributed in both lung fields but tend to occur earlier and in greater numbers in the midportions of the lung, more frequently on the right. Progression of the disease causes an increase in the number of opacities rather than an increase in their size.

The appearance of rather poorly defined densities of more than 1 cm. in diameter marks the beginning of progressive massive fibrosis. In the early stage of the disease, these masses are more poorly defined than the smaller opacities. They commonly occur in the posterior lateral segments of the upper lobe and the apical portion of the lower lobe. These opacities may increase in size, density, and homogeneity until they occupy a whole lobe. With shrinkage of these lesions, gross distortion of the architecture of the lung and the production of bullous emphysema may be seen.

A classification of coal workers' pneumonoconiosis based solely on the x-ray appearance of the chest has been proposed by the Pneumoconiosis Research Unit.[6] There are two main divisions: simple pneumonoconiosis, characterized by the appearance of small discrete opacities, and progressive massive fibrosis, characterized by the appearance of large densities measuring more than 1 cm. in diameter. Simple pneumonoconiosis is then divided into three categories: 1, 2, and 3, according to the number and extent of characteristic lesions and, to a lesser degree, according to the obliteration of normal lung markings. In category 1, the characteristic lesions are seen over an area of at least 1 sq. cm. in each of two or more intercostal spaces. In category 2, the opacities are more numerous and distributed throughout the lung fields, except in the peripheral thirds, where they are sparse or absent. Vascular markings are still visible, but less clearly than in category 1. In category 3, the lungs appear to be packed full of these opacities and only an occasional large vessel is seen.

Progressive massive fibrosis is divided into four categories: A, B, C, and D. In the earliest stage, category A, one or more larger, more homogeneous opacities than those characteristic of simple pneumonoconiosis are seen. These measure at least 1 cm. in diameter. In category B, one or more of the characteristic shadows, more homogeneous than those of category A, but still of uneven density and covering less than three anterior intercostal spaces, are present. In category C, the opacities cover more than three anterior rib interspaces. When gross alteration of the lung, in addition to one of the above lesions, has occurred, category D has been reached.

For accurate diagnosis and categorization of coal workers' pneumonoconiosis, x-ray films of adequate quality are necessary. The exposure should be not more than one-tenth of a second, and there should be a high degree of contrast. The vertebral column, but not the intervertebral disks, should be just visible through the heart shadow. Considerable experience in reading of x-rays is necessary for correct interpretation, both as to the presence of characteristic opacities and as to the categorization of the films. It has been found that two readers viewing the films together and comparing them with standard films, procurable from the Pneumoconiosis Research Unit, will produce a higher degree of accuracy than one reader working alone.[7] There is a marked tendency among those starting to use this classification to overread. However, with experience and adequate x-ray technique, consistent and reproducible readings are possible. We have found that the vast majority of chest x-rays in soft-coal miners in our area readily fall into this classification.

Disabilities Caused by Pneumonoconiosis

Pathological changes of increased fibrosis, space-occupying lesions, and alteration and obliteration of air and blood pathways, as well as frequently accompanying bronchospasm and infection, may contribute to the symptoms and abnormal physiology. Among the abnormalities caused by pneumonoconiosis are decreased total lung volume, decreased vital capacity, decreased timed vital capacity, decreased maximal breathing capacity, increased residual volume, impaired intrapulmonary mixing of gas, and alteration of blood flow. Motley,[8] working in the United States, has implicated the distribution factor as being the major cause of disability in this disease. There is little evidence of interference of gas exchange across the alveolar-capillary membrane. Rather, the difficulty is in getting air with sufficient oxygen to alveoli with adequate blood flow. It is thought that in many cases of simple pneumonoconiosis the accompanying focal emphysema may cause enough increase in the dead space to contribute significantly to the dyspnea frequently observed. These abnormalities may result in increased work of breathing, decreased oxygen content of the blood, increased carbon dioxide content of the blood, and increased pressure in the pulmonary circuit. These changes may produce dyspnea, at first only with exertion but later even at rest. In the latter stages of the disease, congestive failure due to failure of the right side of the heart may occur. In one group of 136 autopsies on coal miners with progressive massive fibrosis, it was found that 57 had died of cor pulmonale without any other cardiac lesions. In 81 cases of simple pneumonoconiosis, four patients had died of cor pulmonale due to dust lesions alone.[9]

Frequency of Grades of Maximal Breathing Capacity in Various X-Ray Categories of Coal Workers' Pneumonoconiosis

	% of Estimated Normal Capacity					
X-Ray Categories	90+	89-80	79-55	54-35	<35	Total
<1	4	1	9	7	9	30
1	13	4	9	8	2	36
2	12	9	12	17	3	53
3	10	1	5	3	3	22
Progressive massive fibrosis	1	4	10	8	4	27
Total	40	19	45	43	21	168

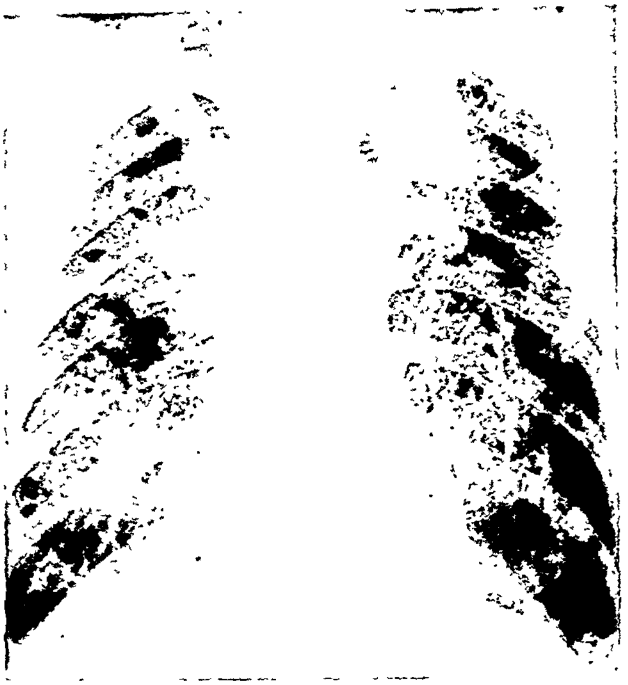


Fig. 2.—Chest x-ray of a 60-year-old soft-coal miner who had worked underground 33 years, showing coal miners' pneumonoconiosis, category 3/D/4-3.

During 1955, approximately 480 miners were patients in our hospital. Of these, 168, or slightly less than 31%, showed x-ray evidence of pneumonoconiosis. This sample is highly selected, in that all the miners had symptoms (not necessarily respiratory) or x-ray changes severe enough to cause them to seek hospitalization. All these patients had determinations of maximal breathing capacity, vital capacity, and timed vital capacity measured on a 13-liter Collins recording respirometer. Since maximal breathing capacity in normal persons varies with body surface area and decreases with age, a formula based on these factors was used to estimate the normal for each individual patient.[10] For convenience in handling figures, the maximal breathing capacity is expressed as a percentage of the estimated normal.

The table shows the number of patients with pneumonoconiosis in various x-ray categories and the maximal breathing capacity found in these. In the vertical column labeled "Total" is given the number found in each category. Thirty patients, or 17.9%, had definite lesions of pneumonoconiosis that were of insufficient extent to be classified as category 1. Thirty-six, or 21.4%, had lesions classified in category 1; 53, or 31.5%, in category 2; and 22, or 13.1%, in category 3. Twenty-seven, or 16.1%, showed progressive massive fibrosis. Across the top of the table are groups of maximal breathing capacities expressed as a percentage of the estimated normal, indicating, roughly, grades of disability as proposed by Motley.[10] Values of more than 80% are considered to show little or no evidence of disability. Disability increases with decrease in maximal breathing capacity, so that the values of less than 35% are considered to indicate far-advanced disability. As a matter of fact, those miners we studied who had a maximal breathing capacity of less than 35% of the estimated normal were usually able to do little more than walk slowly on a level plane.

Inspection of the table shows that all grades of respiratory disability were found in all categories of pneumonoconiosis. Thus 26, or 39.4%, of the 66 patients showing pneumonoconiosis classified as less than category 2 had a maximal breathing capacity less than 55%. In contrast, 5, or 18.5%, of the 27 patients with progressive massive fibrosis had maximal breathing capacity of more than 79%. This suggests that chest x-rays do not necessarily indicate the degree of disability.

Prevalence of Disease

Pneumonoconiosis.—There are no adequate statistics on pneumonoconiosis in the United States, but good statistics concerning the prevalence of the disease in Great Britain are available. Prior to 1952, nearly 30,000 cases of pneumonoconiosis in South Wales and more than 7,000 in the rest of Great Britain had been certified.[3c] Comprehensive surveys of various mines in Great Britain, in which from 75 to more than 99% of the working, disabled, and retired miners were x-rayed, showed pneumonoconiosis had occurred in from 26.0 to 61.8% of the miners. Progressive massive fibrosis was found in from 2 to 13% of the miners.[11] The incidence of x-ray evidence of pneumonoconiosis increased with both the age of the patient and the length of his exposure to dust. Thus, of the miners between the ages of 26 and 35 years, nearly 8% had pneumonoconiosis classified as category 2 or above; whereas in the age group of 36 to 45 years, 31% had disease so classified. After 1 to 10 years' exposure to coal dust, 12% had pneumonoconiosis classified category 2 or above; after 11 to 20 years the proportion was 42%. A survey of four coal mines in northern England showed that 32% of the miners had evidence of pneumonoconiosis and that 22% suffered from disease classified as category 2 or above.[12]

Early studies of relatively limited numbers of miners in the United States showed that x-ray changes did occur and that respiratory disorders seemed to be unusually common. Heppleston,[3d] after studying pathological specimens of the lungs of 50 American coal miners, considered the disease process to be identical with that found elsewhere in the world. Chest x-ray films of miners in soft-coal regions in West Virginia, Pennsylvania, Maryland, and Ohio have been viewed by three British workers and one French worker in this field. They have agreed that the lung changes are similar to or identical with those seen in other countries. That the incidence of pneumonoconiosis in the United States is not insignificant would seem to be indicated by our finding of 134 persons in 1954 and 168 in 1955 with x-ray evidence of this disease. This represents slightly less than 31% of the miners in a total hospital population.

Silicosis.—In Pennsylvania, during the period 1950 through 1952, compensation was given for 1,115 cases of anthracosilicosis. In West Virginia, 1,923 claims for "silicosis" were processed during 22 months in 1953 and 1954.[13] Coal miners' pneumonoconiosis is not yet recognized legally as distinct from silicosis in West Virginia. Silicosis is defined, for legal purposes, as a nodular disease of the lungs resulting from exposure to dust containing silica. Stages are determined by x-ray change and clinical evidence of disability due to respiratory insufficiency. More than 90% of the claims for "silicosis" are from coal miners. During the 23 months from July, 1954, to June, 1956, 1,752 claims for "silicosis" were processed in West Virginia. Compensation was granted in 1,412. In 29 cases death was considered to be due to "silicosis." Compensation for silicosis, stage 1 (x-ray evidence of disease with little or no clinical disability), was granted in 1,383 cases; for silicosis, stage 2 (x-ray evidence with moderate clinical disability), in 277 cases; and for silicosis, stage 3 (x-ray evidence with total and permanent disability), in 45 cases.

Chronic Bronchitis and/or Pulmonary Emphysema.—Evidence is accumulating, both abroad and in the United States, that chronic bronchitis and/or pulmonary emphysema are more prevalent in coal miners than in workers in many other occupations. Pemberton[14] studied three groups of men between the ages of 45 and 64 years in the United States. Two hundred forty-two of them were soft-coal miners, 238 lived in a rural area and were employed in agriculture or nondusty trades, and 141 lived in an industrial city and were employed in a modern factory, where there was very little dust. A history of chronic cough, bouts of raising of yellow sputum, wheezing, and the finding of reduced timed vital capacity was, in the absence of other causes, considered to indicate the presence of chronic bronchitis and/or pulmonary emphysema. Chronic bronchitis and/or pulmonary emphysema was nine times more frequent in coal miners than in rural workers and four and one-half times more frequent in rural workers than in workers in nondusty industries.

In the group of 26 coal miners in our 1955 study who showed advanced respiratory disability as indicated by a maximal breathing capacity of less than 55% and little x-ray change (pneumonoconiosis of a category less than 2), 22 had quit working because of shortness of breath. Fifteen of these 22 were found to have chronic bronchitis and/or pulmonary emphysema as defined above. Their maximal breathing capacity ranged from 18 to 54% of the estimated normal. Their three-second timed vital capacity ranged from 60 to 77%.

Summary and Conclusions

Coal miners, just as many nonminers, may have chronic breathlessness caused by such disorders as hypertensive or arteriosclerotic cardiovascular disease, pulmonary tuberculosis, or lung cancer. There is no evidence of an increased incidence of these in coal miners. In addition to these causes, it appears that coal miners, because of their working environment, may develop chronic breathlessness due to coal workers' pneumonoconiosis or chronic bronchitis and/or pulmonary emphysema. Coal miners' pneumonoconiosis occurs in the United States. It is significantly different from classic silicosis and has very different prognostic, therapeutic, and socioeconomic implications. We have only inadequate data as to the frequency of its occurrence in the United States, but the evidence would seem to indicate that it poses significant hazard in the coal industry. There is less certainty as to the problems of chronic bronchitis and pulmonary emphysema in coal miners. Again, the fragmentary evidence that we have would seem to indicate that it too is significant. It is quite evident that much more comprehensive and systematic study of these disorders is urgently needed in the United States.

References

1. Gough, J Patterns in Pneumoconiosis, McIntyre Research Foundation, 1952 Heppleston, A G Pathological Anatomy of Simple Pneumokoniosis in Coal Workers, J Path & Bact. 66:235-246 (July) 1953

2 Wells, A L. Pulmonary Vascular Changes in Coal-Worker's Pneumoconiosis, J Path & Bact 68:573-587 (Oct) 1954 Schepers, G W H . Comparative Vascular Pathology of Occupational Chest Diseases, A M A Arch Indust Health 12:7-25 (July) 1955.

3 (*a*) James, W. R L Relationship of Tuberculosis to Development of Massive Pneumokoniosis in Coal Workers, Brit. J Tuberc. 48:89-96 (April) 1954 (*b*) Cochrane, A. L . Tuberculosis and Coalworkers' Pneumoconiosis, Brit. J. Tuberc. 48:274-285 (Oct.) 1954. (*c*) Fletcher, C. M : Epidemiological Studies of Coal Miners' Pneumoconiosis in Great Britain, A. M. A. Arch Indust. Health 11:29-41 (Jan) 1955. (*d*) Heppleston, A. G . Coal Workers' Pneumoconiosis. Pathological and Etiological Considerations, A. M. A. Arch Indust. Hyg 4:270-288 (Sept) 1951.

4. Footnote 3*a*, *b*, and *d*.

5 Gough, J.; James, W. R. L., and Wentworth, J. E · Comparison of Radiological and Pathological Changes in Coalworkers' Pneumoconiosis, J Fac Radiologists, 1:28-39 (July) 1949.

6 Fletcher, C. M Classification of Roentgenograms in Pneumoconiosis, A M A Arch Indust. Health 11:17-28 (Jan) 1955

7. Fletcher, C. M , and Oldham, P. D Use of Standard Films in Radiological Diagnosis of Coalworkers' Pneumoconiosis, Brit J Indust. Med. 8:138-149 (July) 1951

8 Motley, H. L , Gordon, B , Lang, L. P., and Theodos, P. A : Impairment of Pulmonary Function in Anthracosilicosis, Arch. Indust. Hyg. 1:133-157 (Feb.) 1950

9 Wells, A. L · Cor Pulmonale in Coal-Worker's Pneumoconiosis, Brit. Heart J 16:74-78 (Jan) 1954

10 Motley, H. L. Use of Pulmonary Function Tests for Disability Appraisal Including Evaluation Standards in Chronic Pulmonary Disease, Dis Chest. 24:378-389 (Oct) 1953.

11. Cochrane, A. L · Methods of Investigating Connexion Between Dust and Disease Application of Scientific Methods to Industrial and Service Medicine, London, England, Medical Research Council, His Majesty's Stationery Office, 1951, pp 97-100

12 McCallum, R I , and Browne, R C Coal-Miners' Pneumoconiosis in Four Collieries in County Durham, Brit. J. Indust. Med. 12:279-289 (Oct) 1955

13. Doyle, B. S , Trasko, V. M , Gafafer, W. M , and Miller, S. E : Accomplishments in Epidemiologic Study of Silicosis in United States, A M. A. Arch Indust. Health 12:48-55 (July) 1955.

14. Pemberton, J Personal communication to the author.

COMMUNITY PROGRAM TO PROVIDE HEARING SERVICES

Helen M. Wallace, M.D., John F. Daly, M.D., Robert Hui, M.D., Margaret A. Losty, R.N.
and
Donald Markle, M.Ed., New York

• *A survey of 24 agencies that provide services for patients with hearing problems was carried out in New York City for the purpose of determining what personnel, facilities, and programs would be considered adequate for complete, integrated service. Some of these agencies were rather limited as to the facilities available or specialized as to the type of patient served. For maximum usefulness, a rehabilitation center for the hard of hearing needs both medical supervision supplied by otologists and pediatricians and paramedical skills supplied by such personnel as audiologists, speech therapists, nurses, social workers, and psychologists. The physical facilities should include sound-treated areas for diagnosis and therapy, reception and observation rooms, ear mold and electronics laboratories, and other areas adding up to about 2,500 sq. ft. (230 sq. m.) of floor space. There are advantages in locating the hearing center in a large general hospital connected with a medical school. A hearing program is costly; the general community must be prepared to assist in financing it*

Scientific and technical progress in the field of hearing has occurred so rapidly during the last 10 years that a new field of study has resulted. The task of making these advances available for the conservation of hearing and rehabilitation of patients with impaired hearing constitutes the next logical step. Although much can be accomplished by the individual otologist —in uncomplicated hearing problems—there remains a large number of patients requiring not one or two specialists, but many, in order to reach the fullest degree of rehabilitation. The team approach has been the natural outgrowth and will be the determining factor in the quality of patient care. The large number of patients requiring these services in the community and the cost of developing and operating such services have made this a responsibility of the community. This has been realized by many communities that are now actively engaged in developing hearing conservation programs This paper is the report of the steps taken in New York City since 1952 to promote a program for patients with hearing impairment.

Extent of the Problem

There are no accurate statistics on the number of acoustically handicapped persons in the United States. Estimates of the number of persons who have a hearing loss (ranging from a slight loss to almost total deafness) range from 7 million to 14 million, while an estimated 800,000 persons wear hearing aids as compared with an estimated 1,600,000 who need them.[1] Estimates of the number of children with hearing impairment range from 2 to 12% of the population up to a figure of 3 million. The Office of Vocational Rehabilitation has estimated that there are at least 33,000 deaf civilians and 206,000 who are hard-of-hearing who are eligible for services from state vocational rehabilitation

---

From the Bureau for Handicapped Children, New York City Department of Health, and the Department of Otolaryngology, New York University-Bellevue Medical Center. Dr. Wallace is now at the University of Minnesota School of Public Health, Minneapolis agencies. In New York City, it is estimated that 30,000 to 40,000 children of school age have a hearing loss requiring a careful evaluation. The number of preschool children and adults so affected is unknown.

Steps Taken in Development of New York City Program

Over the past three years, a series of steps has been taken to develop new services and strengthen existing ones for children and adults with hearing problems. These steps include the formation of an advisory committee of experts drawn from the fields of otolaryngology, pediatrics, audiology, speech therapy, social service, education, and vocational rehabilitation; a recommendation by the advisory committee that a number of hearing centers be developed in the larger general and teaching hospitals in the community; the establishment of recommended standards for hospital hearing centers by the advisory committee;[1A] a survey of all known existing services in the community; assistance to interested hospitals in developing hearing centers; payment for care by the official health agency; and strengthening case-finding in school children by providing additional modern audiometric testing equipment for use by the local school system.

Survey Findings

During 1953 and 1954, a survey of 24 facilities within New York City was performed by a team composed of the consulting otologist and the hospital nursing consultant to the bureau for handicapped children of the New York City Department of Health. These 24 facilities were selected because there was some evidence that they were providing some services for patients with hearing problems. The 24 facilities were located in 14 general hospitals, 6 specialty hospitals, and in 4 detached services (public school for the deaf, voluntary hearing agency, private school for the deaf, and one specialty outpatient hospital). Of the 24 facilities, 22 cared for both children and adults and 2 cared for children only. In general, those facilities caring for both children and adults dealt chiefly with adults, with only a small proportion of children among their patients. These facilities were analyzed according to physical plant, personnel, and policies and procedures.

Physical Plant.—Four of the 24 facilities had some degree of an integrated unit for the diagnosis, treatment, and rehabilitation of patients with hearing impairment. None of these four, however, was completely integrated in the strict sense, as each lacked one or more services in the unit proper. All the four units presenting some degree of integration were located in general hospital facilities offering all consultation services on request.

Eleven of the 24 facilities provided sound-treated areas. Treatment for sound attenuation was not adequate, and in only four facilities was the sound treatment considered adequate. Twenty-one of the 24 facilities provided at least one audiometric testing room. The audiometric testing rooms varied from the use of a corner in the general hospital laboratory to completely sound-treated areas. Although pure tone screening audiometers were in almost all the units, critical testing was available in only the four adequately sound-treated facilities. Six facilities provided auditory training rooms, but in only four were they adequately sound-treated. Only one-third of the facilities provided space for speech therapy. Two of the facilities provided an otological examination room within the unit proper; the other facilities used the general ear, nose, and throat clinics that were usually adjacent or in another area of the hospital. None of the facilities provided space for general pediatric examination within the unit proper.

One facility took ear impressions and made ear molds; four other facilities took ear impressions only. Most referred patients to commercial companies for ear impressions and ear molds. Electronic workshops were found in two, with most of the facilities engaging the services of an outside commercial electronic technician. Offices for a social worker and a psychologist were not provided in any unit.

Personnel.—Each of the 24 facilities had a designated director of the hearing service. In 19 the director was a part-time otolaryngologist, in two an audiologist, in two an educator, and in one a psychiatrist. Five had a full-time director. All except four had an otologist on their staff. Part-time otologists spend from one half-day to three half-day sessions in the clinics. Medical consultants in the fields of pediatrics, medicine, surgery, neurology, orthopedic surgery, psychiatry, and plastic surgery were available in two-thirds of the facilities. Diagnostic x-ray facilities were available in all except three. The medical and surgical consultation services were readily available only in those units associated with a large general hospital. In the units requiring outside medical consultations, no established channel of liaison was evident. There was also much chance of loss of contact and integration of planning of therapy for individual patients.

Eight provided one or more qualified audiologists; of these, three were advanced audiologists qualified according to standards.[2] In other units, the audiologic personnel either had participated or were participating in a program leading to basic certification. Lack of sufficient qualified personnel reflects a lack of proper care in most units. Nine provided one or more qualified audiometric technicians.[2] Frequently, audiometric technicians were trained by the audiologist in charge or in some instances by the otologist. Such personnel might be satisfactory for pure tone audiometric screening procedures, but advanced audiometry would require more highly trained personnel. Twelve provided one or more qualified speech therapists,[2] and nine provided one or more qualified hearing therapists.[2] Ten facilities had a psychologist available, although none had a psychologist specifically assigned to the hearing unit. The most important gap in this area was the need for the available psychologists to have had some previous training and experience with children, particularly children who are handicapped in communication disorders. Six facilities provided a qualified social worker, and one provided a social worker who was not qualified; no hearing unit had a full-time social worker assigned. Usually the available social worker was shared with several other services, so that limited time was available to patients in the hearing unit. No unit had a nurse assigned to it; 15 facilities had a nurse assigned to an adjacent area, usually the ear, nose, and throat clinic, and available on call. Three facilities had an electronics technician.

Twelve facilities were approved by the American Medical Association Council on Medical Education and Hospitals for residency training in otolaryngology, 12 in pediatrics, and 5 in physical medicine and rehabilitation. Few facilities offered a program of instruction in audiology for members of the medical house staff. The others approved for residency training in otolaryngology usually limited their instruction to the technique of audiometric testing.

Policies and Procedures in Services.—Pediatric examinations, although not provided directly within any hearing unit, were routinely provided by the hospitals in six instances. The other facilities had a stated policy of referral of children to an outside pediatric clinic or to a private pediatrician on an indicated basis. The frequency of such referrals is unknown, but the general impression gained was that it was rare.

Otological examinations were available in the unit or adjacent ear, nose, and throat clinics in all except one facility. Pure tone audiometric testing was available in every facility. Advanced audiometry, such as in speech reception, discrimination recruitment, psychogalvanic skin testing, and malingerer testing, was limited to the units in large hospitals. It was the opinion of the survey team that children could be adequately tested in seven of the facilities surveyed. Psychological evaluations were performed in 10 agencies but none in the hearing units. Patients were referred to psychologists in adjacent medical services. Speech evaluation and speech therapy were performed in 13 facilities.

Selection and fitting of hearing aids and auditory training were performed in nine facilities. They were performed in the units capable of doing speech audiometry and therefore in the larger units. There were seven units that were performing evaluations of hearing aids using an objective scoring method; there were two others using a subjective method that is not generally considered adequate. Some facilities referred patients to hearing aid dealers for selection.

Vocational guidance procedures were delegated to the social service staff; since in most facilities the social service staff was limited, the emphasis placed on this aspect of the patient's rehabilitation was likewise limited. Only two facilities held regular audiology or hearing conferences for discussion of diagnosis, treatment, and rehabilitation of the patients.

Nine facilities had a unit system of records. The unit system of records was the only mechanism for integration of reports from various consultation services and was found only in the large general medical facilities. Twelve facilities stated they routinely sent back reports to the school of referral, and nine stated they routinely sent reports to the referring practicing physician. Fourteen facilities had a system for seeing patients on an appointment basis, and 10 had a method of follow-up of broken appointments.

Evaluation.—Physical plants were inadequate for the complete care of a child handicapped with a hearing or speech defect, from the viewpoint of both diagnosis and rehabilitation. A general lack of space and inadequate sound treatment was found. Most of the facilities surveyed could perform pure tone testing only. A second major need was for qualified personnel. Such a need ranged from the position of director with sufficient time to organize and develop the service down through the various skills necessary in complete evaluation and rehabilitation of the patient. The staffs of many facilities surveyed were genuinely interested in improving their services but were hampered largely by lack of space, lack of personnel, and lack of funds.

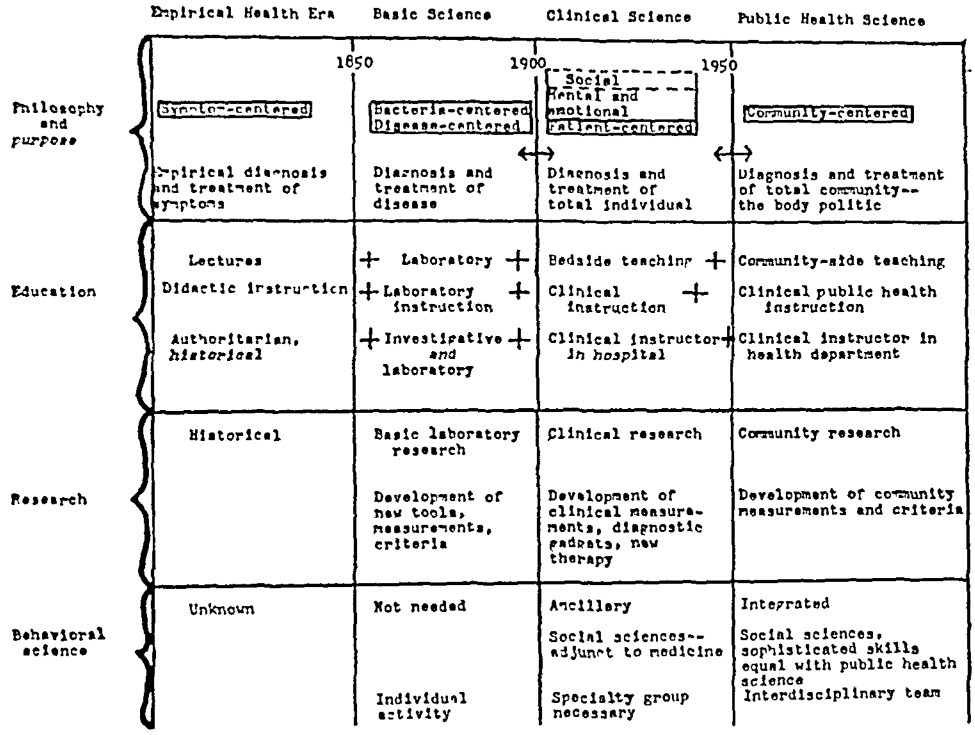
Development and Functions of Community Hearing Centers

It is our opinion that a hearing center, to be adequate, should perform the following functions: (1) It should provide complete services for the diagnosis, treatment, and rehabilitation of children and adults who have or are suspected of having a hearing impairment. (2) It should care for not only patients usually known to the hospital but also patients referred to it by practicing physicians, community agencies, school health and child health services, and industry. (3) It should provide interpretation and guidance to the patient and his family and should assist the patient and his family in making the necessary plans for the patient's total maximum rehabilitation. (4) It should be a training center for professional personnel of all types, both at the undergraduate and postgraduate levels. (5) It should perform research. With these functions in mind, what should a hearing center provide?[1A]

Medical Direction and Supervision.—Medical direction of the center's activities is essential, because the investigation and recommendations are based upon medical findings. It is probably not practical to have a full-time medical director. It is natural to look to the otolaryngologist for this type of medical direction. Weekly staff conferences should be conducted by the medical director. In order to maintain a high quality of service and coordination, a full-time coordinator or supervisor of the center is necessary. This responsibility can be best assumed by the audiologist with advanced certification in hearing and speech or its equivalent.

Medical supervision by qualified otolaryngologists and pediatricians is necessary for the initial evaluation of the patient and for continuing medical treatment and rehabilitation. Ideally, at least one otolaryngologist and one pediatrician should be assigned to the center staff to participate in direct patient care, to function as a member of the center team, and to attend the center's staff conferences. In addition to these two essential medical services, consultation should be readily available from all of the related medical fields such as neurology, psychiatry, radiology, plastic surgery, orthopedic surgery, and orthodontia.

In addition, it is highly [illegible] that [illegible] of the house staff [illegible] services be [illegible] change in focus from the diagnosis and treatment of disease to the diagnosis and treatment of the total individual. Scientific clinical *medicine with its* patient-centered concept of the total individual was not accepted easily, nor without battle. For many years the bacteriologists, anatomists, and pathologists argued vehemently that the individual was not an entity but only an aggregate of atoms, electrons, cells, and segments and that one could not "diagnose" an individual; one could only diagnose disease, bacteria, pathology; one could not treat the whole individual but only broken bones, ulcers, and diseased members, and only in so doing could the individual gain health. It was a long, hard battle that has not as yet been completely won, because, after acceptance of the *physical entity* of the individual, along came the psychiatrists who insisted upon the physical and mental oneness of the individual—psychosomatic *medicine. Later, the recognition of the* importance of social medical factors in the health of the whole patient necessitated a knowledge of the family and community impact upon the health of the individual. Scientific clinical medicine today does believe and teach that the whole patient—physical, mental, and social—must be the focal point of medical practice.


1850
1900
1950

	Empirical Health Era	Basic Science	Clinical Science	Public Health Science
Philosophy and *purpose*	Symptom-centered Empirical diagnosis and treatment of symptoms	Bacteria-centered Disease-centered Diagnosis and treatment of disease	Social Mental and emotional Patient-centered Diagnosis and treatment of total individual	Community-centered Diagnosis and treatment of total community—the body politic
Education	Lectures Didactic instruction Authoritarian, *historical*	+ Laboratory + + Laboratory instruction + + Investigative *and* laboratory +	Bedside teaching + Clinical instruction + Clinical instructor *in hospital* +	Community-side teaching Clinical public health instruction Clinical instructor in health department
Research	Historical	Basic laboratory research Development of new tools, measurements, criteria	Clinical research Development of clinical measurements, diagnostic gadgets, new therapy	Community research Development of community measurements and criteria
Behavioral science	Unknown	Not needed Individual activity	Ancillary Social sciences—adjunct to medicine Specialty group necessary	Integrated Social sciences, sophisticated skills equal with public health science Interdisciplinary team

Evolutionary development of medical and health science.

Era of Community Health

The third profound change has developed in recent *years, and the era* of community health is emerging. The change is fundamentally a change from diagnosis and treatment of the individual to the diagnosis and treatment of the health needs and status of the community as an entity—the scientific diagnosis and treatment of the body politic. Here, too, the major issue is not new gadgets or new functions but a new approach, a new focus, a new science, and a new profession. In scientific public health, we no longer treat the individual—the segment of the community—but the total body politic—mental, physical, social, and economic. We no longer treat individuals who have communicable diseases, but we prevent, control, or eradicate the disease in the body politic. The total patient is our responsibility and not the individuals who are a part of it. Our patient is more than a mere aggregation of individuals, just as the individual is more than an *aggregation of cells* or segments. This does not mean that we ignore the individual any more than the physician ignores the ulcer or the segment or the disease germ in the individual. The doctor treats the broken hip but only incidentally to the treatment of the individual. He may not, on occasion, even attempt to set the broken hip, because the total health of *the individual* is more important, but if he does set the hip he *does it only for the* purpose of functionally curing the individual. The day has passed when we can *say the* operation was successful but the patient died.

Similarly, public health will have to continue to do many things for individuals that society demands. The health officer may have to be the county coroner, or jail physician, until a proper medical examiner system is adopted, or until other private physicians can be persuaded to assume the duties of individual medical care for the inmates of the penal *institutions. But the health officer is not* doing public health when he does these things. He is doing, I hope, scientific practice of medicine, and I hope he will be relieved of these duties shortly because that is not the best use of his new skill and knowledges. The health department may have to continue to conduct such services as well-child conferences and immunization clinics for individuals, indigent or otherwise, until organized medicine finds a better way to maintain community immunity. The purpose of these clinics should be better protection for the health of the total body politic, not *for the health of any individual* in that body politic.

This profound change, as in the past, has been and will be bitterly opposed by many eminent scientists. Their argument has a familiar ring: "The community is not an entity but only an aggregate of individuals, and in curing individuals the ills of the community will be cured." Fortunately the advances in health science and social science clearly indicate the fallacy of their argument. Most people recognize that the community is an entity, not merely an aggregate of people, an entity different from every other community as every *individual is different from his* neighbor. It is different in its physical make-up, geographical and demographic limitation, social structure, power structure, governmental and legal structure, mental and emotional patterns, ethnic groups, mores, religious and nutritional patterns, educational procedures, institutions, and community organization. However, the community is an entity with pride and prejudice, with wealth and poverty, with needs and accomplishment, with lacks and superfluity, with ignorance and wisdom, and with weakness *and power,* in illness and in health. This is our patient. This is the patient for whom we must learn the art and the science of public health; upon whom we must practice the most modern and scientific diagnosis; and in whose interest we must improve our methods, measure and evaluate our techniques, and foster basic and applied research. This is the patient whose confidence, understanding, cooperation, and participation must be gained in each step and throughout the whole procedure.

This concept involves profound changes and advances that are more readily understood and grasped by medical men because of their experience in the evolution and developments of the past hundred years and because the medical terms and analogy of diagnosis and treatment are so helpful in determining wise policy and procedure and in answering the many problems that face them in the years ahead.

Knowledge of Community to Diagnose Ills

If we accept the community as our patient, we must recognize that the areas shown in the figure are not watertight compartments. Even though they are distinctive areas, with distinctive skills, a distinctive body of knowledge, and a distinctive competence, they are mutually supportive. Knowledge and information in one area are helpful to every other area; discovery in basic science aids clinical science and community health science and vice versa. The clinician is not a bacteriologist, but he frequently needs the aid of bacteriologists. Neither is the clinician a public health man.

We must recognize the important and equal part that other professions and other scientists must play in diagnosing and treating the "community patient." The community is much more complicated than an individual, just as the individual is more complicated than a bacterium. To diagnose community ills we must have knowledge of community economy—the distinctive skills of the economist, a knowledge of the social structure of the community, and a knowledge of the cultural patterns of the different groups of the community and the impact upon their health practices of nutritional patterns or recreational, religious, moral, and ethical patterns. Frequently this knowledge is necessary for varying groups within a community, and knowledge of the effect of these groups upon others in the community is needed.

We must have knowledge concerning community organization, power structure of the community, political structure, health laws and regulations, and attitudes that determine acceptance or rejection of change and development. We must have sophisticated knowledge of education and educational methods and of mores and morals that affect the growth and development of community consciousness and community action. These are not just words; they are the vast accumulation of knowledge of the social sciences. We must have knowledge of community measurements, of the demographic characteristics of our patient—the age, sex, racial distribution—and intricate ways in which this affects our patient's health; of the biostatistical techniques of collection and analysis of the data that can determine mass phenomena of disease and health; and of the geographical base that determines isolation, transportation, and resource. We must have the knowledge of sanitary science, technical skills that can determine oxygen demand or biological balance under widely varying circumstances. We must know the epidemiology of the mental health of the community and develop techniques to assess the early symptoms of community illness, physical or mental. We must have the knowledge of mass nutrition, mass disease, and epidemic phenomena that provides a scientific prognosis and plan of treatment or evaluation of the past or present programs aimed at control.

All of this is nothing more or less than a scientific approach to the diagnosis and treatment of the body politic—the history, physical examination, tests, analysis, clinical judgment, and prescription for treatment. The doctor has much to add to this team, because his knowledge of and approach to the individual are excellent background for this further training and experience upon the much more complex organism he now faces; but the doctor's supremacy is gone. A democratic team of individuals of diverse backgrounds and skills forms the profession of public health that must cope with a different kind of patient. The advances of health science and social science, not medical science alone, have shown us the way to immeasurably lift the health and wealth of our patient. But we must be free to develop and practice that science upon our patient, the community.

Concept of Public Health

If we accept this concept, we must recognize how profoundly this may affect public health practice. The first criterion of scientific versus empirical practice is a careful and complete history of the patient. What do you think of the doctor who does not take a history or does not ask what your trouble is or where your pain is but just gives you a pill? He is a quack or, if we feel charitable, he is too busy practicing medicine, "but not on us." Now, let us take a look at our health department. Do any or all of the team, that is the doctor of the body politic, have a complete history of the patient? Seldom, in a great many studies and surveys of local health departments and other health agencies, have I been able to obtain even an incomplete history of their patient. You may know how many immunizations you did, but do you know what percentage of the body politic under age 2 is protected against diphtheria, whooping cough, tetanus, or smallpox? Do you know what percentage of pregnant women are getting good, adequate medical supervision? We are full of data upon the indigent, upon this group, and upon that group, but we do not have a complete history. We do not even attempt to make it; we do not have the time.

Vital statistics is only a pitifully small segment of the health history of the individual or the body politic. We too frequently do not even know what other agencies, public and private, are doing for our patient—the community. Have you asked your patient what he thinks his chief complaint is? Does your patient have a way or means of expressing himself to you concerning his health? Your patient is all the people, not just the doctors, bankers, businessmen, or politicians. We must maintain and develop means of getting grass-roots answers, representative community opinion. If we are honest with ourselves, we will admit that a complete history of the health of the body politic is not available in most health departments, and certainly it cannot be had at a state or national level when it is not available at the local level.

The second criterion is a thorough examination of the whole patient. What do you think of the doctor who does *not* strip the baby for examination? Well, we do not take *our* children to him. With the health department it is hardly necessary to tell you that we do not examine the whole patient and seldom even a part of him. We have a good excuse—we do not have time; it would offend the medical profession if, for example, we determined the percentage of mothers getting poor prenatal care. So we cannot do that. The cold facts are a pretty bitter pill to swallow. We are responsible for the health of the body politic and we have never once examined the patient completely and thoroughly.

Along with this examination by the physician go certain laboratory tests, the third criterion. Advances in medical science provide new and essential tests for the individual constantly. This is one of the reasons for the increased cost of medical care. The advances in health science provide for new and essential tests upon the body politic to aid in determining community needs and lacks, a community diagnosis. Special tests on a mass basis are extremely expensive. Ingenuity reduces this expense; for example, from the large x-ray to the microphotograph, from $10 to 50 cents per person. We have done pretty well with this test, but we still have taken chest x-rays of only a part of our patient, unfortunately too often the most unlikely part. In many communities mass screening has been directed at the young adult population 15 to 35 years of age, where, following childhood, pulmonary tuberculosis is at its lowest incidence, and those over 55 years of age, who have six times as much active tuberculosis, are missed. Routine screening of all hospital inpatients and outpatients is still not generally done, although this is 10 times as productive a case-finding area as screening workers in industry. We have chosen to screen the Negro population in the United States instead of white population, despite the known greater prevalence rates of active tuberculosis in the white population at any one time. We have concentrated our efforts upon the 10% source of new cases and done nothing about the 90% source of new cases each year in most of tuberculosis control programs. If the doctor took x-rays of the long bones to discover tuberculosis, this would be more sensible than the mass screening that has so often been done by health departments, apparently avoiding the very segments of the body politic in which the disease is most common and prevalent.

This concept of public health requires a change of some other cherished, traditional ideas. We must recognize the existence of a distinctive profession of public health with a distinctive competence and body of knowledge, a profession requiring within its team structure the background skills and knowledges of many professions and sciences—natural sciences, physical sciences, and social sciences. We cannot continue to consider public health as a specialty of medicine, dentistry, engineering, statistics, nursing, education, or nutrition. It would be as logical for physicians to consider themselves primarily bacteriologists, biochemists, or physiologists specializing in clinical medicine. The focus is different; the patient is different. It is this difference in focus that has made the profession and provided it with distinctive skills, knowledge, and competence.

Practical Definition

Acceptance of this concept, then, clearly defines in a practical way what public health is and where it is going. It eliminates much of the fear and distrust of the medical profession, with all its ramifications. Fear and distrust are associated with a lack of knowledge of our objectives and goals—where we are going and whether in so going we will infringe upon the field of "their" professional eminence—the health of individuals. This definition not only says where we are going but it defines our areas of competence. It also accepts the physician's eminence and leadership in the field of individual health. It says to the physician, in essence, your job is to diagnose and treat the community, to determine its health needs—a field in which you are not qualified by your patient-centered training.

We will work on individuals only for the purpose of community health, except as the community demands that we as public servants do medical care of individuals. And this we will do under protest—that it is not our function, not public health, and as soon as it can be taken over by those whose responsibility is *individual* health, we wish to be relieved of it. We expect the right to examine our patient as you have the right to examine yours. If that examination reveals community need, say a low community immunity against diphtheria, we will assist the private physician in every way we can to do immunizations of individuals and will resort to health department clinics only as a stopgap, if the community immunity levels cannot be otherwise raised to a safe level. This is nothing new; we just have not said it clearly before and have left in the minds of the physicians the idea that we were going into the immunization business and other patient-centered business, which, unfortunately, too many health departments have done. By this answer we say clearly and firmly that public health is not the administration of medical care to individuals, indigent or otherwise, but we cannot avoid determining the need and adequacy of medical-care programs originating and functioning through the medical society and individual private physicians or government agencies. It is the fear that public health plans to take over individual health that makes medicine rightly suspicious of the whole public health program.

Acceptance of this concept will change the whole face of our primary problem of public health—the recruitment and training of public health personnel. Let us take, for example, one type of personnel, our greatest lack and shortage, the trained and qualified health officer. It has been wisely said that nothing is as important in recruitment of any profession as a challenge. I know the excuses, good excuses, of poor employment practice, inadequate compensation, and lack of professional recognition. They all play a part, but the reason we are not recruiting the cream of young physicians is that we have offered no challenge, no stimulating and daring future. Administration—paper work—does not appeal to a man faced with opportunity of service to the sick. The challenge of diagnosis is the real drawing card, the focusing all of his attention and his talents upon the discovery of disease and diagnosis of illness and its cure. If we could go to such young men and say, "Here is a new patient, infinitely more complex than the individual you will be working on, a science in its infancy compared with medical science, a patient needing diagnosis that demands all of your diagnostic acumen and then some, these are relatively unchartered seas with opportunities for human service and good much greater than anything you have dreamed of, here is a specialty that is dangerous because you will enter it with no 'God-given authority' and 'supremacy,' you will earn your leadership if you have it in you, here your successes and failures are not counted in scores but in thousands and hundreds of thousands"—by this kind of challenge we could begin to skim the cream from the top instead of scraping unsuccessfully the bottom of the barrel. But we dare not, in good faith, make this challenge until we accept this answer that clearly places us in the limited specialty position, with responsibility for the diagnosis and treatment of the body politic. The smart young men of medicine will not be sucked in by the glittering generalities that public health is everything, or the reverse, that it is limited to administrative boredom.

Comment

It is high time public health grew up and defined clearly its objective, purpose, function, competence, and distinctive skills and body of knowledge in terms that can be clearly understood by itself, other professions, and the public. This concept of public health as the scientific diagnosis and treatment of community health needs and status, this concept of the community as the patient of public health, does just that. The growing and rapid acceptance of this concept within the public health profession augurs well for everyone concerned. Let us, however, remember that it took at least 50 years for complete acceptance of each of the profound changes of health science in the past. We must not expect a miraculous acceptance of this last profound change.

The emerging science of public health demands daring leadership that is not afraid to come forth from the basic professions from which it came into the new profession of public health—leadership that is challenged by the difficulties of education in a new profession, that is challenged by virgin territory of community research opening up before us—leadership that can direct, through competence in public health, the team of professional equals that is the doctor of the body politic. Medical men must either accept this challenge or see others take over the leadership that could have been our own.

CLINICAL NOTES

SPONTANEOUS HEMORRHAGES CAUSED BY PLASMA-THROMBOPLASTIN-ANTECEDENT DEFICIENCY

REPORT OF A CASE

Edward I. Henry, M.D.
Robert L. Rosenthal, M.D.
and
Irwin Hoffman, M.D., New York

An increasing number of hereditary hemorrhagic diseases caused by deficiencies in plasma clotting factors has been recognized in recent years. In addition to classic hemophilia or antihemophilic globulin deficiency, two other similar diseases have been described: plasma-thromboplastin-component deficiency, or Christmas disease,[1] and plasma-thromboplastin-antecedent deficiency.[2] In comparison with antihemophelic-globulin and plasma-thromboplastin-component deficiencies, hemorrhagic manifestations have been generally less severe in plasma-thromboplastin-antecedent deficiency. Spontaneous hemorrhage has been rare.

Table 1.—*Coagulation Studies in Patient with Plasma-Thromboplastin-Antecedent Deficiency*

Study	Finding	Normal Values
Bleeding time, min	0	0 — 3
Tourniquet test	Very slightly positive	......
Coagulation time, min	9	5 — 11
Heparin clotting time, min	26	20 — 35
Clot retraction	Present	......
Prothrombin time, sec	14	14 (control)
Serum prothrombin time, sec	8	Over 24
Platelet count, per cu mm	180,000	150,000 — 300,000

This paper presents an unusual case of plasma-thromboplastin-antecedent deficiency in which spontaneous cerebral hemorrhage produced bizarre neurological symptoms. The prompt disappearance of symptoms after the administration of plasma emphasized the importance of establishing the diagnosis of plasma-thromboplastin-antecedent deficiency.

A 38-year-old housewife had an extensive history of abnormal bleeding. At the age of 17, she had had severe postpartum bleeding. At the age of 28, she required five blood transfusions for hemorrhage after mastoid surgery Three years before the present studies, she bled profusely for three days after a tooth extraction and was reprimanded by her dentist for "not telling me you are a bleeder." For one year she had noted large subcutaneous ecchymoses appearing spontaneously or after slight trauma, and for several months her menstrual periods had been unusually heavy. There had been no history of epistaxis, hematuria, gastrointestinal bleeding, or hemarthrosis.

Routine physical examination, complete blood cell count, urinalysis, chest x-ray, and electrocardiogram were all normal. Blood coagulation studies, shown in table 1, revealed normal values except for an abnormal serum prothrombin time, indicative of a clotting defect. In order to elucidate this defect, further match-

---

From the Department of Medicine, the Long Island Jewish Hospital (Drs. Henry and Hoffman), and the Beth Israel Hospital, Levy Foundation (Dr. Rosenthal).

ing studies were performed as shown in table 2. These revealed that the clotting defect was corrected by plasma deficient in antihemophilic globulin and plasma thromboplastin component, by normal serum, and by plasma and serum treated with barium sulfate. It was not corrected by plasma deficient in plasma thromboplastin antecedent. In addition, the patient's plasma after storage at −15 C for three months provided only minimal correction of blood deficient in plasma thromboplastin antecedent. These studies established the diagnosis of this deficiency, and the patient was told she had a clotting abnormality.

TABLE 2.—*Blood-Matching Studies on Patient with Plasma-Thromboplastin-Antecedent Deficiency*

1 Cc. Patient's Blood Plus 0.1 Cc. of	Clotting Time, Min.	Serum Prothrombin Time, Sec. 2 Hr.	Serum Prothrombin Time, Sec. 24-Hr.	Correction*
0.85% sodium chloride	9	8	17	0
Plasma deficient in antihemophilic globulin	5	23	32	++
Plasma deficient in plasma thromboplastin component	5	20	26	++
Plasma deficient in plasma thromboplastin antecedent	7	10	18	0
Normal barium sulfate-treated plasma	7	18	29	++
Normal barium sulfate-treated serum	5	25	42	+++
Normal serum	6	28	42	+++
1 Cc. Blood Deficient in Plasma Thromboplastin Antecedent Plus 0.1 Cc. of				
0.85% sodium chloride	24	11		0
Control plasma	8	34		+++
Patient plasma	8	18		+

* 0, none; +, slight; ++, moderate; +++, marked

In August, 1955, two weeks after an unusually heavy menstrual period, she was admitted to Long Island Jewish Hospital because of ataxia, vertigo, and diplopia of five days' duration accompanied by nausea and vomiting. There had been no headache, fainting spells, convulsions, paresthesias, motor weakness, or sphincteric disturbance. Physical examination revealed the following positive findings: temperature 100.4 F (38 C); pulse rate 74 per minute and regular; and blood pressure 120/80 mm. Hg. Weakness of conjugate gaze in the right eye was greater in looking to the right and weakness in conjugate gaze in the left eye was greater in looking to the left, with unsustained horizontal nystagmus in both. There was unsustained vertical nystagmus on upward gaze, with none on downward gaze. Convergence was good. Diplopia was present in all fields, including direct-forward gaze. The impression was of a bilateral sixth cranial nerve paresis with paretic nystagmus. Peripheral and central visual fields were normal. There was an unsteady broad-based gait. Deep tendon reflexes in the upper extremities were hyperactive and equal; knee and ankle jerks were depressed to absent. An equivocal Babinski's sign was found bilaterally. The function of the remaining cranial nerves was intact. No motor weakness or incoordination of the extremities was demonstrated. Sensation was intact. Injecting cold water into the right ear produced slight vertigo with no past pointing or change in nystagmus; a similar injection into the left ear caused moderate vertigo with past pointing to the right and accentuation of the nystagmus on gazing to the left. A lumbar puncture was performed. No cells were present, the protein level was 22 mg. per 100 cc., and the spinal fluid pressure was 120 mm. H_2O. The urine and a hemogram were normal

In view of the possibility of cerebral hemorrhage, the patient was given 400 cc. of type-specific (A_1 Rh-positive) bank plasma on the day following admission. Large doses of vitamins B and C were also administered because of a moderate alcoholic background. Within a few hours, the ataxia, diplopia, and vertigo, as well as the extraocular muscle palsy, had dramatically disappeared, with only unsustained nystagmoid movements remaining. There was no change in reflexes of the lower extremities. The patient remained well and was discharged within a few days.

After discharge from the hospital, the patient was observed frequently, and oral and parenteral therapy with vitamins was continued. She remained well and free of ecchymoses for about one month, until her next menses. At this point, spontaneous subcutaneous ecchymoses appeared and her menstrual period was still heavy after a 10-day flow. She was readmitted to Long Island Jewish Hospital for transfusions. On that admission, the coagulation time and the Rumple-Leede phenomenon (minute subcutaneous hemorrhages) were normal. The day after the administration of 1,000 cc. of whole blood the vaginal bleeding ceased and the patient was discharged. The decision was then made to administer 1 unit of plasma monthly a week before her expected menses in order to prevent further dangerous bleeding Four menses have passed without incident on this regimen

Comment

Bleeding in patients with hereditary hemorrhagic diseases caused by plasma-protein deficiencies is usually related to trauma. This is particularly true in plasma-thromboplastin-antecedent deficiency, in which the bleeding manifestations have been relatively mild in comparison with those in antihemophilic-globulin and plasma-thromboplastin-component deficiencies The patient reported here presented episodes of bizarre cerebral symptoms and ecchymoses that responded dramatically to treatment with plasma. In addition, the patient had frequent menorrhagia that could be prevented by plasma infusions. These patterns of bleeding have been unusual in our experience with plasma-thromboplastin-antecedent deficiency, based upon 35 cases.[3] Because of its mildness and mode of inheritance as an autosomal dominant characteristic, it is expected that plasma-thromboplastin-antecedent deficiency will become a relatively frequent finding.

It must be emphasized that in the mild to moderate degree of plasma-thromboplastin-antecedent deficiency, the routine bleeding and clotting test are normal. The serum prothrombin time or prothrombin-consumption test may be the only demonstrabl abnormality. This test sensitively reflects abnorma blood thromboplastin formation from its precursor with subsequent diminished conversion of prothrombin to thrombin. The formation of a firm clot, a measured by the clotting time, is not a sensitive test because it requires only minute amounts of thrombin A shortened serum prothrombin time thus indicates incomplete prothrombin consumption during clot formation.[4] Matching studies are necessary in order to identify the exact deficiency. This is possible because of the different properties of antihemophilic globulin, plasma thromboplastin component, and plasma thromboplastin antecedent.[5] These tests measure correction of the defect as shown in table 3.

TABLE 3.—*Correction of Deficiency States*

Deficiency	Corrected by: Normal Serum	Absorbed Barium Sulfate Plasma	Plasma Deficient in Antihemophilic Globulin	Plasma Deficient in Thromboplastin Antecedent	Plasma Deficient in Thromboplastin Component
Antihemophilic globulin	No	Yes	No	Yes	Yes
Plasma thromboplastin antecedent *	Yes	Yes	Yes	No	Yes
Plasma thromboplastin component	Yes	No	Yes	Yes	No

* This deficiency was found in our patient

Treatment depends upon the specific deficiency. In antihemophilic-globulin deficiency, administration of fresh plasma or blood, if anemia has developed, is essential. However, in plasma-thromboplastin-component and plasma-thromboplastin-antecedent deficiencies, stored plasma or blood is satisfactory and possibly preferable. In the present case, stored bank blood and plasma were effective in both stopping and preventing hemorrhage.

Summary

In a case of plasma-thromboplastin-antecedent deficiency with unusual features of brain-stem bleeding, cutaneous ecchymoses, and recurrent menorrhagia, successful therapy of the acute bleeding and prevention of further episodes were accomplished with administration of stored plasma and bank blood.

Addendum

In February, 1956, after receiving one unit of banked plasma, the patient underwent extraction of three teeth without operative or postoperative bleeding.

This study was supported by a grant from the National Institutes of Health, U. S. Public Health Service.

References

1. (a) Aggeler, P. M., and others: Plasma Thromboplastin Component (PTC) Deficiency: New Disease Resembling Hemophilia, Proc. Soc. Exper. Biol. & Med. 79: 692-694 (April) 1952. (b) Biggs, R., and others: Christmas Disease: Condition Previously Mistaken for Haemophilia, Brit. M. J. 2: 1378-1382 (Dec. 27) 1952. (c) White, S. G.; Aggeler, P. M., and Glendening, M. B.: Plasma Thromboplastin Component (PTC): Hitherto Unrecognized Blood Coagulation Factor: Case Report of PTC Deficiency, Blood 8: 101-124 (Feb.) 1953.

2. Rosenthal, R. L., Dreskin, O. H., and Rosenthal, N.: New Hemophilia-like Disease Caused by Deficiency of Third Plasma Thromboplastin Factor, Proc. Soc. Exper. Biol. & Med. 82: 171-174 (Jan.) 1953.

3. Rosenthal, R. L.: Unpublished data.

4. Brinkhous, K. M.: Study of Clotting Defect in Hemophilia: Delayed Formation of Thrombin, Am. J. M. Sc. 198: 509-516 (Oct.) 1939. Quick, A. J.: Physiology and Pathology of Hematosis, Philadelphia, Lea & Febiger, 1951.

5. Footnote 1a. Rosenthal, R. L.: Hemophilia and Hemophilia-like Diseases Caused by Deficiencies in Plasma Thromboplastin Factors, Am. J. Med. 17: 57-69 (July) 1954. Merskey, C.: Laboratory Diagnosis of Hemophilia, J. Clin. Path. 3: 301-320 (Nov.) 1950.

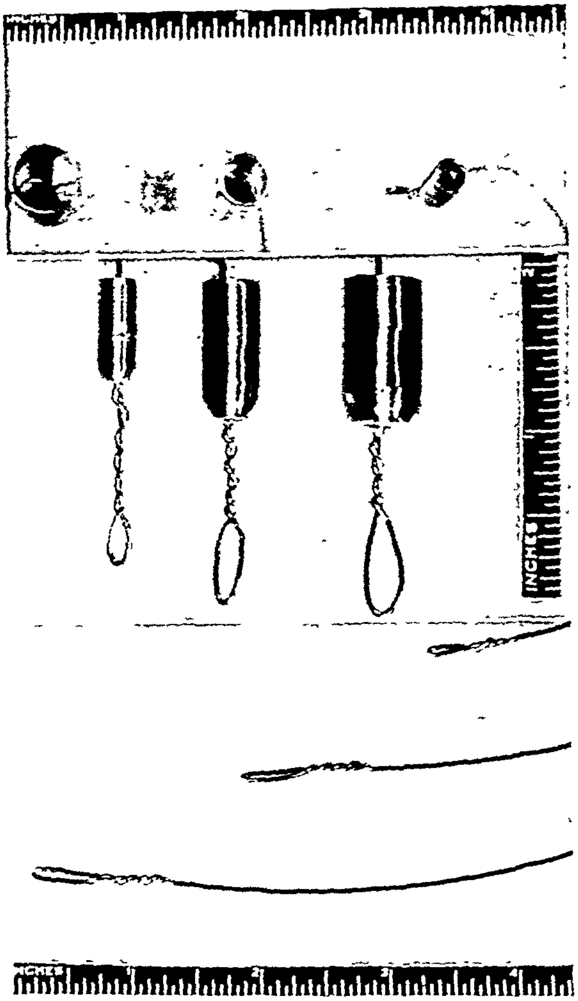
Prophylactic Use of Antibiotics.—There is no justification for prophylactic antibiotic therapy in patients with clean, uncontaminated wounds resulting from elective surgery, i. e., breast biopsy or herniorrhaphy. Every surgeon should be honest enough with himself to realize that more wound infections occur in wounds because of rough handling of tissues, indiscreet use of suture material and the failure to remove devitalized tissue, than from the lack of specific supportive and antibacterial therapy.

Certain dangers are associated with the use of the antibiotics. The indiscriminate use of antibiotics is unnecessarily sensitizing an alarmingly large number of patients. A patient may later develop a serious infection and he may be denied a specific and possibly a life-saving antibiotic because he became sensitive to that antibiotic used by a physician who wanted to demonstrate that he was doing everything possible to prevent infection, in spite of the lack of any evidence to indicate the usefulness of an antibiotic in *such a situation.* Indiscriminate use of antibiotics (more than half of hospitalized patients now receive antibiotics) also tends to increase antibiotic resistance of the bacteria of our environment. For instance, the average of reported incidences of penicillin-resistant virulent streptococci has increased 1,640 per cent in the past 12 years—from 4 per cent to 65.5 per cent.—H. A. Zintel, M.D., Asepsis and Antisepsis, *The Surgical Clinics of North America,* April, 1956.

IMPROVED VEIN STRIPPER

Frederick G. Stoesser, M.D., Buffalo

Experience over the past 24 years with some 3,000 vein operations has led me to the conclusion that vein stripping is far superior to single or multiple vein ligations in the treatment or eradication of varicose veins. However, the available vein strippers have several disadvantages; namely, (1) the necessity of using a large bulb in order to obviate the tendency for the vein to turn inside out and tear during the procedure, (2) the necessity of ligating the vein to the stripper to prevent inversion, and (3) the time required to remove the vein from the stripper. In an attempt to overcome these disadvantages, the vein stripper to be described here was devised. I used this type of stripper on over 100 vein operations between February, 1955, and March, 1956, and found that it makes the procedure of vein stripping not only less tedious but also more complete.



Vein stripper. *Top,* strand of tempered stainless steel wire is passed through hole drilled in solid metal cup. *Center,* wider loop of wire is placed against the solid end of the cup. *Bottom,* narrower loop becomes probing end of wire.

The stripper end consists of a metal cup or bucket constructed from stainless steel shaft material. Three different-sized shafts are used: ¼ in. in diameter by ⅝ in. long, ⅜ in. in diameter by ¾ in. long, and ½ in. in

---

From the Department of Surgery, Millard Fillmore Hospital.

diameter by ⅞ in. long. The cup is formed by drilling out the center of the shaft one-half of its length, using a 3/16-in. drill for the smallest cup, a 5/16-inch drill for the medium-sized cup, and a 7/16-inch drill for the largest size. This leaves a rim to the cup that is 1/32 in. in thickness. A hole 0.058 in. in diameter is then drilled through the center of the remaining solid metal, through which a strand of tempered stainless steel wire 0.037-in. in diameter is passed (see figure, *top*). Each end of the wire is doubled on itself and tightly twisted to form a loop, the loops being ⅛ and ¼ in. in diameter respectively. The wider loop is placed against the solid end of the cup (see figure, *center*), and the narrower loop becomes the probing end of the wire (see figure, *bottom*). This type of tip construction facilitates the passage of the stripper into and through smaller veins. A 14-in. wire is used for the small cup and a 34-in. wire for the two larger cups. The solid end of the cup is rounded off (see figure, *center*).

Procedure

An oblique incision is made over the fossa ovalis, and the saphenous vein and its branches are isolated, transected, and ligated close to the femoral junction, care being taken to avoid drawing a portion of the anterior wall of the femoral vein up into the ligature. A clamp is left on the distal severed end of the long saphenous vein, and this area is temporarily covered with a sponge. A transverse incision, 1 in. long, is then made just anterior to the medial malleolus. The long saphenous vein is transected at this point and the distal end tied. The edges of the proximal end of the vein are grasped with two mosquito hemostat forceps, and the wire of the medium or large stripper is passed into the lumen of the vein. The large size is used only on unusually large veins.

Frequently the stripper can be passed all the way from the malleolus to the groin, passage being facilitated by rotating the wire to change the direction of its curve, thus bypassing pockets, or sacculations. The clamp is removed from the proximal end of the saphenous vein, and, when the stripper wire projects from the open end of the vein, the wire is grasped with a Kocher clamp and drawn cephalad. This causes the proximal end of the saphenous vein to fall into the cup and pucker on the wire, thereby preventing inversion of the vein and also effecting its complete removal.

If the stripper fails to pass the entire length of the long saphenous vein it is usually because there has been a previous phlebitis in this area. In these instances one or two additional incisions are made at the midthigh, knee, or midcalf level. Additional varicosed branches are also removed through such incisions. The short saphenous vein is always removed to prevent the likelihood of recurrences, two incisions being made for this purpose—one over the popliteal area and the other just posterior to the lateral malleolus. The small stripper with its short wire is used, and the vein is usually extracted toward the foot.

Care must be taken to assure that the proper end of the stripper wire is passed into the vein, so that the cup and not the rounded end of the stripper will gather the vein as it is removed. If this is not done the vein will have a tendency to stretch and slide over the stripper, which often occurs with other types of strippers. Removal of the stripped vein from the instrument is then easily accomplished by passing the cup to the opposite end of the wire, thus causing the stripped vein to drop off into the specimen dish.

The operation is done with the patient under general anesthesia. The operating table is tilted slightly in a modified Trendelenburg position in order to decrease the venous pressure in the legs and minimize blood loss. The wounds are closed with interrupted cotton sutures, and, after dressings have been applied, the leg is wrapped from toe to upper thigh with an elastic bandage. When the patient is transferred to the recovery room and later to bed, his feet are elevated 15 to 18 in. and kept in this position until the following morning. On the first postoperative day the foot of the bed is leveled and the patient is allowed to be up and about. The elastic bandages together with the sutures are removed at the end of a week.

Summary

From February, 1955, to March 1956, over 100 vein operations have been done using a new type of vein stripper. This stripper has been found to be more efficient than instruments previously used because of the following advantages: 1. It prevents the stripped vein from inverting on itself and breaking. 2. The edge of the cup tends to shear off the perforating veins rather than tearing them from their attachment to the deep veins. 3. The stripped vein is removed easily and quickly from this instrument. 4. The stripper and technique described have materially shortened the operating time and given more satisfactory results.

875 Lafayette Ave. (9).

Cystitis Emphysematosa.—Vesicles of gas within the urinary bladder wall are infrequently seen. Eisenlohr in 1888, first described this condition as an autopsy finding. Mills in 1930, based on a series of 12 cases, expressed the belief that this is not only a postmortem phenomenon but one that occurs during life. Ravich and Katzen in 1932, proved him to be correct. An emergency cystotomy in a fifty-six year old male revealed the vesicles within the bladder wall. Since then 22 other cases have been recognized during life and reported, the most recent by Faingold, Hansen and Rigler, Wheeler, and Packard, Beazlie and Creecy. About one-half of these were diagnosed roentgenographically. The cause of cystitis emphysematosa is a gas producing organism, Escherichia coli being found frequently, and Clostridium welchii occasionally. The condition occurs in both sexes, predominantly in adults; one case has been reported in infancy. More than one-half of the patients reported in the literature had had diabetes, which apparently is a predisposing factor. The most common symptoms of cystitis emphysematosa are frequent urination and dysuria, and occasionally hematuria and pneumaturia; however, in some cases no symptoms referable to the urinary bladder were present. —P. Francke Jr., M.D., and J. W. Lane, M.D., Cystitis Emphysematosa, *The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine*, May, 1956.

COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies. They are based upon the evaluation of available scientific data and reports of investigations.
H. D. Kautz, M.D., *Secretary*

Decamethonium Bromide.—Decamethylenebis (trimethylammonium bromide).—The structural formula of decamethonium bromide may be represented as follows:

$$(CH_3)_3\overset{+}{N}-(CH_2)_{10}\overset{+}{N}(CH_3)_3 \qquad 2Br^-$$

Actions and Uses.—Decamethonium bromide, a synthetic quaternary ammonium compound, is a potent skeletal muscle relaxant. Like tubocurarine, it blocks motor impulses at the myoneural junction but is about three times as potent in this respect as equal amounts of tubocurarine. After intravenous administration, muscle relaxation becomes apparent within 1 minute and is maximal at 3 to 4 minutes. Muscle activity begins to return after 8 to 10 minutes and has usually returned to normal after 20 to 30 minutes. Thus, the duration of action of decamethonium is intermediate between that of tubocurarine and succinylcholine, being more fleeting than that of the former but more persistent than that of the latter. Unlike tubocurarine, the drug does not produce histamine-like effects (bronchospasm and laryngospasm), nor does it cause ganglionic blockade. Any effects on pulse and blood pressure are not due to decamethonium per se but develop secondarily as a result of inadequate ventilation during respiratory depression or apnea. Decamethonium does not potentiate or act synergistically with ether or any of the commonly employed anesthetic agents. No cumulative effects are noted after repeated administration; on the contrary, tachyphylaxis (decreased effectiveness with repeated administration of the same dose) has been observed.

Decamethonium bromide effectively produces muscle relaxation during surgical procedures carried out with the patient under general anesthesia. The drug also is useful for facilitating endotracheal intubation or as an adjunct in electroconvulsive therapy.

Respiratory depression, which can occur after the administration of all myoneural blocking agents, is also a potential danger with decamethonium, especially in the deeper planes of anesthesia. Current evidence indicates that both the morbidity and mortality associated with the use of decamethonium and tubocurarine are identical. The anticholinesterases and edrophonium chloride are of no value as antagonists to overdosage; therefore, it is essential that facilities for controlled respiration and oxygen administration be immediately available when the drug is used.

Dosage.—Decamethonium bromide is administered by single intravenous injection, which may be repeated as necessary. Since the drug is miscible with thiopental sodium, it is sometimes administered in combination with this agent for the induction of anesthesia. The response to decamethonium varies greatly from patient to patient. Doses that are suboptimal for some may cause respiratory depression in others; therefore, dosage must be individually determined. The usual dose varies from 0.5 to 3 mg., depending on the individual response and the degree of relaxation desired. The response to the drug is quite reproducible in a given patient from day to day.

Preparations for use as stated for the foregoing drug are marketed under the following name: Syncurine.

Burroughs Wellcome & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of decamethonium bromide.

Use of Bethanechol Chloride for Paralytic Ileus and Urinary Retention After Ganglionic Blockade

The Council has evaluated the additional use of the parasympathomimetic (cholinergic) agent bethanechol chloride for the treatment of paralytic ileus and urinary retention caused by the parasympatholytic action of certain ganglionic blocking agents used in the treatment of hypertension. These complications can result from hypersensitivity to the drugs, overdosage, or, in the case of ileus, inadequate dietary and/or laxative management. Bethanechol previously has been described as useful for the treatment of postoperative abdominal distention and paralytic ileus, and also for neurogenic atony of the urinary bladder with retention. On the basis of currently available information, the Council further concluded that it is helpful in aborting or relieving intestinal stasis and urinary retention caused by ganglionic blockade. The blocking agents against which it is useful include the salts of hexamethonium and mecamylamine hydrochloride. Whenever possible, cholinergic therapy with bethanechol chloride should be initiated before the appearance of acute symptoms.

For these indications, bethanechol chloride may be administered orally, sublingually, or subcutaneously (never intramuscularly or intravenously), the oral or sublingual route being preferred unless symptoms are unusually severe. Dosage must be individualized according to severity of symptoms and degree of response. The administration of 10 mg. orally or sublingually three times daily appears to be the most commonly employed dosage. The usual subcutaneous dose is 5 mg.; however, since some patients may experience side-effects and respond to as little as 2.5 mg., the latter should be used as an initial parenteral dose and the minimum effective dose determined for each patient by observing the response to injections at intervals of 15 to 30 minutes.

The Council voted to amend New and Nonofficial Remedies to describe this additional use of bethanechol chloride.

Merck Sharp & Dohme, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of the use of bethanechol chloride for paralytic ileus and urinary retention after ganglionic blockade.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
Edited Under the Direction of the Board of Trustees

Editor and Managing Publisher . . AUSTIN SMITH, M.D.
Associate Editor . . . . JOHNSON F. HAMMOND, M.D.
Assistant Editors . . . . WAYNE G. BRANDSTADT, M.D.
FREDERICK T. JUNG, M.D.
EDWARD R. PINCKNEY, M.D.
Assistant to the Editor . . . . MILTON GOLIN
Editor for Medical Literature Abstracts . . GEORGE HALPERIN, M.D.

Subscription price . . *Fifteen dollars per annum in advance*
Cable Address . . . . "Medic, Chicago"

PRURITUS ANI

Although often considered a minor ailment, especially by those not afflicted with it, pruritus ani is at best a source of great annoyance and embarrassment and at worst may become so distracting as to result in suicide. Because the perianal skin is rich in sensory nerve endings, it is particularly liable to itching. If the itching is persistent, progressive skin changes leading to lichenification occur. According to Fromer,[1] pruritus is a modified sensation of pain and, although produced by a weaker stimulus than pain, it may be more intolerable than the pain produced by a stronger stimulus. This is the basis for scratching, which by denuding the skin substitutes tolerable pain for itching. There is some question as to whether an idiopathic form of pruritus ani exists or whether all perianal itching is secondary to some cause that in the idiopathic case is not readily discoverable. Copland[2] has classified the known causes as intestinal parasites; fungi; psychosomatic conditions associated with nervous tension; digestive disorders; vitamin deficiency; menopause; diabetes; local diseases of the anus, rectum, vagina, and vulva; and allergy. Food allergies and direct contact with various irritants are hard to rule out. Sulfonamides, antibiotics, and local anesthetics of the "caine" type are highly sensitizing in some patients. Psychosomatic influences may be contributory, but Fromer does not believe they are directly causal.

Before any rational treatment can be prescribed, a thorough search should be made for the cause. When a local anorectal disease such as a draining sinus, hemorrhoidal prolapse, or anal fissure appears to be the cause, surgical intervention is indicated. Scratching and the previous application of various drugs often confuse the picture and make this more difficult. Rath[3] recommends avoiding soap (except castile), cleansing the area with clear water, and drying with soft tissue. Frykman[4] advocates applying petroleum jelly before bathing to prevent maceration of the skin. After a bowel movement soft tissue should be used. If the patient is forced at times to use hard or rough toilet paper, he should rumple it thoroughly and moisten it before using. Better yet, he should carry soft tissue with him. Although all authorities admonish patients against scratching, this is exceedingly difficult in practice; even if the patient controls the impulse to scratch when he is awake, there is no assurance that he will not scratch during sleep. Keeping the fingernails clean and short will help to prevent infection and undue trauma. Tight clothing should be avoided, especially in hot weather, as anything that inhibits free evaporation of perspiration may aggravate the condition. Fromer states that direct relief of itching is difficult but that relief may be obtained indirectly by substituting a sensation of pain, heat, or cold. For therapeutic purposes cold is best and may be effected through the use of wet dressings. Care must be taken, however, to avoid using them to the point of macerating the skin. Leifer[5] states that if the itching has been aggravated by inept or injudicious treatment the physician must forget the cause of the itching and treat the skin until the dermatitis is under control.

It is important also to consider the state of mind of the patient, because this disease may destroy morale and produce profound depression or drive the patient into complete seclusion. It may be necessary to prescribe salicylates or barbiturates. Morphine should be avoided, but if the patient's morale is low one of the new tranquilizers may help. Spiced foods and alcohol should be avoided, and Frykman[4] advocates taking buttermilk, cottage cheese, and acidophilus tablets. Various local applications have been used with moderate success, notably 0.5% menthol and/or 0.5% phenol in a lotion or greaseless cream. Local application of local anesthetics has no effect, because these drugs do not penetrate the unbroken skin. Antihistamines likewise are of no value when applied locally. With the discovery of hydrocortisone a great advance was made in the treatment of this condition. After the patient obtains initial relief from the application of a 1 or 2% hydrocortisone ointment, this treatment should be continued for about 10 days. Apparently a few patients can taper off such treatment and have no recurrence, but in most patients the treatment is an effective means of symptomatic relief rather than a cure[6] and in a few the effectiveness of the treatment is quickly dissipated. The effect is sometimes enhanced by giving corticotropin or cortisone by mouth. Frank and Stritzler[7] observed that the results with the topical application of a 0.25% prednisolone ointment were good but inferior to those with hydrocortisone. According to Turell,[6] steroid hormones suppress itching if it is accompanied by cutaneous changes but not if it is caused by diarrhea, antibiotic treatment, or irritating anorectal discharges. When other methods of local treatment have failed, irradiation with grenz rays may be tried. These rays are not so likely to harm the reproductive cells as are x-rays. Although some physicians still advocate alcohol injection with or without an undercutting operation (neurotomy) in the treatment of obstinate cases, others have abandoned such procedures because they have found the results to be temporary and recurrence the rule.

---

1. Fromer, J. L.: Dermatologic Concepts and Management of Pruritus Ani, Am. J. Surg. 90:805-815 (Nov.) 1955.
2. Copland, S. M.: *Pruritus Ani*, Ohio M. J. 51:662-665 (*July*) 1955.
3. Rath, C. K.: Pruritis Ani, J. Tennessee M. A. 48:85-89 (March) 1955.
4. Frykman, H. M.: Anal Pruritus, Minnesota Med. 38:19-27 (Jan.) 1955.
5. Leifer, W.: Pruritus Ani, S. Clin. North America *35:1479-1482 (Oct.) 1955.*
6. Turell, R.: Hydrocortisone Therapy in Control of Anogenital Pruritus: Preliminary Report, J. A. M. A. **158**: 173-175 (May 21) 1955.
7. Frank, L., and Stritzler, C.: Prednisolone Topically and Systemically A. M. A. Arch. Dermat. **72**: 547-549 (Dec.) 1955.

WELCOME TO SEATTLE

Seattle has been said to be the most beautiful city in America and the largest city of its age (87 years) in the world. These complimentary statements are especially inviting to physicians and their families to attend the Clinical Session of the American Medical Association Nov. 27-30. The beauty of Seattle stems in part from its location on a series of hills overlooking a wealth of waterways, creating superb scenic drives, while the nearby sprawling forest provides a pleasant fragrance of Douglas fir. Here is a labyrinth of lakes, bays, canals, bridges, and beaches. About the city is a majestic natural framework of mountains, lakes, bays, and beaches. To the south is Mount Rainier, whose white glaciers shimmer in the distance the year around. To the north and east are the Cascade mountains and towering Mount Baker, and to the west are the snow-capped Olympics silhouetted by the setting sun. Truly, nature's splendor here has reached its height.

Seattle, which has been called the "City on Water," lies between the salt waters of Puget Sound and the 24-mile long fresh waters of Lake Washington, and these two great bodies of water are linked by Lake Union and the ship canal. Salt water and fresh water beaches beckon on every hand, while pleasure boats go by. As Seattle has more small-craft ownership per capita than any other city, sailing regattas and boating thrill skippers and spectators alike. To those who love the sea, Seattle offers enchanted hours. Ships from many nations unload cargoes from faraway ports. Ferryboats fan out in all directions. Elliott Bay, the natural harbor, is just 125 miles from the Pacific Ocean and is the closest large American port to Alaska and to the markets of the Orient. Seattle is 111 miles south of the Canadian border, 692 miles from San Francisco, and 1,753 miles from Chicago. Its outer and inner harbors total 197 miles of water front.

Educational and Cultural Institutions

The 600-acre campus of the University of Washington in Seattle, in a setting on the shore of Lake Washington and Lake Union, is one of the largest in the United States. The new university buildings and those of the medical school blend with these beautiful surroundings. In the Seattle Art Museum are outstanding collections, including European and American art and priceless Chinese jades. The Washington State Museum features Northwest Indian art and culture, animals, and a world-renowned rock collection. The Henry Art Gallery shows frequently changing exhibits of contemporary paintings, sculpture, printmaking, and the crafts. The Arboretum is a unique park of 267 acres with more than 2,000 species of trees, shrubs, and plants from all over the world. There is also the Frye Art Museum.

The Seattle Symphony Orchestra, which brings the best in music to local schools and to families through neighborhood concerts, has received national recognition through radio and television broadcasts. Interest in music is widespread in Seattle, and leading artists present concerts sponsored by various groups throughout the year. Amateur theatricals flourish, and the university's Penthouse and Show Boat Theatres provide opportunities for professional training and contribute to the entertainment offered by the legitimate theaters.

Seattle's Public Library has almost a million books and is close to the everyday life of the citizens. In addition to the central library downtown, there are 15 branch libraries, 2 mobile branches, a library for the blind, and 9 deposit stations. About 3,420,000 volumes circulate during the year for home reading. Seattle is a city of home owners, with 70% owner-occupied dwellings, many with beautiful gardens.

Churches and Hotels

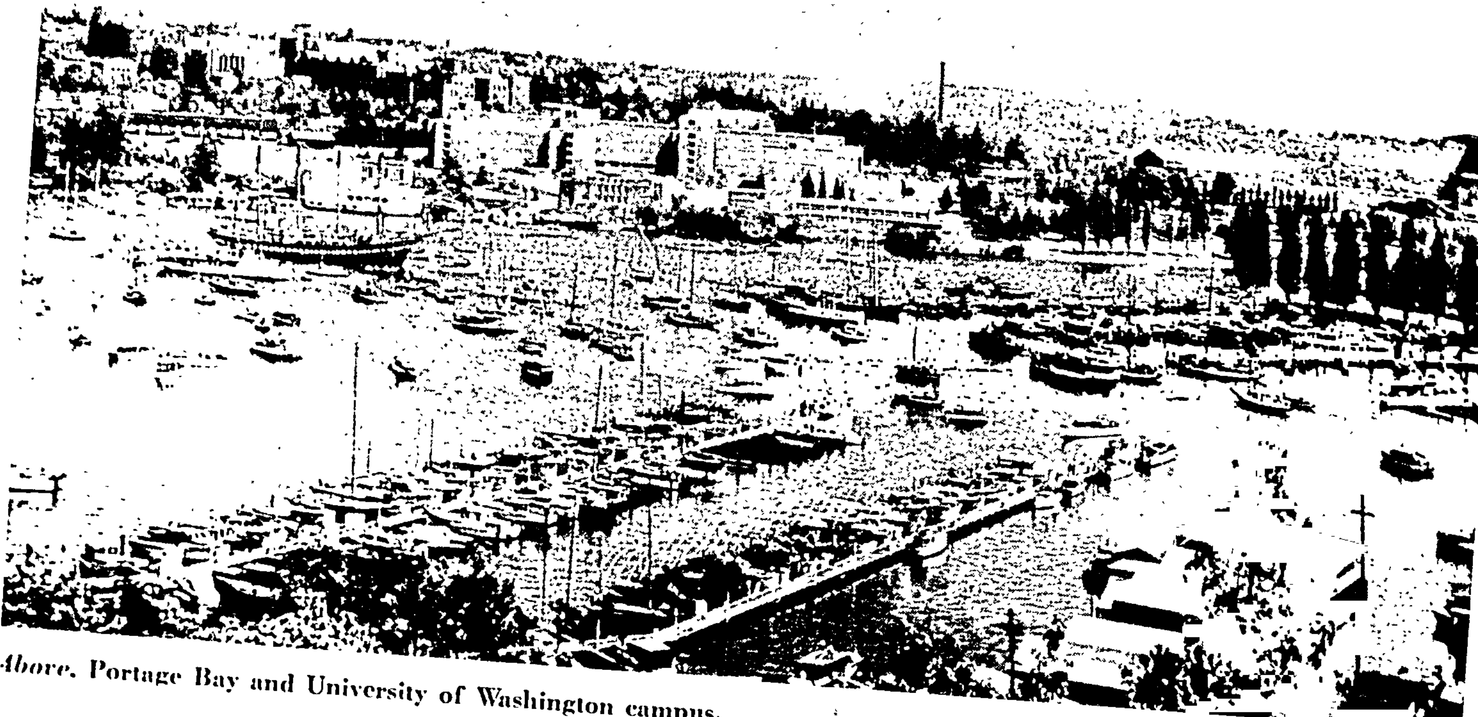
Seattle has 428 churches including all major denominations. Recently a great church-building boom has given the city many handsome new edifices. There are 425 hotels and motels where the rates charged are suited to every budget. Experts are said to rate Seattle in the top ten restaurant cities. Specialty eating places offer a variety of culinary attractions. Fresh seafood and the fresh fruits, vegetables, and dairy products produced in this area aid in this high rating.

Transportation Facilities

Four transcontinental railroads—the Union Pacific, the Northern Pacific, the Great Northern, and the Chicago, Milwaukee, and St. Paul—serve Seattle, as do more than 100 motor freight lines and two motor coach lines. Seattle is easily accessible by automobile; U. S. 88, the Pacific Coast Highway, and U. S. 10, the main North-West highway, pass through the city; and ferries connect it with many islands in Puget Sound and Victoria, B. C., Canada. The largest floating structure in the world, Lake Washington's floating bridge, spans the lake from Seattle to Mercer Island, and preliminary surveys are under way for a floating bridge across Puget Sound. Plans are being drawn for a second floating bridge across Lake Washington.

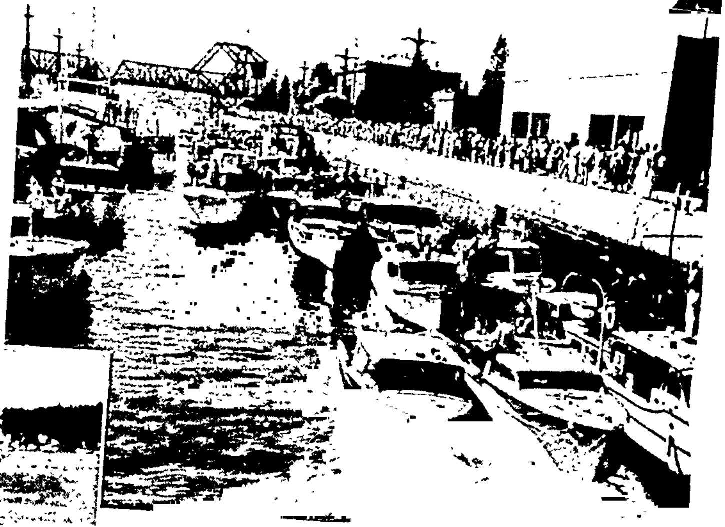
Climate

The summers are cool, the winters mild, and the air is clear, clean, and healthy. The average summer temperature is about 64 degrees and the average winter temperature about 43 degrees. The average annual rainfall is 32 in., which is 10 less than that of New York City, 6 less than that of St. Louis, and 31 less than that of New Orleans. Most of Seattle's rain falls in December and the least in July. Lying between two mountain ranges, Seattle is protected against climatic extremes, and it is close enough to the Pacific Ocean to enjoy the warm sea breezes. An author is said to have written that "Seattle's climate is air-conditioned, blending the air of mountain, sea, and forest."

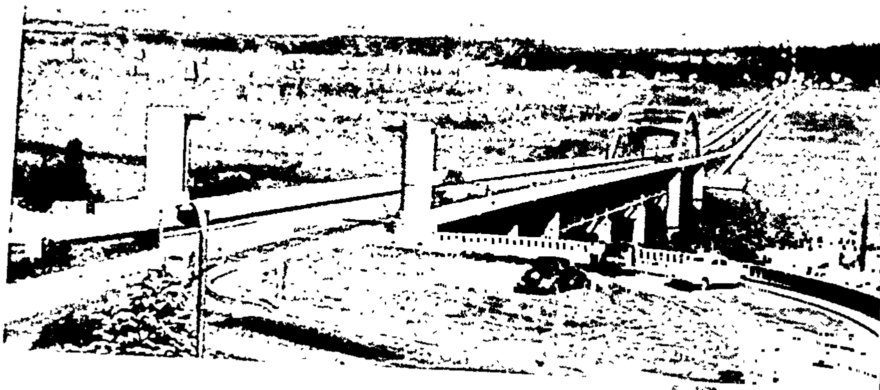


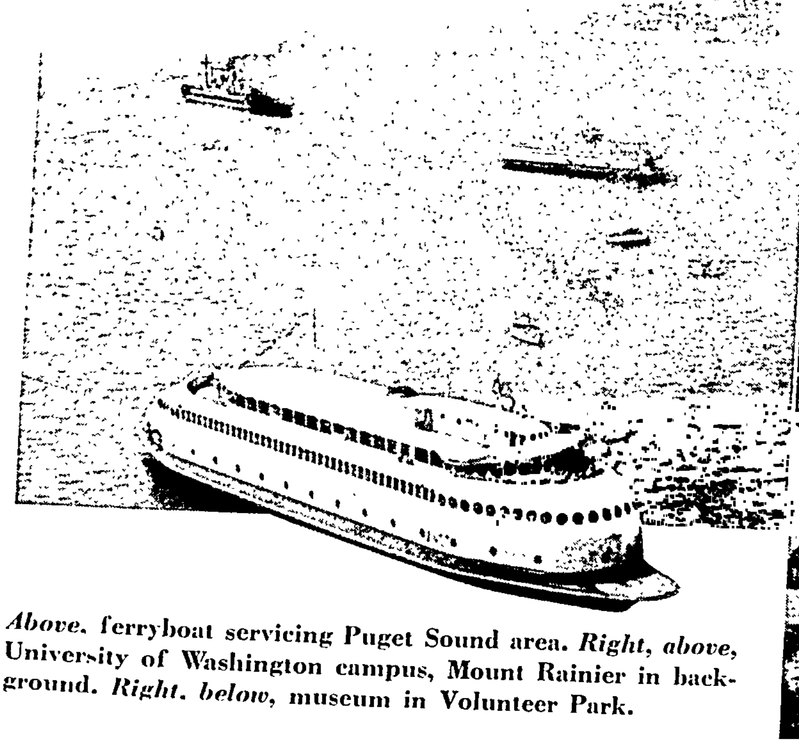
Above. Portage Bay and University of Washington campus.

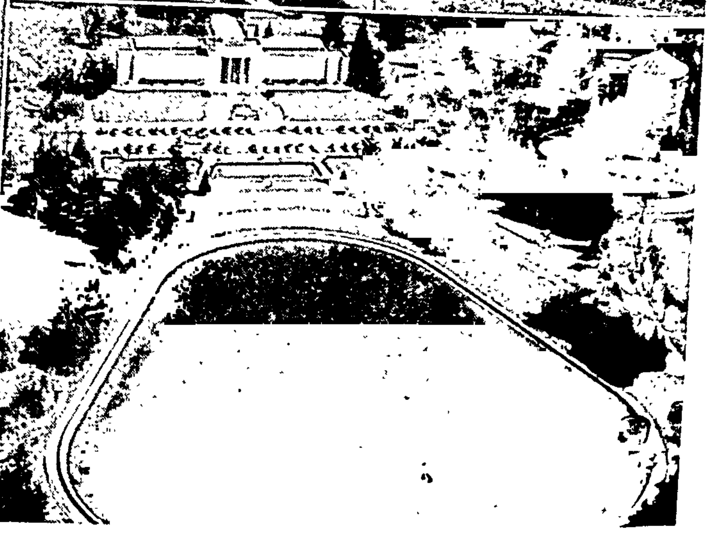
Right. U. S. government locks on ship canal between Puget Sound and Lake Union.



Below. Lake Washington Floating Bridge.

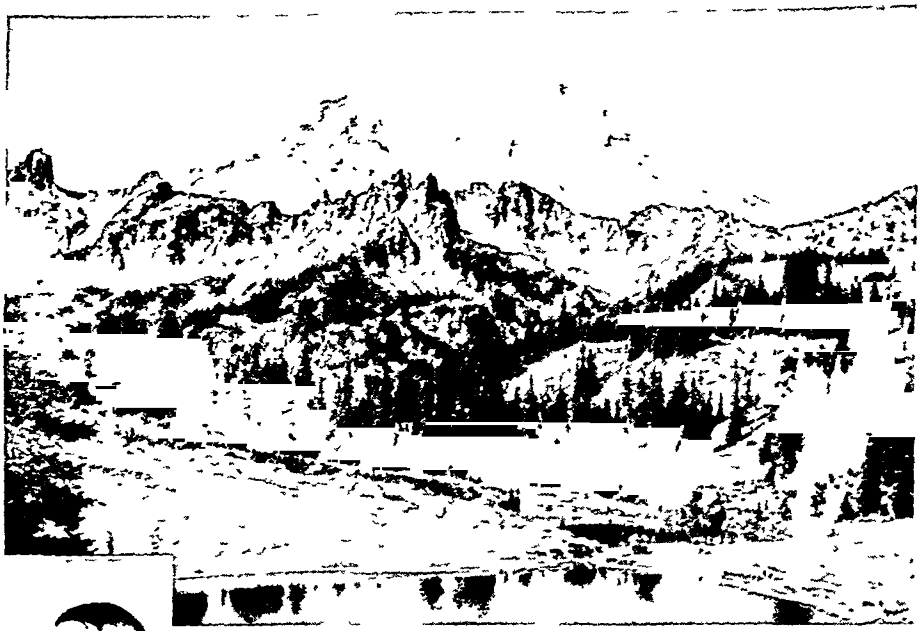






Above. ferryboat servicing Puget Sound area. *Right, above,* University of Washington campus, Mount Rainier in background. *Right, below,* museum in Volunteer Park.

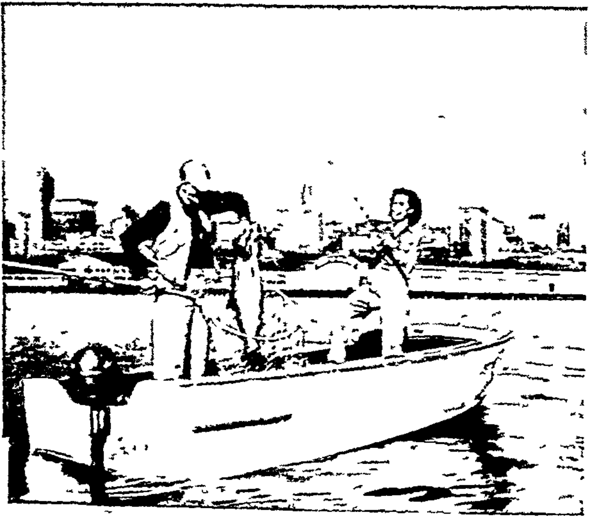
Mount Rainier, 14,408 ft., is in a nearby national park accessible by modern roads.



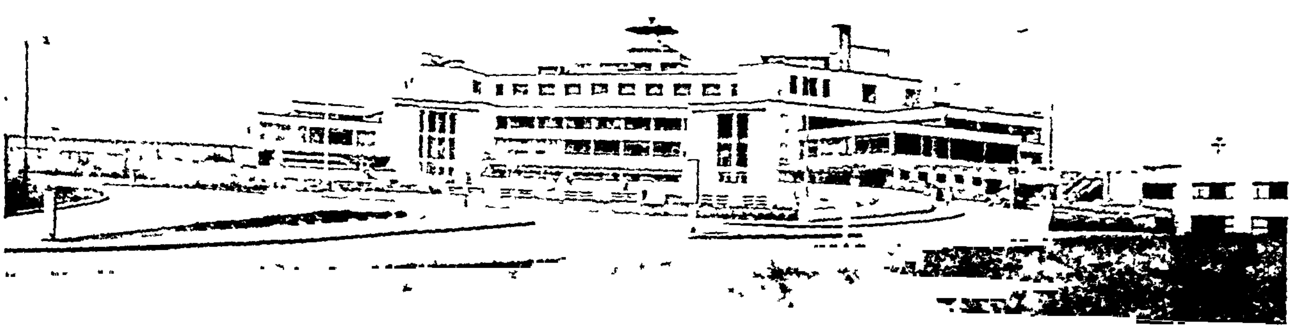
Below, Alphonse McMahon of St. Louis *(center)*, Chairman of the A. M. A. Council on Scientific Assembly, discussing plans for Seattle Clinical Session with M. Shelby Jared *(left)*, General Chairman, and Hale Haven, Scientific Program Chairman.

Below, left, water front showing Alaskan Way Viaduct and Smith Tower, Seattle's tallest building.

Below, salmon caught in Elliott Bay.



Below, Seattle-Tacoma Airport.



THE CLINICAL MEETING

AMERICAN MEDICAL ASSOCIATION

Seattle, Nov. 27-30, 1956

OFFICIAL CALL

TO THE OFFICERS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The Clinical Meeting of the American Medical Association will be held in Seattle, Nov. 27-30, 1956.

The House of Delegates will convene at 10 a. m., Tuesday, Nov. 27, in the Spanish Ballroom of the Olympic Hotel. In the House the representation of the various constituent associations for the clinical meeting in 1956 is as follows:

Alabama	2	Maine	1
Alaska	1	Maryland	2
Arizona	1	Massachusetts	6
Arkansas	2	Michigan	6
California	14	Minnesota	4
Colorado	2	Mississippi	2
Connecticut	3	Missouri	4
Delaware	1	Montana	1
District of Columbia	2	Nebraska	2
Florida	3	Nevada	1
Georgia	3	New Hampshire	1
Hawaii	1	New Jersey	6
Idaho	1	New Mexico	1
Illinois	10	New York	18
Indiana	4	North Carolina	3
Iowa	3	North Dakota	1
Isthmian Canal Zone	1	Ohio	8
Kansas	2	Oklahoma	2
Kentucky	2	Oregon	2
Lousiana	2		

Pennsylvania	11	Utah	1
Puerto Rico	1	Vermont	1
Rhode Island	1	Virginia	2
South Carolina	2	Washington	3
South Dakota	1	West Virginia	2
Tennessee	3	Wisconsin	4
Texas	7	Wyoming	1

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy, the Medical Corps of the Air Force, the Public Health Service, and the Veterans Administration are entitled to one delegate each.

The scientific meetings and the scientific and technical exhibits will be held in the Civic Auditorium.

The Opening General Assembly will start at 9:30 a. m., Tuesday, Nov. 27.

The Scientific Program will open Tuesday, Nov. 27, starting at 10:30 a. m., and will continue throughout the afternoon of that day. The program will continue on Wednesday and Thursday mornings and afternoons, Nov. 28 and 29, and on Friday morning, Nov. 30, closing at 12 noon.

The Registration Bureau, which will be located in the Civic Auditorium, will be open from 8:00 a. m. until 5:30 p. m., Tuesday, Nov. 27, from 8:30 a. m., to 5:30 p. m., Wednesday, and Thursday, Nov. 28 and 29, and from 8:30 a. m. to 12:00 noon, Friday, Nov. 30.

Dwight H. Murray, President.
E. Vincent Askey, Speaker, House of Delegates.
George F. Lull, Secretary.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION, 1956-1957

President—Dwight H. Murray, Napa, Calif.

President-Elect—David B. Allman, Atlantic City, N. J.

Vice President—F. S. Crockett, West Lafayette, Ind.

Secretary and General Manager—George F. Lull, Chicago.

Assistant Secretary—Ernest B. Howard, Chicago.

Treasurer—J. J. Moore, Chicago.

Speaker, House of Delegates—E. Vincent Askey, Los Angeles.

Vice Speaker, House of Delegates—Louis M. Orr, Orlando, Fla.

Editor—Austin Smith, Chicago.

Business Manager—Mr. Thomas R. Gardiner, Chicago.

Board of Trustees—J. R. Reuling, Windermere,
Fla., 1957; J. R. McVay, Kansas City, Mo.,
1957; E. S. Hamilton, Kankakee, Ill., 1958; G.
Gundersen, Chairman, La Crosse, Wis., 1958;
H. H. Hussey, Washington, D. C., 1959; F. J.
L. Blasingame, Wharton, Texas, 1959; L. W.
Larson, Bismarck, N. D., 1960; T. P. Murdock,
Meriden, Conn., 1960; J. P. Price, Florence,
S. C., 1961, the President; the President-Elect;
and, ex officio, the Vice President, Treasurer,
Speaker and Vice Speaker of the House of
Delegates.

STANDING COMMITTEES OF THE HOUSE OF DELEGATES

Judicial Council—H. L. Pearson Jr., Chairman,
Miami, Fla., 1957; G. A. Woodhouse, Pleasant
Hill, Ohio, 1958; J. M. Hutcheson, Richmond,
Va., 1959; L. A. Buie, Rochester, Minn., 1960;
R. Ward, San Francisco, 1961; G. F. Lull,
Secretary, Chicago.

Council on Medical Education and Hospi-
tals—F. D. Murphy, Lawrence, Kan., 1957;
H. G. Weiskotten, Chairman, Skaneateles,
N. Y., 1957; V. Johnson, Rochester, Minn.,
1958; L. S. McKettrick, Brookline, Mass.,
1958; C. T. Stone Sr., Galveston, Texas, 1959;
W. A. Bunten, Cheyenne, Wyo., 1959; J. M.
Faulkner, Cambridge, Mass., 1960; H. English,
Danville, Ill., 1960; G. A. Caldwell, New
Orleans, 1961; J. W. Cline, San Francisco,
1961; E. L. Turner, Secretary, Chicago.

Council on Medical Service—R. L. Novy, De-
troit, 1957; R. B. Chrisman Jr., Coral Gables,
Fla., 1958; J. F. Burton, Oklahoma City, 1958;
J. D. McCarthy, Chairman, Omaha, 1959; J.
Lafe Ludwig, Los Angeles, 1959; H. B. Mul-
holland, Charlottesville, Va., 1960; R. M. Mc-
Keown, Coos Bay, Ore., 1960; C. E. Wertz,
Buffalo, 1961; T. J. Danaher, Torrington,
Conn., 1961; Mr. T. A. Hendricks, Secretary,
Chicago.

Council on Constitution and Bylaws—W. W.
Furey, Chicago, 1957; S. H. Osborn, Hart-
ford, Conn., 1958; F. S. Winslow, Rochester,
N. Y., 1959; B. S. Pickett Sr., Chairman, Car-
rizo Springs, Texas, 1960; Walter E. Vest,
Huntington, W. Va., 1961; the President, and
the Speaker and Vice Speaker of the House of
Delegates.

STANDING COMMITTEES OF THE BOARD OF TRUSTEES

Council on Pharmacy and Chemistry—E. M.
K. Geiling, Chicago, 1956; E. M. Nelson,
Washington, D. C., 1956; H. K. Beecher, Bos-
ton, 1956; T. Sollmann, Chairman, Cleveland,
1957; J. P. Leake, Washington, D. C., 1957;
A. C. Curtis, Ann Arbor, Mich., 1957; W. C.
Cutting, San Francisco, 1958; O. O. Meyer,
Madison, Wis., 1958; M. H. Seevers, Ann
Arbor, Mich., 1958; T. M. Brown, Washing-
ton, D. C., 1958; J. Stokes Jr., Philadelphia,
1959; P. H. Long, Brooklyn, 1959; W. G.
Workman, Bethesda, Md., 1959; H. Eagle,
Bethesda, Md., 1959; C. A. Dragstedt, Chi-
cago, 1960; I. Starr, Philadelphia, 1960; J. M.
Hayman, Boston, 1960; H. D. Kautz, Secretary,
Chicago.

Council on Scientific Assembly—M. E. De-
Bakey, Houston, Texas, 1956; S. P. Newman,
Denver, 1957; J. R. McVay, Kansas City, Mo.,
1957; H. R. Viets, Brookline, Mass., 1958; C.
H. Phifer, Chicago, 1958; S. P. Reimann,
Philadelphia, 1959; A. McMahon, Chairman,
St. Louis, 1959; L. W. Larson, Bismarck,
N. D., 1960; C. A. Lincke, Carrollton, Ohio,
1960; T. G. Hull, Secretary, Chicago.

Council on Medical Physics—F. H. Krusen,
Chairman, Rochester, Minn.; H. H. Reese,
Madison, Wis.; G. J. Thomas, Pittsburgh; A.
Blalock, Baltimore; R. H. Chamberlain, Phila-
delphia; G. E. Wakerlin, Chicago; M. R. Mo-
bley, Florence, S. C.; W. B. Allan, Baltimore;
F. C. Bost, San Francisco; S. Warren, Boston;
D. Vail, Chicago; A. C. Cipollaro, New York;
O. Glasser, Cleveland; R. E. DeForest, Secre-
tary, Chicago.

Council on Foods and Nutrition—R. Jackson,
Columbia, Mo., 1956; G. R. Cowgill, Hamden,
Conn, 1956; W. H. Griffith, Los Angeles,
1957; W. J. Darby, Nashville, Tenn., 1958;
C. A. Elvehjem, Madison, Wis., 1958; J. B.
Youmans, Nashville, Tenn., 1958; L. A. May-
nard, Ithaca, N. Y., 1959; C. A. Goldsmith,
New Orleans, 1959; C. S. Davidson, Chairman,
Boston, 1959; C. A. Smith, Boston, 1960; D. B.
Hand, Geneva, N. Y., 1960; P. L. White, Sec-
retary, Chicago.

Council on Industrial Health—W. P. Shep-
ard, Chairman, New York, 1956; M. N. New-
quist, New York, 1956; P. S. Richards, Salt
Lake City, 1957; J. H. Sterner, Rochester,
N. Y., 1957; R. T. Johnstone, Los Angeles,

1958; L. C. McGee, Wilmington, Del., 1958; C. F. Shook, Toledo, Ohio, 1958; J. N. Gallivan, East Hartford, Conn., 1959; V. C. Baird, Houston, Texas, 1959; O. A. Sander, Milwaukee, 1959; R. A. Kehoe, Cincinnati, 1960; E. S. Jones, Hammond, Ind., 1960; B. D. Holland, Secretary, Chicago.

Council on National Defense—S. L. Warren, Los Angeles, 1956; H. B. Wright, Cleveland, 1956, R. A. Benson, Bremerton, Wash., 1957; P. H. Long, Brooklyn, 1957; R. L. Sensenich, South Bend, Ind., 1958; H. C. Lueth, Evanston, Ill., 1958; H. S. Diehl, Chairman, Minneapolis, 1959; R. L. Meiling, Columbus, Ohio, 1959; C. P. Hungate, Kansas City, Mo., 1960, W. B. Martin, Norfolk, Va., 1960; Mr. F. W. Barton, Secretary, Chicago.

Council on Rural Health—A. T. Stewart, Lubbock, Texas, 1956; C. B. Andrews, Sonoma, Calif., 1956; W. J. Weese, Ontario, Ore., 1957; W. A. Wright, Williston, N. D., 1957; F. S. Crockett, Chairman, Lafayette, Ind., 1958; G. F. Bond, Bat Cave, N. C., 1958; C. S. Mundy, Toledo, Ohio, 1959, C. R. Henry, Little Rock, Ark., 1959; F. A. Humphrey, Ft. Collins, Colo., 1960; N. H. Gardner, E. Hampton, Conn., 1960; Mrs. A. Hibbard, Secretary, Chicago.

Council on Mental Health—H. T. Carmichael, Chicago, 1956; M. R. Kaufman, New York, 1957; L. H. Bartemeier, Chairman, Baltimore, 1958; W. H. Baer, Peoria, Ill., 1958; F. J. Gerty, Chicago, 1958, L. H. Smith, Philadelphia, 1959; G. E. Gardner, Boston, 1959; F. M. Forster, Washington, D. C., 1960; R. J. Plunkett, Secretary, Chicago.

Committee on Legislation—J. R. Reuling, Chairman, Windermere, Fla., 1956; M. L. Phelps, Denver, 1956; F. C. Coleman, Des Moines, Iowa, 1957; J. E. McDonald, Tulsa, Okla., 1957; D. G. Smith, Nashua, N. H., 1958; H. English, Danville, Ill., 1958; C. Bailey, Harlan, Ky., 1959; C. L. Palmer, Harrisburg, Pa., 1959; R. B. Chrisman Jr., Coral Gables, Fla., 1960; J. L. Ludwig, Los Angeles, 1960; J. R. McVay, Kansas City, Mo.; Mr. R. G. Van Buskirk, Secretary, Chicago.

The Secretary, Assistant Secretary and Editor are ex officio members of all Standing Committees.

REGISTRATION

The Registration Bureau will be located at the main entrance to the Civic Auditorium on Third Avenue, North, and will be open all day Tuesday, Wednesday, and Thursday, Nov. 27, 28, and 29, and until noon on Friday, Nov. 30.

An information bureau will be operated in connection with the Registration Bureau.

Who May Register

Members—Active, Affiliate, Associate, Service, and Honorary—and invited guests may register for attendance at meetings.

Active members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrollment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations and who have paid their annual American Medical Association membership dues, which this year are $25, to be paid through their constituent medical associations.

Residents, interns, senior medical students, and registered nurses will find special registration cards to fill in on tables near the registration windows. These should be presented, at the window indicated, together with a card or letter signed by the superintendent of the hospital where they are located, or the dean of the medical school they attend.

Register Early

The Registration Bureau will be open at 8:00 a. m., on Tuesday, Nov. 27. Members are urged to take advantage of this early opening.

The names and Seattle addresses of those who register will be included in the *Daily Bulletin*, and this will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Members who have Advance Registration Cards with pocket cards can be registered with little or no delay. They should fill in the following information on the cards prior to their registration:

Hotel, number of guests, and signature.

Present filled in card with your American Medical Association Membership pocket card at windows marked "Advance Registration." Your pocket card will be returned to you, and you will receive a badge and a copy of the Official Program.

Members without Advance Registration Cards will be given blank cards to fill out, and clerks will be on hand to direct them to the proper windows for registering. They will receive a badge and a copy of the Official Program.

Registration for General Officers and Delegates at the Olympic Hotel

General officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly at the entrance to the Spanish Ballroom at the Olympic Hotel. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Tuesday morning at 10 o'clock in the Spanish Ballroom of the *Olympic Hotel. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration* of delegates for the Scientific Assembly will begin at 8 o'clock Tuesday morning, Nov. 27, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

If any delegate or officer is in Seattle on Sunday or Monday, Nov. 25 or 26, he may register for the Scientific Assembly in the Secretary's Office.

Registration for Lay Executive Secretaries

Lay executive secretaries of component and constituent associations may register any time Sunday or Monday, Nov. 26 or 27, or any time *after 12 noon* Tuesday, Nov. 27, during the week of the session in the Secretary's Office.

TRANSPORTATION

Railroad or Air Travel

It is suggested that those physicians who contemplate traveling to Seattle to attend the Clinical Meeting of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in position to give them information regarding train or plane schedules and fares. Since the meeting is being held close to the Thanksgiving holiday, when travel by all means of transportation will be heavy, reservations should be made promptly.

POST-CONVENTION TOURS

Two post-convention tours to Hawaii are being offered. Complete information concerning these may be obtained from the following persons: Mr. William J. Glennon, Glennon-Kirkland & Associates, 30 North LaSalle, Room 1105, Chicago, Illinois, and Mr. Ralph Neill, Washington State Medical Association, 1309 Seventh Avenue, Suite 201, Seattle 1, Washington.

SEATTLE HOTELS

If hotel reservations have not yet been secured by physicians other than delegates or officers of the Association who expect to attend the Seattle meeting, it is suggested that such physicians fill in and send directly to Chairman, A. M. A. Housing Committee, 40 Seattle Hotel Association, 315 Seneca St., Seattle, Wash., the application form which may be found on advertising page 153 of this issue of The Journal. Please do *not* send applications for hotel reservations to the American Medical Association offices in Chicago. The Seattle Hotel Association is assisting the Housing Committee of the Local Committee on Arrangements.

MEETING PLACES

(See the map of Seattle on advertising page 153 in this issue of The Journal.*)*

General Headquarters, Registration Bureau, Scientific Exhibit, Technical Exhibits, and Information Bureau: Civic Auditorium.

House of Delegates: Spanish Ballroom, Olympic Hotel.
Scientific Meetings: Civic Auditorium.

The Civic Auditorium is located at Third Avenue, North, and Mercer Street.

LOCAL COMMITTEE ON ARRANGEMENTS

General Chairman

M. Shelby Jared

State Chairmen

Alexander Barclay Jr., Idaho
Richard R. Carter, Oregon
John A. Layne, Montana
Robert B. Wilkins, Alaska

Subcommittee on Scientific Program

Hale Haven, Chairman
John R. Hogness
David Metheny
Frederic Moll

Subcommittee on Television

F. A. Tucker, Chairman
Dean Crystal
Paul Rollins
Homer Hartzell
Bruce Zimmerman

Subcommittee on Housing and Transportation

Wilbur E. Watson, Chairman

Subcommittee on Entertainment

Sydney J. Hawley, Chairman
Rodney B. Hearne
Ole Jensen
A. G. Young

Subcommittee on Publicity

Eric R. Sanderson, Chairman

HOUSE OF DELEGATES

The House of Delegates will meet at 10 a. m. Tuesday, Nov. 27, 1956, in the Spanish Ballroom of the Olympic Hotel.

The Reference Committee on Credentials will meet near the entrance to the Spanish Ballroom at 8:30 a. m., Tuesday, Nov. 27, 1956. Credentials should be presented to the Reference Committee on Credentials as early as possible, so that the official roll of the House may be made up and so that the House of Delegates may organize promptly and proceed with its business. The Reference Committee on Credentials will also meet preceding each subsequent meeting of the House of Delegates.

Each delegate should present properly executed credentials signed by the president or secretary of the constituent association or by the chairman or secretary of the section he represents. Alternates presenting credentials should see that the delegates whose places they are to take have signed the alternate authorization.

Each delegate, *before* registering with the Reference Committee on Credentials, should register for the Scientific Assembly at a desk near the entrance to the Spanish Ballroom. Rooms have been provided for the use of committees of the House of Delegates. Reference committees must have their meetings in these rooms and announce the time of their meetings, so that any who are interested in referred matters may be able to appear before the committees.

Typists will be at the service of the members of the House of Delegates for preparing official reports, resolutions, and motions in the Secretary's Office, which will be in Rooms 1 and 2 on the floor below the Spanish Ballroom.

MEMBERS OF THE HOUSE OF DELEGATES

A Roster of the Legislative Body of the American Medical Association

DELEGATES FROM CONSTITUENT ASSOCIATIONS

ALABAMA

J. Paul Jones, Camden
E. Bryce Robinson Jr., Fairfield

ALASKA

Milo H. Fritz, Anchorage

ARIZONA

Jesse D. Hamer, Phoenix

ARKANSAS

William R. Brooksher, Fort Smith
Rufus B. Robins, Camden

CALIFORNIA

Lewis A. Alesen, Los Angeles
E. Vincent Askey, Los Angeles
Cyril J. Attwood, Oakland
Donald Cass, Los Angeles
Paul D. Foster, Los Angeles
Leopold H. Fraser, Richmond
John Winston Green, Vallejo
Eugene F. Hoffman, Los Angeles
R. Stanley Kneeshaw, San Jose
J. Lafe Ludwig, Los Angeles
Frank A. MacDonald, Sacramento
Sam J. McClendon, San Diego
Robertson Ward, San Francisco
Dwight L. Wilbur, San Francisco

COLORADO

Edward E. H. Munro, Grand Junction
Kenneth C. Sawyer, Denver

CONNECTICUT

Thomas J. Danaher, Torrington
John N. Gallivan, East Hartford
Stanley B. Weld, Hartford

DELAWARE

H. Thomas McGuire, New Castle

DISTRICT OF COLUMBIA

Raymond T. Holden, Washington
Victor R. Alfaro, Washington

FLORIDA

Reuben B. Chrisman Jr., Coral Gables
Francis T. Holland, Tallahassee
Louis M. Orr, Orlando

GEORGIA

Eustace A. Allen, Atlanta
Spencer A. Kirkland, Atlanta
Charles H. Richardson, Macon

HAWAII

Harry L. Arnold Jr., Honolulu

IDAHO

Hoyt B. Woolley, Idaho Falls

ILLINOIS

Walter C. Bornemeier, Chicago
Everett P. Coleman, Canton
Harlan English, Danville
Warren W. Furey, Chicago
Percy E. Hopkins, Chicago
B. E. Montgomery, Harrisburg
J. Mather Pfeiffenberger, Alton
Charles H. Phifer, Chicago
H. Kenneth Scatliff, Chicago
C. Paul White, Kewanee

INDIANA

Alfred H. Ellison, South Bend
Eli S. Jones, Hammond
Cleon A. Nafe, Indianapolis
Wendell C. Stover, Boonville

IOWA

Francis C. Coleman, Des Moines
Robert N. Larimer, Sioux City
Donovan F. Ward, Dubuque

ISTHMIAN CANAL ZONE

Harry Eno, Cristobal

KANSAS

George F. Gsell, Wichita
Laurence S. Nelson, Salina

KENTUCKY

Clark Bailey, Harlan
W. Vinson Pierce, Covington

LOUISIANA

James Q. Graves, Monroe
Philip H. Jones, New Orleans

MAINE

Martyn A. Vickers, Bangor

MARYLAND

Warde B. Allan, Baltimore
Robert vanLieu Campbell, Hagerstown

MASSACHUSETTS

Lawrence R. Dame, Greenfield
Philip S. Foisie, Milton
Charles G. Hayden, Boston
Henry F. Howe, Cohasset
Nicholas S. Scarcello, Worcester
Norman A. Welch, Boston

MICHIGAN

Wyman D. Barrett, Detroit
John S. DeTar, Milan
Willis H. Huron, Iron Mountain
William A. Hyland, Grand Rapids
Robert L. Novy, Detroit
Clarence I. Owen, Detroit

MINNESOTA

J. Arnold Bargen, Rochester
Orwood J. Campbell, Minneapolis
George A. Earl, St. Paul
Frank J. Elias, Duluth

MISSISSIPPI

John P. Culpepper Jr., Hattiesburg
John F. Lucas, Greenwood

MISSOURI

Arthur S. Bristow, Princeton
Frank L. Feierabend, Kansas City
Durward G. Hall, Springfield
Joseph C. Peden Sr., St. Louis

MONTANA

Raymond F. Peterson, Butte

NEBRASKA

Earl F. Leininger, McCook
Joseph D. McCarthy, Omaha

NEVADA

Wesley W. Hall, Reno

NEW HAMPSHIRE

Deering G. Smith, Nashua

NEW JERSEY

C. Byron Blaisdell, Asbury Park
William F. Costello, Dover
Aldrich C. Crowe, Ocean City
J. Wallace Hurff, Newark
L. Samuel Sica, Trenton
Elmer P. Weigel, Plainfield

NEW MEXICO

H Linton January, Albuquerque

NEW YORK

A. H Aaron, Buffalo
Walter P. Anderton, New York
R. J. Azzari, Bronx
Herbert H. Bauckus, Buffalo
Peter J DiNatale, Batavia
Gerald D. Dorman, New York
Edward P. Flood, Bronx
Thurman B Givan, Brooklyn
James Greenough, Oneonta
Frederic W. Holcomb, Kingston
J. Stanley Kenney, New York
Charles H. Loughran, Brooklyn
Dan Mellen, Rome
Norman S Moore, Ithaca
Peter M Murray, New York
Carlton E. Wertz, Buffalo
Floyd S. Winslow, Rochester
Ezra A Wolff, Forest Hills

NORTH CAROLINA

Elias S Faison, Charlotte
Millard D. Hill, Raleigh
Charles F. Strosnider, Goldsboro

NORTH DAKOTA

Willard A. Wright, Williston

OHIO

Paul A. Davis, Akron
Carl A. Lincke, Carrollton
Richard L. Meiling, Columbus
Carll S. Mundy, Toledo
L. Howard Schriver, Cincinnati
Clifford C. Sherburne, Columbus
George A. Woodhouse, Pleasant Hill
Herbert B. Wright, Cleveland

OKLAHOMA

John F. Burton, Oklahoma City
Wilkie D. Hoover, Tulsa

OREGON

Raymond M. McKeown, Coos Bay
Archie O. Pitman, Hillsboro

PENNSYLVANIA

James Z. Appel, Lancaster
William F. Brennan, Pittsburgh
Gilson Colby Engel, Philadelphia
William L. Estes Jr., Bethlehem
Harold B. Gardner, Harrisburg
Louis W. Jones, Wilkes-Barre
George S. Klump, Williamsport
Thomas W. McCreary, Rochester
Howard K. Petry, Harrisburg
Charles L Shafer, Kingston
Elmer G. Shelley, North East

PUERTO RICO

F. Sánchez-Castaño, Vega Baja

RHODE ISLAND

Charles J. Ashworth, Providence

SOUTH CAROLINA

George D. Johnson, Spartanburg
William Weston Jr., Columbia

SOUTH DAKOTA

Arthur A. Lampert, Rapid City

TENNESSEE

William C. Chaney, Memphis
Charles M. Hamilton, Nashville
Charles C. Smeltzer, Knoxville

TEXAS

Joseph B. Copeland, San Antonio
John K. Glen, Houston
Robert B. Homan Jr., El Paso
Milford O. Rouse, Dallas
Troy A. Shafer, Harlingen
Truman C. Terrell, Fort Worth
James H. Wooten Jr., Columbus

UTAH

George M. Fister, Ogden

VERMONT

James P. Hammond, Bennington

VIRGINIA

Vincent W. Archer, Charlottesville
W. Linwood Ball, Richmond

WASHINGTON

R. A. Benson, Bremerton
Alvin G. Young, Wenatchee
Raymond L. Zech, Seattle

WEST VIRGINIA

Frank J. Holroyd, Princeton
Walter E Vest, Huntington

WISCONSIN

Stephen E. Gavin, Fond du Lac
Joseph C. Griffith, Milwaukee
William D. Stovall, Madison
Dexter H. Witte, Milwaukee

WYOMING

W. Andrew Bunten, Cheyenne

DELEGATES FROM THE SECTIONS AND GOVERNMENT SERVICES

ANESTHESIOLOGY

Edward B. Tuohy, Los Angeles

DERMATOLOGY

Robert R. Kierland, Rochester, Minn.

DISEASES OF THE CHEST

Hollis E. Johnson, Nashville, Tenn.

EXPERIMENTAL MEDICINE AND THERAPEUTICS

Edgar V. Allen, Rochester, Minn.

GASTROENTEROLOGY AND PROCTOLOGY

Louis A. Buie, Rochester, Minn.

GENERAL PRACTICE

Lester D. Bibler, Indianapolis

INTERNAL MEDICINE

Charles T. Stone Sr, Galveston, Texas

LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Gordon F. Harkness, Davenport, Iowa

MILITARY MEDICINE

Charles L. Leedham, Cleveland

NERVOUS AND MENTAL DISEASES

Francis M. Forster, Washington, D. C.

OBSTETRICS AND GYNECOLOGY

Ralph E. Campbell, Madison, Wis

OPHTHALMOLOGY

William L. Benedict, Rochester, Minn.

ORTHOPEDIC SURGERY

H. Relton McCarroll, St. Louis

PATHOLOGY AND PHYSIOLOGY

Lall G. Montgomery, Muncie, Ind.

PEDIATRICS

Woodruff L. Crawford, Rockford

PHYSICAL MEDICINE

Frank H. Krusen, Rochester, Minn.

PREVENTIVE MEDICINE

R. T. Johnstone, Los Angeles

RADIOLOGY

Byrl R. Kirklin, Rochester, Minn.

SURGERY, GENERAL AND ABDOMINAL

Grover C. Penberthy, Detroit

UROLOGY

Jay J. Crane, Los Angeles

UNITED STATES AIR FORCE

Otis O. Benson Jr.

UNITED STATES ARMY

James P. Cooney

UNITED STATES NAVY

Bruce E. Bradley

PUBLIC HEALTH SERVICE

W. Palmer Dearing

VETERANS ADMINISTRATION

Roy A. Wolford

There will be present also two student delegates from the Student American Medical Association

REFERENCE COMMITTEES OF THE HOUSE OF DELEGATES

The Speaker of the House of Delegates, Dr. E. Vincent Askey, California, has appointed delegates to serve on the reference committees of the House at the Seattle meeting as follows.

Amendments to the Constitution and Bylaws

Laurence S. Nelson Sr., *Chairman*, Kansas
Clifford C. Sherburne, Ohio
Leopold H. Fraser, California
Peter M. Murray, New York

Board of Trustees and Secretary, Reports of

John Flack Burton, *Chairman*, Oklahoma
Charles G Hayden, Massachusetts
Wyman D. Barrett, Michigan
R. J. Azzari, New York
Reuben A Benson, Washington

Credentials

R. T. Johnstone, *Chairman*, Section on Preventive Medicine
Arthur A. Lampert, South Dakota
Spencer A. Kirkland, Georgia
Edward B. Tuohy, Section on Anesthesiology

Executive Session

William D. Stovall, *Chairman*, Wisconsin
Milford O. Rouse, Texas
Vincent W. Archer, Virginia
Paul A. Davis, Ohio
Charles L. Shafer, Pennsylvania

Hygiene, Public Health, and Industrial Health

Paul D. Foster, *Chairman*, California
John N. Gallivan, Connecticut
Raymond T. Holden, Washington, D. C.
Edgar V. Allen, Section on Experimental Medicine and Therapeutics
Lall G. Montgomery, Section on Pathology and Physiology

Insurance and Medical Service

George A. Earl, *Chairman*, Minnesota
James P. Hammond, Vermont
J. Mather Pfeiffenberger, Illinois
J. Wallace Hurff, New Jersey
William F. Brennan, Pennsylvania

Medical Education and Hospitals

William A. Hyland, *Chairman*, Michigan
Thomas J. Danaher, Connecticut
James Z. Appel, Pennsylvania
Gerald D. Dorman, New York
Byrl R. Kirklin, Section on Radiology

Medical Military Affairs

Philip S. Foisie, *Chairman*, Massachusetts
Wesley W. Hall, Nevada
Archie O. Pitman, Oregon
H. Relton McCarroll, Section on Orthopedic Surgery
Frank J. Holroyd, West Virginia

Miscellaneous Business

Peter J. DiNatale, *Chairman,* New York
Carll S. Mundy, Ohio
Thomas W. McCreary, Pennsylvania
Robert R. Kierland, Section on Dermatology
Bruce E. Bradley, United States Navy

Reports of Officers

Millard D. Hill, *Chairman,* North Carolina
Robert N. Larimer, Iowa
Durward G. Hall, Missouri
Aldrich C. Crowe, New Jersey
Roy A. Wolford, Veterans Administration

Rules and Order of Business

Orwood J. Campbell, *Chairman,* Minnesota
Walter P. Anderton, New York
George D. Johnson, South Carolina
Charles M. Hamilton, Tennessee
Gordon F. Harkness, Section on Laryngology, Otology, and Rhinology

Sections and Section Work

L. Samuel Sica, *Chairman,* New Jersey
Charles J. Ashworth, Rhode Island
Joseph B. Copeland, Texas
Charles L. Leedham, Section on Military Medicine
R. Stanley Kneeshaw, California

Tellers

John S. DeTar, *Chairman,* Michigan
Edward E. H. Munro, Colorado
Harry L. Arnold Jr., Hawaii
Walter C. Bornemeier, Illinois

Sergeants-at-Arms

H. Thomas McGuire, *Master Sergeant,* Delaware
C. Paul White, Illinois
F. Sanchez-Castano, Puerto Rico

SCIENTIFIC PROGRAM
CIVIC AUDITORIUM

The Council on Scientific Assembly, in presenting the following program of panels, lectures, color television, motion pictures, and scientific exhibits, wishes to extend its appreciation to the local committee on arrangements in Seattle for its contribution of time and energy. The General Chairman, Dr. M. Shelby Jared, together with Dr. Hale Haven and other members of the program committee, spent many months in the preparation of the program.

Room 1 is on the stage on the first floor of the Civic Auditorium, while all other scientific activities are on the lower level. The television program, of which Dr. F. A. Tucker is chairman, originates at Doctors Hospital and is presented with the cooperation of Smith, Kline & French Laboratories, Philadelphia, in Room 2 at the Civic Auditorium. The motion picture program will be conducted each afternoon in Room 4, Civic Auditorium, with a special program on Tuesday evening at the Olympic Hotel. The visiting physician will find a wide range of subjects from which to make his choice, with various features running continuously and simultaneously.

For the sake of convenience in making his selections, the physician will find the printed program grouped by morning and afternoon periods for each day. The program that begins Tuesday morning, Nov. 27, will continue until 12 noon on Friday, Nov. 30.

OPENING GENERAL ASSEMBLY: ROOM 1

Tuesday morning, Nov. 27

Chairman: M. Shelby Jared, Seattle

9:30 Welcome Addresses:
James H. Berge, Seattle, President, Washington State Medical Association.
Arthur B. Langlie, Olympia, Governor, State of Washington.
Gordon A. Clinton, Mayor, City of Seattle.
Dwight H. Murray, Napa, Calif., President, A. M. A.

9:45 The Physicians' Obligation to Society.
Elmer Hess, Erie, Pa., Past-President, A. M. A.

PANELS: ROOM 1

Tuesday morning, Nov. 27

Chairman: Quin B. DeMarsh, Seattle.

10:30 Panel on Hemolytic Anemia.
Robert S. Evans, Seattle, Moderator.
General Subject, Classification.
Dennis M. Donohue, Seattle.
Congenital Hemolytic States.
Arno G. Motulsky, Seattle.
Acquired Hemolytic States.
Eloise R. Giblett, Seattle.
Practical Approach to Diagnosis.
Alexander R. Stevens, Seattle.

ROOM 4

Tuesday morning, Nov. 27

Chairman: Robert H. Stewart, Seattle.

10:30 Panel on Management of Postpartum Problems.
Francis L. McPhail, Great Falls, Mont., Moderator.
Lactation.
Harry A. Kettering, Seattle.
Postpartum Bleeding.
Albert F. Lee, Seattle.
Infections.
Gerhard Ahnquist, Seattle.
Office Postpartum Problems.
Donald J. Thorp, Seattle.

LECTURES: ROOM 3

Tuesday morning, Nov. 27

Chairman: Siegfried F. Herrmann, Tacoma, Wash.

10:30 Treatment of Undescended Testis and Its Complications.
John R. Hand, Portland, Ore.

11:00 Early Prostatic Carcinoma: Responsibility of the General Practitioner.
Clarence V. Hodges, Theodore H. Lehman, and Curtiss A. Macfarlane, Portland, Ore.

11:30 Some Principles in the Care of Urinary Tract Injuries.
J. L. McCormack and A. W. Kretz, Seattle.

COLOR TELEVISION: ROOM 2

Tuesday morning, Nov. 27

Chairman: Paul R. Rollins, University of Washington School of Medicine, Seattle.

10:30-11:30 Wet Clinic on Cesarean Section.
Russell R. de Alvarez, University of Washing School of Medicine, Seattle, Moderator.
Participants: Paul G. Peterson, L. Bruce Donaldson, Robert M. Campbell, and R. Philip Smith, University of Washington School of Medicine, Seattle.

PANELS: ROOM 1

Tuesday afternoon, Nov. 27

Chairman: Charles S. Fine, Seattle.

1:30 Panel on Hypertension: Current Concepts of Management.
Robert L. King, Seattle, Moderator.
Participants: Edgar V. Allen, Rochester, Minn., George F. Strong, Vancouver, B. C., Edward D. Freis, Washington, D. C., and Henry B. Garrigues, Seattle.

3:00 Panel on Problems of Prenatal Care.
Alec M. Agnew, Vancouver, B. C., Moderator.

Over-Term Pregnancy as an Antenatal Problem.
John J. Young and Eugene Bradley, Fort Lewis, Wash.

RH Factor. Eloise R. Giblett, Seattle.

Early Recognition and Treatment of Preeclampsia.
Donald McIntyre, Seattle.

Evaluation of the Bony Pelvis. Glen G. Rice, Seattle.

Psychological Problems of Pregnancy.
Thomas H. Holmes, Seattle.

Nutritional Deficiencies and Anemia.
Walter S. Keifer Jr., Seattle.

LECTURES: ROOM 3

Tuesday afternoon, Nov. 27

Chairman: Alexander Barclay Jr., Coeur d'Alene, Idaho.

1:00 The Influence of a High Fluid Intake in Correcting Previously Resistant Congestive Heart Failure.
John A. Layne, Great Falls, Mont.

1:30 Normal Hemoglobin and Red Blood Count Findings in Women.
Harriet Emigh Judy and Norene Brandt Price, Spokane, Wash.

2:00 Treatment of Mild Depressions in General Office Practice. Frederick Lemere, Seattle.

2:30 Inherent Dangers in the Use of Tranquilizing Drugs in Anxiety States.
Herman A. Dickel and Henry H. Dixon, Portland, Ore.

3:00 Miltown (Meprobamate) in Premenstrual Tension.
Veronica M. Pennington, Whitfield, Miss.

3:30 Emotional Reactions to Surgical Procedures.
Norman C. Chivers, Seattle.

4:00 The Physiological Treatment of Barbiturate Poisoning.
Fred Plum and August G. Swanson, Seattle.

4:30 Newer Concepts of Management of Ulcerative Colitis.
Lucius D. Hill, Caleb S. Stone, and Clarence C. Pearson, Seattle.

COLOR TELEVISION: ROOM 2

Tuesday afternoon, Nov. 27

DRY CLINICS

2:00 Spinal Anesthesia—1956.
Participants: John J. Owen, John M. MacKinnon, Kenneth F. Eather, and George E. Wright, Seattle.

2:30 Treatment of Burns.
Participants: Donald T. Hall, Children's Orthopedic Hospital, Seattle, Henry N. Harkins, University of Washington School of Medicine, Seattle, and J. Thomas Payne, Veterans Administration Hospital, Seattle.

3:00 Amputations and Prosthetics.
Participants: Ernest M. Burgess, Veterans Administration, Children's Orthopedic and Doctors Hospitals, Seattle, R. L. Romano, King County Hospital, Seattle, and B. E. McConville, Washington Rehabilitation Center, Seattle.

3:30 Skin Clinic.
Participants: Robert A. Pommerening, Alex D. Campbell, and Robert T. Potter, University of Washington School of Medicine, Seattle.

MOTION PICTURES: ROOM 4

Tuesday afternoon, Nov. 27

1:00 Fractures of the Leg and Ankle.
William Larmon, Chicago.

1:30 Technique of Shoulder Girdle Amputation.
Robert S. Smith, Boise, Idaho.

1:40 Routine Anorectal and Sigmoidoscopic Examination with Differential Diagnosis.
Malcolm R. Hill, Los Angeles.

2:09 Technique of Proctoscopy.
Raymond J. Jackman and Edward R. Morgan, Rochester, Minn.

2:26 Carcinoma of the Stomach.
Alton Ochsner, New Orleans.

2:58 Appendectomy. Philip Thorek, Chicago.

3:21 Resuscitation for Cardiac Arrest.
Claude S. Beck, Cleveland.

3:39 Block Dissection and Pneumonectomy for Bronchogenic Carcinoma. John F. Higginson, Portland, Ore.

4:08 Grand Rounds: Diagnosis and Management of Acute Abdominal Problems.
Charles G. Child, III, Orvar Swenson, Harold F. Rheinlander, Boston, Leo G. Rigler, Owen H. Wangensteen, Minneapolis, Michael J. Lepore, New York, and Walter L. Palmer, *Chicago.*

MOTION PICTURES: OLYMPIC BOWL, OLYMPIC HOTEL

Tuesday evening Nov. 27

8:00 The Doctor as an Expert Witness.
Premiere showing of a film produced by the A. M. A. in cooperation with the William S. Merrell Company, Cincinnati.

MOTION PICTURES: SPANISH BALLROOM, OLYMPIC HOTEL

9:30 Monganga.
A special film report in color on missionary medicine in the Belgian Congo—the latest program in the March of Medicine series. Presented by Smith, Kline & French Laboratories, Philadelphia, in cooperation with the A. M. A.

PANELS: ROOM 1

Wednesday morning, Nov. 28

Chairman: Gayton S. Bailey, Seattle

9:00 Panel on Problems of Aging.
Henry B. Mulholland, Charlottesville, Va., Chairman, Committee on Aging, Council on Medical Service, A. M. A., Moderator.

Health Maintenance.
J. D. McCarthy, Omaha, Chairman, Council on Medical Service, A. M. A.

Nutrition.
Frederick C. Swartz, member, Committee on Aging, Council on Medical Service, A. M. A., Lansing, Mich.

Control of Fatigue.
Theodore G. Klumpp, member, Committee on Aging, Council on Medical Service, A. M. A., New York.

Rehabilitation and Restorative Services.
Albert L. Cooper, Seattle.

Motivation for Living.
Cecil Wittson, member, Committee on Aging, Council on Medical Service, A. M. A., Omaha.

The Oldster and His Doctor.
Wingate M. Johnson, member, Committee on Aging, Council on Medical Service, A. M. A., Winston-Salem, N. C.

Modern Attitudes on Aging.
Edward L. Bortz, member, Committee on Aging, Council on Medical Service, A. M. A., Philadelphia.

4:00 Diabetes and Pregnancy.
John W. Stephens, Portland, Ore.

4:30 Surgical Management of the Severely Burned Child.
Robert S. Smith, Boise, Idaho.

COLOR TELEVISION: ROOM 2

Thursday afternoon, Nov. 29

DRY CLINICS

2:00 Office Diagnosis of Operable Heart Disease.
Robert A. Tidwell, Children's Orthopedic Hospital and University of Washington School of Medicine, Seattle, J. C. Michel, University of Washington School of Medicine, Seattle, James L. Tucker, Children's Orthopedic Hospital, Seattle, and Robert M. Levenson, University of Washington School of Medicine, Seattle.

2:30 Erythroblastosis.
William J. Warmington, Seattle, Edwin T. MacCamy and Clement A. Finch, University of Washington School of Medicine, Seattle, and Eloise R. Giblett, King County Central Blood Bank, Seattle.

3:00 Arthritis Clinic.
Edward E. Rosenbaum and Arthur C. Jones, University of Oregon Medical School, Portland, Ore., James W. Brooke, Eugene Clinic, Eugene, Ore., and Robert E. Rinehart, Rinehart Clinic, Wheeler, Ore.

3:30 Chest Emergencies.
Fred J. Jarvis, University of Washington School of Medicine, Seattle, Robert C. Coe, Seattle, Norman Arcese, Laurel Beach Sanitarium and University of Washington School of Medicine, Seattle, and James F. Nelson, U. S. Public Health Service Hospital and University of Washington School of Medicine, Seattle.

MOTION PICTURES: ROOM 4

Thursday afternoon, Nov. 29

1:00 The Patient Is a Person.
Samuel J. Fogelson, Chicago.

1:20 Diagnosis and Office Management of the Arthritides.
William B. Rawls, New York.

1:49 Myomectomy and Myometrial Reconstruction.
A. R. Abarbanel, Los Angeles.

2:15 A Place to Live. (Problems of the Aged).
National Social Welfare Assembly, New York.

2:39 Teaching Speech After Laryngectomy.
National Cancer Institute, Washington, D. C.

3:23 Modern Concepts of Epilepsy.
Francis M. Forster and Bushnell Smith, Washington, D. C.

PANELS: ROOM 1

Friday morning, Nov. 30

Chairman: J. Lester Henderson, Seattle.

9:00 Panel on Diabetes.

The Mode of Action of Insulin.

The Present Status of Available Insulins.

Present Evaluation of the Clinical Application of the Solfonureas.

Proper Handling of Hypothetical Patients:

Beginning Treatment.

Neuropathy.

Early Nephropathy and Retinopathy.

Influences of Various Hormones Upon the Diabetic.

Lester J. Palmer, Seattle, Moderator.

Participants: Joseph H. Crampton, Seattle, Blair Holcomb, Portland, Ore., Henry Mulholland, Charlottesville, Va., Robert H. Williams, Seattle, and Edward H. Rynearson, Rochester, Minn.

10:30 Panel on Tranquilizing Drugs—Past, Present, and Future.
L. E. Hollister, Palo Alto, Calif., Moderator.

Participants: Lester H. Margolis, San Francisco, James M. Dille, Seattle, Else B. Kris, New York, and Frederick Lemere, Seattle.

PANELS: ROOM 4

Friday morning, Nov. 30

Chairman: Byron F. Francis, Seattle.

9:00 Panel on Coronary Heart Disease.
Louis E. Martin, Los Angeles, Moderator.

Herbert E. Griswold Jr. and Franklin J. Underwood, Portland, Ore., and Robert A. Bruce, Seattle.

10:30 Panel on Surgical Treatment of Pelvic Malignancies.
Russell R. de Alvarez, Seattle, Moderator.

Vulva.	Edwin T. MacCamy, Seattle.
Cervix.	R. Philip Smith, Seattle.
Uterus.	Reuben E. Nelson, Seattle.
Ovaries.	H. J. Schroeder, Seattle.

LECTURES: ROOM 3

Friday morning, Nov. 30

Chairman: Wallace W. Lindahl, Seattle.

9:00 Prevention of Blindness and the General Practitioner.
Andrew F. M. De Roetth, Spokane, Wash.

9:30 Treatment of Iron Deficiency in Childhood with Intramuscular Iron-Dextran.
Ralph O. Wallerstein and M. Silvija Hoag, San Francisco.

10:00 Hyaline Membrane Disease—Clinical and X-Ray Diagnosis for Purposes of Prognosis.
Eugene J. P. Drouillard, Kenneth J. Lampert and George H. Barmeyer Jr., Missoula, Mont.

10:30 Gastric Ulcer: A Review of a Series of Patients Followed from Two to Five Years.
Clarence C. Pearson, Richard F. Jones, and Randolph Clements, Seattle.

11:00 Clinical Approach to Steatorrhea.
Howard M. Spiro, New Haven, Conn.

11:30 Hypogammaglobulinemia and Agammaglobulinemia.
Beach Barrett and Wade Volwiler, Seattle.

COLOR TELEVISION: ROOM 2

Friday morning, Nov. 30

WET CLINICS

9:00 Vein Stripping.
Participants: Dean K. Crystal, Clyde L. Wagner, Matthew H. Evoy and Van K. Hillman, University of Washington School of Medicine, Seattle, and James L. Vadheim, Tacoma, Wash.

10:00 Inguinal Hernia.
Joel W. Baker, Mason Clinic and University of Washington School of Medicine, Seattle, Operating Surgeon.

Henry N. Harkins, Madigan General Hospital, Fort Lewis, Wash., Veterans Administration Hospital and University of Washington School of Medicine, Seattle, Moderator.

Lucius D. Hill, Mason Clinic, Seattle, Collaborator.

Participants: Frank Henry, University of Washington School of Medicine, Seattle, and Donald T. Hall, Children's Orthopedic Hospital, and University of Washington School of Medicine, Seattle.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located on the lower level of Civic Auditorium and will be reached by entrances from the Technical Exposition.

The Council on Scientific Assembly has arranged several features, including a group of exhibits on the history of medicine in the Northwest, the Special Exhibit on Fractures, and Manikin Demonstrations on Problems of Delivery.

The Scientific Exhibit will open Tuesday morning, Nov. 27, at 9 a.m. and will close Friday, Dec. 2, at 12 noon. On the intervening days, it will be open from 8:30 a. m. to 5:30 p. m. The office of the Council on Scientific Assembly will be located in Space 109 in the Scientific Exhibit.

MEDICINE IN THE PACIFIC NORTHWEST

A group of exhibits on the history of medicine in the Pacific Northwest will be presented, showing the contributions which physicians have made to the development of this area. Material will be shown from Oregon; British Columbia, Canada; and Washington.

William F. Goff, *Seattle*, is the chairman of these exhibits.

SPECIAL EXHIBIT ON FRACTURES

The Special Exhibit on Fractures is presented under the auspices of the following committee:

Ralph G. Carothers, Cincinnati, chairman.
Harry B. Hall, Minneapolis.
Charles V. Heck, Chicago.

Continuous demonstrations will be conducted daily from 10 a. m. to 12 noon and from 2 to 4 p. m. from Tuesday morning to Friday noon on the following subjects:

Fractures Resulting from a Fall on the Outstretched Hand.

Fractures About the Elbow.

Fracture of the Lower End of the Radius.

Basic principles will be stressed, with particular emphasis on the interest of the physician in general practice. Ample opportunity will be allowed for questions, and members of the committee will be present to discuss individual problems with visiting physicians.

A pamphlet giving the essential features of the exhibit has been prepared for distribution.

The following surgeons will assist the committee in the presentation of the exhibit:

Thomas A. Angland, Yakima, Wash.
Richard F. Berg, Portland, Ore.
Roy E. Brackin, Winnetka, Ill.
James R. Degge, Eugene, Ore.
Forrest L. Flashman, Seattle.
Robert W. Florence, Tacoma, Wash.
Paul Goetowski, Lincoln, Neb.
Kenneth T. Hubbard, Maywood, Ill.
Richard H. Jones, Minneapolis.
Edward H. Juers, Red Wing, Minn.
William J. Kisiel, Springfield, Mass.
Sydney N. Lyttle, Flint, Mich.
Andrew R. Mailer, Madison, Wis.
Roland F. Neumann Jr., St. Louis.
Theodore Norley, Columbia, S. C.
Frederick G. Rosendahl, Minneapolis.
Edmund T. Rumble Jr., Callicoon, N. Y.
S. Ralph Terhune, Birmingham, Ala.
Franklin V. Wade, Flint, Mich.

PROBLEMS OF DELIVERY—MANIKIN DEMONSTRATIONS

Manikin demonstrations on problems of delivery will be conducted at stated intervals throughout the week by outstanding obstetricians. An opportunity for questions and answers will be given after each demonstration.

H. Charles Franklin, Seattle, chairman, is in charge of the demonstrations. The following schedule will be presented:

Tuesday, Nov. 27

10:00 a.m. Persistent Occiput Posterior.
Samuel H. Davidson, Seattle.

1:00 p.m. Persistent Occiput Posterior.
Jerome F. Smersh Jr., Seattle.

4:30 p.m. Breech Delivery.
Lawrence H. Tarte, Seattle.

Wednesday, Nov. 28

10:00 a.m. Persistent Occiput Transverse.
Robert J. Lowden, Seattle.

1:00 p.m. Internal and External Podatic Version.
Karl H. Klopfenstein, Seattle.

4:30 p.m. Outlet Forceps.
David C. Figge, Seattle.

Thursday, Nov. 29

4:30 p.m. Breech Delivery.
A. Lawrence Banks, Seattle.

Friday, Nov. 30

9:30 a.m. Deep Transverse Arrest.
Joseph G. Sebren, Seattle.

The Body Fluids: Foundation Facts, Clinical Diagnosis, Therapy.
W. D. Snively Jr., M. J. Sweeney, and Martha L. Wessner, St. Mary's Hospital, Evansville, Ind.

Bedside Methods for Electrolyte Determinations.
Belding H. Scribner, J. Burnell, B. Uyeno, and A. Skinner, University of Washington School of Medicine and Veterans Administration Hospital, Seattle.

The Factors Influencing the Coronary Circulation.
Eliot Corday, Herbert Gold, and Lauro B. De Vera, Cedars of Lebanon Hospital and University of California at Los Angeles School of Medicine, Los Angeles.

Esophageal Motility: Dynamics of Deglution in Health and Disease.
C. F. Code, A. M. Olsen, F. E. Donoghue, H. A. Andersen, B. Creamer, F. E. Fyke Jr., and A. H. Bulbulian, Mayo Clinic and Mayo Foundation, Rochester, Minn.

Lymph Node Imprints.
Edwin E. Osgood, Nelson Niles, Robert D. Koler and A. J. Seaman, University of Oregon Medical School, Portland, Ore.

Hypogammaglobulinemia and Agammaglobulinemia.
Beach Barrett and Wade Volwiler, University of Washington School of Medicine, Seattle.

A Clinical Appraisal of Antiemetic Agents.
Paul K. Conner, John H. Moyer, Sam A. Kinard, and Charles Heider, Baylor University College of Medicine, Houston, Texas.

Prednisone and Prednisolone in Experimental Bacterial Infection and Toxemia.
Harry Seneca, Olga Kupyn and A. Kozar, Columbia University College of Physicians and Surgeons, New York.

Prednisolone Tertiary Butylacetate and Hexylcaine in Soft Tissues—Non-articular Injection Techniques.
Eugene G. Lipow, George Washington University School of Medicine, Washington, D.C., and Richard T. Smith, Benjamin Franklin Clinic, Philadelphia.

Evaluation of Sulfaethylthiadiazole in Pediatric Practice.
John D. Farquhar, Lankenau Hospital, Philadelphia.

Rehabilitation of the Asthmatic Child.
W. B. Steen and C. P. Neumann, The Sahuaro School, Tucson, Ariz.

Malignant Carcinoid, a New Metabolic Disorder.
Albert Sjoerdsma, Luther L. Terry, and Sidney Udenfriend, National Heart Institute, Bethesda, Md.

Lysine Needs in Nutritional Stress of the Aged.
Anthony A. Albanese, Reginald A. Higgons, and Louise A. Orto, St. Luke's Convalescent Hospital, Greenwich, Conn.

Stimulation of Appetite and Weight Gain in the Underweight Child.
Emanuel Dubow, Beekman Downtown Hospital, New York.

Weight Control.
Robert H. Barnes, University of Washington School of Medicine, Seattle.

Dyclonine: A Topical Anesthetic with Antimicrobial Properties.

P. A. Boyer Jr., H. J. Florestano, and B. E. Abreu, Pitman-Moore Company, Indianapolis.

Multiple Myeloma.

Maurice Hardgrove and Dann B. Claudon, Columbia Hospital, Milwaukee, Wis.

Cystic Fibrosis of the Pancreas, Lungs, etc.—Diagnosis and Treatment.

Gordon E. Gibbs, University of Nebraska College of Medicine, Omaha.

Rehabilitation of Poliomyelitis Patients with Respiratory Involvement.

Hart E. Van Riper, National Foundation for Infantile Paralysis, New York.

Chronic Headache—an Analysis of 1254 Cases.

Lester S. Blumenthal and Marvin Fuchs, George Washington University Hospital, Washington, D. C.

Oral Phenoxymethyl Penicillin in the Treatment of Bacterial Endocarditis.

E. L. Quinn, J. M. Colville, Frank Cox Jr., and Joseph Truant, Henry Ford Hospital, Detroit.

Diagnosis and Management of Patients with Arterial Hypertension: Evaluation of Five Year Experience with Depressor Drugs.

Joseph H. Hafkenschiel Jr., Philadelphia.

Use of Ganglionic Blocking Agents in Hypertension.

John H. Moyer, Ralph Ford, Robert McConn, Coleman Caplovitz, and Edward Dennis, Baylor University College of Medicine, Jefferson, Hermann, and Veterans Administration Hospitals, Houston, Texas.

Drug Therapy of Hypertension.

Marvin Moser, Roderick Granzen and Alice Macaulay, Grasslands Hospital, Valhalla, N. Y.

The Treatment of Ambulatory Hypertensive Patients with Chlorisondamine.

Richard A. Dunsmore, A. F. Bickford, and L. D. Dunsmore, Philadelphia General Hospital, Philadelphia.

Progress in the Treatment of Hypertension.

Garfield G. Duncan, Jerome Waldron, Robert J. Gill, and William K. Jensen, Pennsylvania Hospital, Philadelphia.

Foreign Bodies in the Eye.

Everet H. Wood, Jackson Clinic and University of Wisconsin Medical School, Madison, Wis.

Conservation of Hearing Program.

John F. Tolan, Heston L. Wilson, Jack Artz, and Warren R. Dawson, Seattle Hearing and Speech Center, Mason Clinic, Seattle.

Modern Therapy of Uveitis.

Dan M. Gordon, New York Hospital-Cornell Medical Center, New York.

Advancement in Diagnosis and Treatment of Non-Otosclerotic Middle Ear Deafness.

H. G. Kobrak, Geraldine Purcell, and Eduard Domeier, Wayne University College of Medicine, Detroit.

Glaucoma: Detection as a Prevention of Blindness.

Louis N. Hungerford Jr., Mason Clinic, and Wood Lyda, Seattle.

The Ventilatory Factor in the Symptomatology of Cardiorespiratory Conditions.

Edward Matzger, San Francisco.

Laboratory Techniques in the Diagnosis of Communicable Diseases.

R. B. Hogan, M. M. Brooke, G. R. Cooper, D. S. Martin, and M. Schaeffer, Communicable Disease Center, Public Health Service, Department of Health, Education and Welfare, Atlanta, Ga.

Treponema Pallidum Complement Fixation Test.

Harold J. Magnuson and Joseph Portnoy, Public Health Service's Venereal Disease Program, Department of Health, Education, and Welfare, Washington, D. C.

Effects of Smoking on the Bronchia Mucosa.

Kenneth P. Knudtson, Veterans Administration Hospital, and University of Washington School of Medicine, Seattle.

Cancer in the Lung and Cuban Tobacco—Experimental Works in Animals and Human Beings.

José Azel, Om Laboratory, Linner Laboratory, Finlay Institute, Havana, Cuba.

The Profession of Medical Technology.

Raymond F. Hain and Lester D. Ellerbrook, University of Washington School of Medicine, Seattle.

Useful Cytological Collection Methods for the Medical Practitioner.

H. L. Richardson and John B. Thiersch, Seattle.

Rheumatoid Arthritis: Diagnosis and Treatment.

Dwight C. Ensign and John W. Sigler, Henry Ford Hospital, Detroit, Donald F. Hill and W. Paul Holbrook, Tucson, Ariz.

Osteoarthritis.

Bernard M. Norcross and Salvatore R. LaTona, University of Buffalo School of Medicine and Buffalo General Hospital, Buffalo, N. Y.

Self-Help Devices for Arthritic Patients.

Edward W. Lowman, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York.

Rheumatoid Spondylitis.

Theodore A. Potter, Robert B. Brigham Hospital, Boston.

The Painful Shoulder.

Otto Steinbrocker, Sidney Berkowitz, Mortimer Ehrlich, and Marvin Chirls, Hospital for Joint Diseases and Lenox Hill Hospital, New York.

Information about Arthritis and Rheumatism.

Russell L. Cecil and R. W. Lamont-Havers, The Arthritis and Rheumatism Foundation, New York.

Surgical Management of Diverticulitis.

Caleb S. Stone Jr. and Lucius D. Hill, Mason Clinic, Seattle.

Fractures in the Aged.

Ernest M. Burgess and Robert L. Romano, Seattle.

Orthopedic Appliance Services for the Physician.

Lester A. Smith and Lenart Ceder, American Board for Certification of the Prosthetic and Orthopedic Appliance Industry, Inc., Washington, D. C.

Bone Tumors: Analysis of 2,276 Primary Neoplasms of Bone Seen at the Mayo Clinic 1905-1955.

D. C. Dahlin, R. K. Ghormley, E. D. Henderson, and M. B. Coventry, Mayo Clinic and Mayo Foundation, Rochester, Minn.

Reconstructive Surgery in Children.

Robert S. Smith, Crippled Children's Service, Idaho State Board of Health, Boise, Idaho.

The Place of Continuous Peridural Analgesia in Surgery—Operative and Post-Operative Analgesia by Peridural and Caudal Block.

John G. P. Cleland and Donald L. Cleland, Oregon City Hospital, Oregon City, and University of Oregon Medical School, Portland.

The Team in Cleft Lip and Cleft Palate Habilitation.

Oscar E. Beder, University of Washington School of Dentistry, and Herbert E. Coe, Children's Orthopedic Hospital, Seattle.

A Clinic in Proctosigmoidoscopy.

David Miller, College of Medical Evangelists and Cedars of Lebanon Hospital, Los Angeles.

The Current Status of Intravenous Cholecystography and Cholangiography.

J. Edward Berk and Howard Feigelson, Sinai Hospital of Detroit and Wayne State University College of Medicine, Detroit.

Simplified Technique of Operative Cholangiography and Its Pitfalls.

Thomas Taylor White and Joseph E. Traynor, Seattle.

Orlon Blood Vessel Grafts.
J. Karl Poppe, Portland, Ore.

Laminography in Neuroradiology.
Francis Kruse Jr., Parks Air Force Base, Calif.

Subdural Puncture in Infancy.
Edward J. Tomsovic, Thomas A. Hanson, and William C. Butz, Madigan Army Hospital, Tacoma, Wash.

Blood Coagulation Disorders in Obstetrics.
Alfred L. Kennan and Russell R. de Alvarez, University of Washington School of Medicine, Seattle.

Version and Extraction.
Frederick H. Falls and Charlotte S. Holt, Illinois State Department of Public Health, Chicago.

Current Practical Gynecology.
Walter J. Reich, Mitchell J. Nechtow, and Jerome Reich, Chicago Medical School, Cook County Hospital and Cook County Graduate School of Medicine, Chicago.

Transvesical Removal of Diseased Ureteral Stump.
Tate Mason, Mason Clinic, Seattle.

Papanicolaou Smear as a Routine Screening Device for Cancer; Its Use in Obstetrics and Gynecologic Practice.
John J. Young, Madigan Army Hospital, Tacoma, Wash.

Coordinated Obstetric Care.
Robert N. Rutherford, Daniel C. Moore, John Dare, and Patricia Rose, Seattle.

Hemorrhage and Hypofibrinogenemia: Clinical and Experimental Studies.
C. Paul Hodgkinson, Paul W. Pifer, Melvin A. Block, and Donald G. Remp, Henry Ford Hospital, Detroit.

Medical Management of Recurrent Urinary Calculi.
Donald F. McDonald, Morton Palken, John M. Kennelly, Jr., and John R. Shields, University of Washington School of Medicine, Seattle.

The Renal Glomerulus.
Hans Elias, Chicago Medical School, Chicago.

Surgical Techniques of Total Perineal Prostatectomy.
Roderick D. Turner and Elmer Belt, University of California Medical Center, Los Angeles.

Ileal Bladder Substitution.
George T. Mellinger, William S. Caudell, Garfield Suder, T. Brent Wayman, and Donald E. Brinkman, Veterans Administration Hospital, Cincinnati General Hospital, and University of Cincinnati College of Medicine, Cincinnati, Ohio.

Urological Problems in Spina Bifida.
Clarence V. Hodges, Herbert C. Kennedy, and Theodore H. Lehman, University of Oregon Medical School, Portland, Ore.

Chlorpromazine—The Road Back.
Herman C. B. Denber and Else B. Kris, Manhattan State Hospital and After-Care Clinic, New York.

2-Ethylcrotonylurea, A New Calmative for the Relief of Anxiety and Tension States.
John T. Ferguson and Frank V. Z. Linn, Traverse City State Hospital, Traverse City, Mich.

The Pharmacology of 2-Ethylcrotonylurea, a Neurosedative.
Howard G. Glass, K. G. Rink and Robert K. S. Lim, Miles-Ames Research Laboratory, Elkhart, Ind.

Proclorperazine—New Agent for the Office Treatment of Psychic Stress.
H. Roebling Knoch and Rodney Kirk, York, Pa.

Alcoholism.
Marvin A. Block, Buffalo, N. Y., and Jackson Smith, Omaha, Neb., Committee on Alcoholism, Council on Mental Health, A. M. A.

Symptomatic Control of the Acutely Disturbed Patient with Promazine.
John D. Schultz, Joseph F. Fazekas, James G. Shea, and Paul D. Sullivan, District of Columbia General Hospital, Washington, D. C.

Alcoholic Brain Disease.
A. E. Bennett and G. L. Mowery, Herrick Memorial Hospital, Berkeley, Calif.

Tuberculosis and Alcoholism in the White, Skid Road Male—Alcoholism in Seattle.
Joan K. Jackson, University of Washington School of Medicine, Seattle.

Methylphenidate—A New Central Nervous System Stimulant.
C. H. Carter and M. C. Maley, Florida Farm Colony, Gainesville, Fla.

Acerola Juice: The Most Potent Natural Vitamin C.: Medical Uses in Concentrated Solutions.
Norman W. Clein, University of Washington School of Medicine and the Children's Clinic, Seattle.

BCG Vaccination Against Tuberculosis.
Sol Roy Rosenthal and Arthur K. Flanagan, Research Foundation, and Institution for Tuberculosis Research, University of Illinois College of Medicine, Chicago.

The Practice of Public Health and Medicine in Alaska.
Charles R. Hayman, Alaska Department of Health and Alaska Territorial Medical Association, Juneau, Alaska.

Effect of Prophylaxis on Rheumatic Heart Disease.
John M. Bryan and R. C. Arnold, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C.

Importable Insect-Borne Diseases.
H. Van Zile Hyde and John J. Hanlon, Public Health Service, Department of Health, Education, and Welfare, and International Cooperation Administration, Washington, D. C.

Epidemiology of Influenza as Demonstrated by a Study of Serum Pools.
G. O. Broun, H. C. Sweet, and R. R. Schmidt, Miller Pulmonary Laboratory, St. Louis University School of Medicine, St. Louis.

Laboratory Examination for Tuberculosis.
Harold M. Erickson, Oregon State Board of Health, Portland, Ore.

Tuberculosis . . . The Non-Hospitalized Patient—A Nationwide Sample Study.
E. T. Blomquist, Tuberculosis Program, Division of Special Health Services, Public Health Service, Department of Health, Education, and Welfare, Washington, D. C.

Treatment of Tuberculosis Today.
Albert R. Allen, Central Washington Tuberculosis Hospital, Selah, Wash.

Cause of Physicians' Deaths, 1949-1951: Actual and Expected.
Frank G. Dickinson and Leonard W. Martin, Bureau of Medical Economic Research, A. M. A., Chicago.

Patent Ductus Arteriosus: A Teaching Exhibit.
Louis H. Frische, Herbert E. Griswold, Masao Tamaki, and Charles T. Dotter, University of Oregon Medical School, Portland, Ore.

Ultra-Short Exposures for Diagnostic Radiology—Electron Tube High Tension Switching.
Charles T. Dotter, University of Oregon Medical School, Portland, and Thomas H. Rogers, Springdale, Conn.

Air-Borne Mold Spores in Seasonal Allergy.
Oren C. Durham, Abbott Laboratories, North Chicago, Ill., and David Merksamer, Jewish Hospital, Brooklyn, N. Y.

Total Management of Muscle Dysfunction.
Harriet E. Gillette, Physical Medicine and Rehabilitation Clinic, Atlanta, Ga.

Manifestations of Muscular Dystrophy.
Toby Cohen, Muscular Dystrophy Associations of America, Inc., New York.

Aids for Physicians Working with Crippled Children.
Dean W. Roberts and Jayne Shover, National Society for Crippled Children and Adults, Inc., Chicago and W. J. Bryan Hankins, Washington Society for Crippled Children and Adults, Seattle.

REPORTS OF OFFICERS

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Secretary is respectfully submitted:

Membership

The number of physicians holding membership in the American Medical Association increased by 4,509 during the fiscal year ending June 30, 1956, as compared with the same period ending June 30, 1955. A breakdown of the membership records as of June 30 indicates the following:

	1956	1955
Active Paid Members	130,606	123,462
Active Members (Dues unpaid by June 30)	3,479	7,649
Active Members exempt from dues	11,082	11,167
Associate Members	6,313	4,821
Service Members	8,544	8,402
Affiliate Members	269	282
Honorary Members	94	95
Total Membership on June 30	160,387	155,878

The income from membership dues for the first six months of 1956 was $3,217,195, which was an increase of $202,940 over the same period for 1955.

The accompanying table shows the number of physician members of state and territorial medical associations who also hold membership in the American Medical Association. Comparative figures are given as of June 30, for both 1955 and 1956.

Number of Physicians in United States and Territories and Number of Members of American Medical Association

State	No. of Physicians	Active Members		Associate Members	Total 1956	Total 1955
		Dues Paying	Dues Exempt			
Alabama	2,321	1,459	264	5	1,728	1,626
Alaska	102	79	11	42	132	67
Arizona	1,018	739	32		771	797
Arkansas	1,623	960	143		1,103	1,102
California	20,763	13,585	695	1,072	15,352	14,127
Canal Zone	175	25	16		41	37
Colorado	2,385	1,641	247	216	2,104	1,983
Connecticut	3,777	2,402	181		2,583	2,555
Delaware	509	352	43	4	399	316
District of Columbia	2,483	1,213	92	233	1,538	1,434
Florida	4,530	2,565	160	72	2,797	2,619
Georgia	3391	2,163	153	151	2,470	2,337
Hawaii	579	419	18	32	469	451
Idaho	508	485	20	4	509	523
Illinois	12,529	8,812	1,096		9,908	9,730
Indiana	4,420	3,224	590		3,814	3,651
Iowa	2,829	2,012	437	14	2,463	2,415
Kansas	2,254	1,268	323	1	1,592	1,616
Kentucky	2,638	1,712	93	116	1,921	1,844
Louisiana	3,292	1,765	38	110	1,913	1,825
Maine	985	528	118	9	655	670
Maryland	3,881	1,692	128	165	1,985	1,827
Massachusetts	8,715	4,506	612	98	5,246	5,195
Michigan	7;900	5,316	445	278	6,039	5,730
Minnesota	4,440	2,895	445	40	3,380	3,325
Mississippi	1,562	1,109	184	2	1,295	1,267
Missouri	4,902	2,835	635		3,470	3,422
Montana	621	518	26	44	588	548
Nebraska	1,581	1,174	51	78	1,303	1,252
Nevada	228	190	2		192	162
New Hampshire	752	488	54	4	546	543
New Jersey	6,737	5,174	277	357	5,808	5,690
New Mexico	632	465	50		515	487
New York	31,146	16,978	345	919	18,242	18,812
North Carolina	3,913	2,508	201	5	2,714	2,664
North Dakota	494	362	66		428	395
Ohio	10,873	7,214	535		7,749	7,546
Oklahoma	2,226	1,443	188	167	1,798	1,750
Oregon	2,098	1,232	66	315	1,613	1,501
Pennsylvania	14,727	10,327	256	919	11,502	11,345
Puerto Rico	900	200	13		213	225
Rhode Island	1,036	661	107		768	763
South Carolina	1,741	1,015	125	2	1,142	1,218
South Dakota	534	387	17	37	441	431
Tennessee	3,535	2,199	210	1	2,410	2,288
Texas	8.750	6,184	402	336	6,922	6,805
Utah	1,026	710	61	3	774	741
Vermont	563	362	47		409	413
Virginia	3,652	1,766	194	47	2,007	1,918
Washington	3,238	2,370	244	11	2,625	2,531
West Virginia	1,696	1,310	16	140	1,466	1,481
Wisconsin	3,926	2,838	263	261	3,362	3,290
Wyoming	263	220	17		237	239
Transfers		29			29	7
Total		134,085	11,082	6,313	151,480	147,099
Service Members					8,544	8,402
Affiliate Members					269	282
Honorary Members					94	95
Total					160,387	155,878

As of June 30, there were only 3,479 physicians whose American Medical Association membership status for the year 1956 had not been established through their constituent medical associations. The dues-delinquent physicians were asked to contact the secretaries of their respective societies in May. If the physician's eligibility for continued membership in the Association was not established by July 1, 1956, the physician was notified that he was being dropped from membership in the American Medical Association under the provisions of Chapter III, Section 5 of the Constitution and Bylaws. A copy of the suspension notice was sent to the secretary of the respective constituent association. This delinquency date for suspension of of membership will be *advanced to June 1 in 1957.* A physician cannot be reinstated for membership in the American Medical Association until his dues delinquency for the year in which he was dropped from membership is cleared through his constituent medical association.

The increased efficiency and flexibility of the IBM record system has made it possible to mail the current Membership Pocket Card to the physician within 48 hours after the membership classification status has been properly reported by the constituent association. Also, new members of the Association now receive their first copy, as well as back issues, of the publication they have chosen as a benefit of paid membership within a few days after the dues payment reaches the Membership Department.

The secretaries of constituent and component medical societies have cooperated whole-heartedly with the Membership Department, and many of them have revised their local membership regulations to conform with the standard pattern of membership classifications set by the American Medical Association Constitution and Bylaws.

Registration at Annual and Clinical Meetings

The Secretary, under the provisions of the Bylaws, is responsible for the "arrangements for annual, interim, or special sessions of the . . . Scientific Assembly", which includes the registration of general attendance at the annual and clinical meetings. The following is a tabulation of the registered attendance at the Boston Clinical Meeting and the Chicago Annual Meeting in December, 1955, and June, 1956, respectively.

The registration at the Boston Clinical Meeting and the Chicago Annual Meeting is shown in detail. The total cost of operating the Registration Bureau at the Boston meeting was $4,210. The cost of operating the Registration Bureau at the Chicago Meeting was $5,819.

REGISTRATION, BOSTON, NOV. 29-DEC. 2, 1955

Physicians	3,779
Residents	642
Interns	146
Students	780
Nurses	210
Technicians	176
Physicians' Guests	1,982
Total	7,715
Technical Exhibitors	720
Technical Exhibitors' Guests	192
Grand Total	8,637

REGISTRATION, CHICAGO, JUNE 11-15, 1956

Physicians	9,969
Residents	785
Interns	315
Students	680
Nurses	374
Technicians	357
Physicians' Guests	10,705
Total	23,185
Technical Exhibitors	3,246
Technical Exhibitors' Guests	684
Grand Total	27,115

During one morning of the Atlantic City Annual Meeting in June, 1955, admittance to the Technical and Scientific Exhibits was limited to physician members of the Association. Based on the favorable reception of this test, it was repeated for two half days at the Chicago Annual Meeting on Wednesday and Thursday mornings. Upon the recommendation of the Board of Trustees, this restricted attendance will be expanded to three half days—the mornings of Tuesday, Wednesday, and Thursday—at the New York Annual Meeting in June, 1957. This opportunity for the member-physician to view the exhibits and visit the lectures strictly with his own fellow members has met with the approval of both the majority of the Association's membership and the scientific and technical exhibitors.

Activity in the Field

The number of medical meetings which the Secretary and Assistant Secretary have attended and have participated in during the past year has been greater than in any previous year. The Secretary has responded, whenever possible, to every request for his personal appearance at their meetings from constituent and component medical societies, and on many occasions when other commitments have interfered the Assistant Secretary has substituted for him. Both have traveled many thousands of miles on the business of the Association.

Appreciation

The Secretary offers an expression of sincere appreciation for the assistance and many courtesies he has received from the officers and members of official bodies of the Association, as well as from many officers and members of constituent and component medical societies, not to mention innumerable individual members of the Association's rank and file. The personnel at the headquarters office are deserving of praise for loyal and efficient contribution to the successful administration of the Association's affairs.

Respectfully submitted,

George F. Lull, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The following annual report of the Board of Trustees is respectfully submitted.

Report on Matters Referred by House of Delegates

American Medical Association Dues Collection.—In response to the intent of Resolution No. 13 and the recommendation of the House of Delegates, the Board of Trustees has authorized a letter to be sent to the secretaries of constituent state and territorial medical associations for the purpose of ascertaining their costs in collecting American Medical Association membership dues. The letter requests a complete breakdown of collection expenses for 1956, including salaries of clerical workers (with prorating of time devoted to American Medical Association dues collection), stationery, postage, etc. As soon as this study is complete, a final report will be made to the House.

Membership.—The Board of Trustees considered Resolution No. 42, directing that the Association augment its efforts to stimulate new memberships by an increased cooperative effort with state and county medical associations. The Board authorized the Secretary and General Manager to communicate with those states where American Medical Association membership is low in an effort to stimulate further activities on the part of local societies. The Subscription and the Public Relations Department are also increasing their promotional efforts in this regard.

Cancer Commissions.—Following the Boston, 1955 meeting, the Board of Trustees voted that Resolution No. 15, recommending the establishment of cancer commissions by state medical societies, which was approved by the House, be sent to all constituent associations. A letter transmitting the action of the House was sent on March 12, 1956.

Rehabilitation.—In December, 1955, the House of Delegates approved in principle Resolution No. 27 urging the establishment of an integrated consultation service to state societies and outlining a policy of procedure for the guidance of local professional groups in dealing with the total program of rehabilitation. Inasmuch as the Committee on Rehabilitation, previously authorized by the House of Delegates and the Board of Trustees, is now an established group within the Association, the Board referred this resolution to that Committee for study and recommendation.

Traffic Safety.—Resolutions on this subject were introduced in the House of Delegates at its December, 1955, and June, 1956, meetings. Resolutions No. 18 and 19 (Boston, 1955), recommending (1) a study of prevention of highway accidents, and (2) national regulation of automobile safety standards, have been referred to the Association's Committee on Medical Aspects of Automobile Injuries and Deaths.

Resolution No. 19 from the June, 1956, meeting suggested (a) the establishment of traffic safety committees on a state and local level, (b) that cooperative effort be established between the American Medical Association committee and the various local committees of the White House Conference on Safety, and (c) that a national meeting of the Association's committee be held to implement the responsibilities of the medical profession in automobile safety. The Board referred Resolution No. 19 to the Committee on Medical Aspects of Automobile Injuries and Deaths with the recommendation that (a) and (b) be implemented. It recommended, however, that action be not taken at this time on a national meeting.

Medical Hall of Fame.—Further consideration has been given to the recommendation for the establishment of a United States Medical Hall of Fame (December, 1955). Because of limitations of space, the expense involved, and the fact that one national medical organization is at the present time completing its Hall of Fame, the Board recommends to the House that the American Medical Association do not establish a Hall of Fame at this time.

Continuing Commission on Economic Policy.—The Board of Trustees has very carefully considered Resolution No. 54 on Continuing Commission on Economic Policy, introduced by the California delegation at the Atlantic City meeting of the House in June, 1955, and the supplementary report of the Council on Medical Service in this regard, adopted by the House in December, 1955. In addition, the Board has reviewed the article entitled "A Constructive Economic Platform for the American Medical Association," by Dr. Lewis A. Alesen, a member of the House, which appeared in the November, 1954, issue of *Northwest Medicine.*

There are many matters to be taken into consideration in extending the activities of the American Medical Association to areas not hitherto considered an appropriate function of our Association.

The Board of Trustees has, therefore, referred this resolution to its Task Force on Socio-Economic Policy, composed of Drs. Leonard W. Larson, F. J. L. Blasingame, James R. McVay, John F. Lucas, Joseph F. Griffith, James Z. Appel, Paul C. Foster, and James R. Reuling, which has under consideration some of the problems mentioned in the resolution. The Task Force hopes to report to the Board at a special meeting to be held in the near future. Any recommendations of the Task Force after presentation to and approval by the Board will be transmitted to the House of Delegates.

Liaison with Pharmaceutical Manufacturers.—In conformity with the directive of the House of Delegates that liaison be established with pharmaceutical manufacturers (June, 1956), the Board of Trustees appointed a committee which met with representatives of the pharmaceutical industry on Sept. 13 for a discussion of problems of mutual interest. Since the primary objective of both medicine and industry is to provide medical help for the sick, it was agreed that much good could stem from such discussion.

A number of basic problems was discussed and several questions were raised, namely: (1) How can the drug industry reach the doctors with their messages with a minimum of cost and with a minimum of risk of offense? (2) What does the physician want from the drug industry or its representatives? (3) Would the American Medical Association undertake a survey of physicians to determine how the industry can better serve the profession, with emphasis on the methods of communication now employed by the industry to reach the doctors of this country? Many problems, such as free distribution of drugs, expenditures in broader fields of advertising and in support of research, and educational articles were discussed. It was decided, however, that decisions for action could not be made until the attitude of the profession toward some of these practices could be determined by an impartial body. If such facts could be ascertained, the industry in general would no doubt be pleased to receive them.

It was agreed that future meetings would be held, and the Board of Trustees was requested to consider a survey. The Board has referred the matter of a survey to a special committee for consideration and recommendation.

All other resolutions referred to the Board of Trustees have been forwarded to the several councils or committees concerned. As soon as reports are available, they will be transmitted to the House of Delegates for action.

Hospitalization of Patients with Alcoholism

The problem of the hospitalization of patients with the diagnosis of alcoholism has been considered carefully by the Council on Mental Health and its Committee on Alcoholism. A report and resolution on this subject was submitted to the Board and approved for presentation to the House of Delegates for its action. The statement follows:

Among the numerous personality disorders encountered in the general population, it has long been recognized that a vast number of such disorders are characterized by the outstanding sign of excessive use of alcohol. All excessive users of alcohol are not diagnosed as alcoholics, but all alcoholics are excessive users. When, in addition to this excessive use, there are certain signs and symptoms of behavioral, personality and physical disorder or of their development, the syndrome of alcoholism is achieved. The intoxication and some of the other possible complications manifested in this syndrome often make treatment difficult. However, alcoholism must be regarded as within the purview of medical practice. The Council on Mental Health, its Committee on Alcoholism, and the profession in general recognizes this syndrome of alcoholism as illness which justifiably should have the attention of physicians.

One of the most consistent complaints of physicians who wish to care for these patients is that many hospitals will not admit such patients with a diagnosis of alcoholism. Many feel that these people are intractable, uncooperative, and difficult to handle. Because of their untoward behavior, hospital authorities feel that they are not equipped to take care of the medical treatment of such overactive patients. Where such patients are unruly and uncooperative, this attitude is understandable. However, for many of these sick people who express a wish to be treated in a general hospital, it has been generally found that cooperation is forthcoming and that no special attention or equipment is necessary for treating these patients. Hospitals should be urged to consider admission of such patients with a diagnosis of alcoholism based upon the condition of the individual patient rather than a general objection to all such patients. Such objections have been very frustrating for physicians who wish to treat these patients and often discourages them from taking a greater interest in alcoholics.

The Council on Mental Health, therefore, urges hospital administrators and the staffs of hospitals to look upon alcoholism as a medical problem and to admit patients who are alcoholics to their hospitals for treatment, such admission to be made after due examination, investigation and consideration of the individual patient. Chronic alcoholism should not be considered as an illness which bars admission to a hospital, but rather as qualification for admission when the patient requests such admission and is cooperative, and the attending physician's opinion and that of hospital personnel should be considered. The chronic alcoholic in an acute phase can be, and often is, a medical emergency.

In support of the above statement, the Council is of the opinion that:

1. Alcoholic symptomatology and complications which occur in many personality disorders come within the scope of medical practice.

2. Acute alcoholic intoxication can be, and often is, a medical emergency. As with any other acute case, the merits of each individual case should be considered at the time of the emergency.

3. The type of alcoholic patient admitted to a general hospital should be judged on his individual merits, consideration being given to the attending physician's opinion, cooperation of the patient, and his behavior at the time of admission. The admitting doctors should then examine the patient and determine from the history and his actions whether he should be admitted or refused.

4. In order to offer house officers well-rounded training in the general hospital, there should be adequate facilities available as part of a hospital program for care of alcoholics. Since the house officer in a hospital will eventually come in contact with this type of patient in practice, his training in treating this illness should come while he is a resident officer. Hospital staffs should be urged to accept these patients for treatment and cooperate in this program.

5. With improved means of treatment available and the changed viewpoint and attitude which places the alcoholic in the category of a sick individual, most of the problems formerly encountered in the treatment of the alcoholic in a general hospital have been greatly reduced. In any event, the individual patient should be evaluated rather than have general objection on the grounds of a diagnosis of alcoholism.

It is recognized that no general policy can be made for all hospitals. Administrators are urged to give careful consideration to the possibility of accepting such patients in the light of the newer available measures and the need for providing facilities for treating these patients. In order to render a service to the community, provision should be made for such patients who cooperate and who wish such care.

In order to accomplish any degree of success with the problem of alcoholism, it is necessary that educational programs be enlarged, methods of case finding and follow-up be ascertained, research be encouraged, and general education toward acceptance of these sick people for treatment be emphasized. The hospital and its administration occupy a unique position in the community which allows them great opportunities to contribute to the accomplishment of this purpose. It is urged that general hospitals and their administrators and staffs give thought to meeting this responsibility.

Distinguished Service Award

The Board requests that members of the Association submit nominations for the recipient of the Distinguished Service award. If possible, these nominations should be received in the Secretary's Office by March 1 of each year.

Annual and Clinical Meetings

The following places and dates have been selected for the Annual and Clinical Meetings of the Association:

Annual Meetings: 1957—New York, June 3-7; 1958—San Francisco, June 23-27; 1959—Atlantic City, June 8-12; 1960—Chicago.

Clinical Meetings: 1956—Seattle, Nov. 27-30; 1957—Philadelphia, Dec. 3-6; 1958—Minneapolis, Dec. 2-5; 1959—Dallas, Texas.

Scientific Publications

The scientific publications issued by the American Medical Association include The Journal, which is published weekly, nine specialty journals that appear monthly, the Quarterly Cumulative Index Medicus, volumes of which appear twice yearly, and a number of books. Some of these books represent special projects of Association councils and committees. Others are collections of material appearing in an Assosiation publication or developed by a council or committee but put together in book form by another publisher. Included in this collection are a book of J. A. M. A. abstracts, Epitome of the U. S. P. and N. F., Fundamentals of Anesthesia, Glandular Physiology and Therapy, Handbook of Physical Medicine, Handbook of Nutrition, Japanese edition of The Journal, New and Non-official Remedies, Standard Nomenclature of Diseases and Operations, Tests and Standards for New and Nonofficial Remedies, and Useful Drugs.

The Journal of the American Medical Association

The activities of The Journal and of those departments associated with this periodical increased during the year. More material was published, and more income was derived from advertising. A comparison of 30 issues for 1956 and 1955 reveals that 5,226,338 copies were distributed during this period in 1956 and 4,870,321 copies during the same period in 1955. The advertising pages increased from 2,596 to 2,984 for this period. Net subscription receipts and advertising income likewise increased. The number of copies being printed each week is between 178,000 and 179,000. It is anticipated that the circulation will continue to increase in the months to come and the advertising pages will increase. This means, of course, that The Journal will increase in size because a ratio of about 50% editorial material and 50% advertising is followed for this periodical. At the same time, some printing and publishing costs have increased.

New sections and new ideas are introduced from time to time in The Journal. For example, during 1956 introductory summaries were begun for the original articles. These have resulted in wide acceptance and are reported to have increased readership for these articles. Other new features include guest editorials and articles particularly pertinent to health problems during the year, for example, the special collection of articles on the Olympic Games which appear in a November issue of The Journal. In the months to come there are plans to increase the reporting on activities of the Association and its councils, committees and bureaus and of other bodies which bear a relationship to American Medical Association interests. This reporting will feature the organizational side of the Association and will reveal what the doctors and others are doing to meet and solve health problems.

The Journal contained approximately 5,220 pages of editorial material during the past year—October, 1955, through September, 1956. Included in these pages were some 630 original articles and clinical notes. Some indication of the activities of the other departments of The Journal lies in figures such as those for the News Department, Medical Literature Abstracts, and Queries and Minor Notes. From July 1, 1955, to June 30, 1956, the News Department published 2,958 items and, in addition, 2,881 obituary notices. The Medical Literature Abstracts Department, which contributes from 12 to 18 pages of abstracts each week to The Journal, supplied material from approximately 1,200 publications received by the American Medical Association. Not all of these publications are regularly abstracted, but a selection is made from the world literature on the basis of their interest for the practitioner. This department also furnishes abstracts for the *A. M. A. Archives of Industrial Health* and translates documents and letters in foreign languages which are received from other countries. During the same 12-month period, 154 pages were devoted to Queries and Minor Notes in which were published 725 questions and answers and 87 comments relative to previously published notes. About 200 inquiries are received each month.

During 1956 a readership survey for The Journal was conducted by Ben Gaffin & Associates, Inc. This organization conducted a similar survey in 1950. The objectives of the survey were to determine present readership of The Journal and of its individual sections, to obtain reader appraisal of the value of each section and of the space devoted to it, to compare the current appeal of The Journal on the above points with the 1950 showing, to learn reader reaction to specific changes in The Journal made since 1950, to learn reactions to additional changes which might be considered, and to obtain suggestions from readers for further improvements. The summary of the findings reveals that The Journal is by far the most popular of all medical publications among physicians, even more so than in 1950. One of the most important attributes of The Journal apparently is its wide coverage of the medical field. Most of the readers are aware of the changes made in The Journal over the past years, and most of them think of these changes as improvements. In most respects The Journal today appears to be meeting the needs of its readers better than the survey revealed in 1950.

The Journal of the American Medical Association is now being printed at the McCall Corporation, Dayton, Ohio, because of the decision of the Board of Trustees and recommendations of the House of Delegates concerning printing facilities at Association headquarters. A number of problems arose during the transferral of printing operations and some of the early issues of The Journal were not as satisfactory as either the editorial department or the printer would have desired. However, these problems are being quickly resolved and it is anticipated that an even better product, particularly concerning the use of color, will be available soon.

Specialty Journals

The Specialty Journals Department has devoted the greater part of the past 12 months to aiding in the negotiation of a printing contract, and to transferring its manufacturing operation to the new printer.

Much effort has gone into increasing the production of the editorial department to meet the advanced schedule established by the printer. When working with the Association's print shop, the editorial department was pressing toward the submission of copy to printer one month prior to publication. Under the new schedule, copy for the first of nine journals is reaching the printer 10 weeks before date of publication. It is desirable that this schedule be advanced an additional month so that one issue of each journal will always be standing in page proof form. This advance schedule has been met with no increase in the editorial staff. Much credit is due the chief editors and the editorial boards of the specialty journals for their cooperation in securing sufficient manuscript copy to make the advanced editorial schedule possible. Adjusted to a flow of copy necessary for the previous operation, they were confronted with the task of furnishing adequate material for the manuscript editors to double their output.

During the first eight months of 1956 the specialty journals published 850 original articles, 19 progress reports or general reviews, 104 case reports or clinical reports, 8 special articles, 23 scientific exhibits, and 17 editorials, or a total of 1,021 articles. The total of unpublished articles for all specialty journals is 720. It is anticipated that about 550 more papers, including original articles, progress reports, general reviews, case reports, clinical notes, special articles, scientific exhibits, and editorials, will be published during the remainder of 1956. It is anticipated that all nine journals will be published the first week of each due month. Present indications are that this schedule will be met with the October, 1956, issues. The first few numbers under the new arrangement have been delayed due to the many ramifications of transferring the printing operation.

The specialty journals are undergoing careful analysis by an expert in typography and journal design. This service is provided by the new printer without cost. Upon approval, the improvements recommended will be incorporated into the publications.

The specialty journals are in a position to offer readers superior quality in color reproduction. A year ago these journals became interested in a new color process which previously was confined to advertising needs. Today this process is providing realistic color of diagnostic significance. Limited to one or two journals at the present, it is anticipated the use of color will spread to other specialty journals.

The circulation of each specialty journal has been analyzed with a view to developing a promotion program with direction. The analysis, carefully studied and interpreted, can also be of editorial significance. The combination of improvement in circulation, subject appeal, attractive appearance, and format should enhance the possibility of increased advertising revenue.

Arrangements have been concluded for the sale of back copies of the specialty journals, two years or more old, through a concern specializing in this type of publication. This is a continuation of a service formerly offered by the Association's Order Department. An added service has been developed for the specialty journals subscriber. Through the cooperation of a specialized bindery with the Association, a subscriber service is available which provides a bound volume of six unused issues of a specialty journal. This service eliminates the necessity of collecting monthly issues, replacing lost numbers, and packing and shipping to the bindery.

More stabilized journals, thus resulting in a better controlled manufacturing budget, adjustments in accounting procedures, increased subscription and advertising revenue, and a general leveling off on a monthly manufacturing basis have contributed greatly to a most favorable financial trend in the publishing of the specialty journals.

Quarterly Cumulative Index Medicus

Two volumes of the Index have been printed this year as usual. Volume 53 (January-June 1953) was mailed last October and Volume (July-December 1953) in February.

Although a number of periodicals were removed from the lists of those indexed, leaving approximately 950, these volumes were larger than previous issues, running to 1,775 and 1,761 pages, respectively. Nineteen journals were added in volume 53, 13 of these being new publications; 18 journals were added in volume 54, half of them new. Volume 53 included almost 33,000 articles, volume 54 about 32,650; 116,350 cards, exclusive of cross references, were typed for the former and 110,940 for the latter. Volume 53 covered 16,340 articles in English, 5,180 in German, 4,365 in French, 3,115 in Italian, and 1,945 in Spanish. Volume 54 included 16,350 articles in English, 5,127 in German, 3,355 in French, 3,287 in Italian, and 2,249 in Spanish.

By the end of the 12-month period all the editorial work on Volume 55 (January-June 1954) had been completed, and editing of copy for the next volume was started.

During the year an Associate Editor with experience in medical editing and indexing was employed. As a result it is expected that the accomplishment for next year will be improved.

As evidence of continued interest in the Index, the following items are significant: The number of paid subscriptions is still 4,500 in spite of the delay in publication; the Quarterly Cumulative Index Medicus was one of the chief medical reference tools discussed in a recent symposium on medical bibliography; according to information received recently, the new edition of World Medical Periodicals will carry the initials "QC" after each journal included in the Index.

Circulation

The circulation of The Journal, the nine specialty journals, and the Quarterly Cumulative Index Medicus increased with each issue during the fiscal year ending June 30, 1956. The net gain in the average weekly paid circulation of The Journal was 1,646, and the growth continued to the point where the net paid circulation for the June 30, 1956, issue was over 173,000.

Subscribers not receiving one of the scientific periodicals as a benefit of paid American Medical Association membership dues are required to pay their subscriptions in advance. Expiration notices are also sent in advance, with a series of three renewal reminders mailed at regular intervals. All subscriptions are terminated upon expiration if a paid renewal order has not been received. This policy has stabilized the circulation and improved the renewal percentage.

With the continuation and expansion of promotion activities, it is planned to increase the average net paid circulation of each issue of The Journal to 178,000. It is hoped that these promotion activities will also increase the average net paid circulation of the other scientific periodicals.

The major portion of the subscription fulfillment activities is now performed under contract with McCall Corporation, printers and mailers of The Journal. That company's experience and mass production facilities will expedite the processing of subscriptions and will continue to contribute to increasing the service to members and subscribers.

Standard Nomenclature of Diseases and Operations

There have been several changes in the office of the Standard Nomenclature of Diseases and Operations in the past year. In January, 1956, Dr. Richard J. Plunkett resigned the editorship of the Nomenclature to assume the position of Associate Director for Administration, Joint Commission on Mental Illness and Health. In February, 1956, the Board of Trustees appointed Dr. Edward T. Thompson, Chief, Operations Branch, Division of Hospital Facilities, Public Health Service, Washington, D. C., Editor of the Nomenclature. Dr. Thompson has served as a member of the Editorial Advisory Board since 1948.

The Standard Nomenclature of Diseases and Operations has progressed rapidly in the past few months. The Respiratory Committee, Dentistry, Ophthalmology, Female-Genital System, Urology, and Anesthesiology Committees have all presented their first reports, including changes, additions, and deletions for their respective sections. These changes have been made in the Nomenclature. Work is being conducted on the revision of the neurology and operations sections. Categories three and eight of the etiologic section are also being revised to conform with modern scientific progress. The fifth edition of the Nomenclature is being simplified thus making the Nomenclature a smaller and more comprehensive volume. The publication date for the fifth edition will be approximately Jan. 1, 1962.

An educational exhibit on the Standard Nomenclature explaining the organizational set-up was displayed at the American Hospital Association meeting in Atlantic City, N. J., the American Association of Medical Record Librarians meeting in Chicago, and the American Medical Association Annual Meeting in Chicago. There is a definite trend toward the installation of the Nomenclature in doctors' offices, clinics, and pathology laboratories in addition to new hospital installations. Approximately 3,000 queries have cleared through the headquarters office since October, 1955. Approximately 39,350 copies of the fourth edition of the Standard Nomenclature of Diseases and Operations have been sold to January, 1956.

The American Medical Association has sponsored and conducted 3 three-day Standard Nomenclature Institutes in Atlantic City, N. J., New York, and Association headquarters in Chicago this past year. The American Medical Association-sponsored institutes are tuition-free, and the lectures are designed to accommodate beginners, intermediates, and advanced students. Medical record librarians, clinic clerks, doctors' secretaries, receptionists, nurses, and doctors enroll in these institutes. The applications for each institute far exceeded facilities available for teaching. Due to the fact that it is necessary to limit registration at the Institutes, 360 students were accommodated and 400 refused. Standard Nomenclature Institutes are in the planning stage to be held in Roanoke, Va., San Francisco, and at headquarters during the coming year. The Standard Nomenclature Institute teaching is under the direction of the editors of the Nomenclature. In addition to the Institute teaching, the Associate Editor has lectured on Standard Nomenclature in Virginia, New York, Illinois, Michigan, and Indiana.

The Editorial Advisory Board for the fifth edition of the Nomenclature appointed by the Board of Trustees consists of Drs. George Baehr, Chairman, New York; Edwin L. Crosby, Chicago; Selwyn D. Collins, Washington, D. C.; Austin Smith, Chicago; and Edward T. Thompson, Washington, D. C., Editor, and Adaline C. Haydon, C.R.L., Chicago, Associate Editor.

Library

This year has seen the completion of two projects, one of which was mentioned in the last report. Reorganization of the book collection was finished with the withdrawal of older items and a complete revision of catalog and shelf card files. New titles are being added with special attention given to gaps left in certain fields by the weeding process. It is expected that as a result the library will soon have a well-rounded collection of books suitable to its needs.

The second undertaking was weeding the reprint collection to remove obsolete material, and rearranging and labeling the folders to make the file much more usable and accessible. Also, a number of additional periodicals were available for mutilation, often making it possible to include the latest articles in packages. These changes have speeded the collecting and processing of package libraries.

In spite of the time required to revise both these collections the Library staff has handled as much reference work as last year. Under the supervision of the new reference librarian the backlog of requests has been eliminated, and letters are being answered more promptly than formerly. Requests are seldom held more than 48 hours before a package or a list of references is in the mail, and in emergencies material is often sent on the day the letter arrives.

The Periodical Lending Service has handled 12,825 separate periodicals; 3,660 of these were included in package libraries and 2,250 loaned to other departments and persons in the headquarters building. If journals are available, they are ordinarily mailed to the borrower within a day after his order arrives.

Two staff members have prepared the indexes to volumes of THE JOURNAL as usual. According to comments from various sources these indexes are widely used as a quick source of information on many topics since THE JOURNAL offers such broad coverage of the whole field of medicine.

A new arrangement has been made for disposing of the periodicals discarded at the close of each year. Most of the titles are now given to the Midwest Inter-Library Center in Chicago where they are available for consultation should need arise.

The records of periodical acquisitions for the year show that 167 new titles were received, 70 of them first issues. Only 25 of the 167 journals received were assigned to the Quarterly Cumulative Index Medicus for indexing, but 45 more will be reconsidered when a wider coverage is contemplated.

Today's Health

EDITORIAL DEPARTMENT:

Manuscript purchases have been cut to the bone. Nineteen articles are now rejected for one accepted, despite the appreciable rise in over-all quality of material submitted. Currently an average of 175 articles are submitted each month. This is in addition to about 70 pieces of verse and 910 cartoons, spot drawing, and photographs including color, of which about one in 30 is accepted. This testifies to the rising interest in *Today's Health* among competent writers, artists, and photographers.

Unfortunately in the financial sense, but most fortunate for the welfare of the magazine, the reduction in spending for articles falls short of the drastic cut in the quantity purchased. The reason is that only work is purchased that the magazine cannot afford to turn down and, within its limitations, must pay for in proportion to quality.

In addition to constant corner-cutting in the purchase of art—and "art" includes all forms of graphic material and even art supplies—the size and complexity of illustrations, the use of color and "bleeds" have been judiciously but markedly reduced. Art work has been held to styles permitting the most routine and therefore least expensive type of reproduction. While this practice makes a difference in the appearance of the magazine, it has been done with insistence on maintaining variety within those restrictions and with taste and ingenuity. It has not been costly in respect to quality. Editorial costs, December through June, were running $4,000 under budget and $5,600 under the same period last year.

Outside reader research and consultation services, already curtailed, were discontinued at midyear, partly for economy and partly because it was felt that the cream of what the present editorial consultants, who have been of material help, could tell us had been obtained. It is the consensus of the *Today's Health* staff, however, that to abandon outside editorial research and consultation would be false economy, and current plans are to resume it next year with new consultants and a fresh viewpoint.

The effectiveness of *Today's Health* covers have been markedly enhanced by an innovation that started with the September, 1955, issue. Every cover now is an illustration designed to interest the reader in the leading article in that issue, and often the cover bears several subordinate illustrations, each promoting an outstanding article. The words, "Published by the American Medical Association," formerly at the bottom of the cover, are displayed in large type across the top. Research studies have demonstrated that American Medical Association identification is an asset to the magazine, and the soundness, interest and helpfulness of the magazine are a prestige and good will asset to the Association.

A broader editorial scope has been adopted. Article topics have ranged from Christmas to drug addiction and have included auto and traffic safety, the plight of the dieters eating out, epilepsy and marriage, foot care, growing old gracefully, wage-earners' and school lunches, biological warfare, heat, learning to swim, the advantages in time, effort, cost and nutrition of packaged meals or prepared foods against fresh foods, noise, transistor hearing aids, the schools, teen-agers, civil defense, and so on. A cumulative index of all articles published in *Today's Health* (1950 through 1955) is available through the office of the Managing Publisher.

Today's Health is attracting contributors of distinction: Corcoran and Page on blood pressure, Feinberg on allergy, Davidsohn on the Rh factor, Behrens on vision, Cameron on cancer, Bortz on digestion, Desmond on the aged, Fabricant on headaches; from government, Surgeon General Scheele, Commissioner of Education S. M. Brownell and Civil Defense Commissioner Peterson; among professional writers, Blakeslee of the Associated Press, Geiger of *INS*, Ubell of the *Herald-Tribune*, Paul de Kruif, Ida Bailey Allen, Bruce Bliven, Amram Scheinfeld and Rebecca Reyher.

Eleven publications, ranging from *Coronet* magazine to an encyclopedia, paid $1,526 to reprint 34 articles from *Today's Health*, in addition to complimentary permission to 132 publications to reprint 168 articles. In the preceding twelve months, nine publications paid $1,020 for permission to reprint 29 articles, and complimentary permission was granted 84 publications to reprint 137 articles. Twenty-four *Today's Health* articles were reprinted by the Bureau of Health Education. Taking these figures at face value, they indicate a marked rise in the interest of material published in *Today's Health*. A soft-cover collection of 58 outstanding *Today's Health* articles, is to be published in January, 1957, as a Dell First Edition, and will be available nationwide about the end of that month on the 100,000 bookracks where Dell Books are sold. The publisher, one of the most respected in the field, describes it in terms that many readers seem to feel fit *Today's Health*: "A simple, hopeful book that everyone interested in healthier, happier living can use and understand."

CIRCULATION DEPARTMENT

The circulation of *Today's Health* continued at a high level through the 12-month period, despite a decided drop in new subscriber promotion activities. The average net paid circulation for the period from July, 1955, through June, 1956, was 339,888.

A survey of the classification of the subscribers who received the May, 1955, and the May, 1956, issues produced the following percentages:

Subscriber Classifications	Percentage of Total of Paid Subscriptions	
	May, 1955	May, 1956
Lay subscribers	59.1	70.5
Nurses	1.9	3.9
Physicians	18.2	8.1
Dentists	8.5	3.7
Hospitals	0.6	1.7
Schools, teachers	6.6	7.0
Public libraries	1.5	1.5
Clergymen	0.5	0.6
Miscellaneous	3.1	3.0

The change in the number of copies going into the offices of physicians and dentists resulted from the fact that no special emphasis was given to this category in the 1955-1956 Woman's Auxiliary subscription project. The auxiliaries concentrated on school, library, laity, and gift orders. Local and state medical society auxiliaries produced orders for 57,792 subscription years in the 1955-1956 project, which is an increase of 4,577 over the previous fiscal year and the highest number of orders ever produced through the efforts of the medical society auxiliaries. The 1956-1957 goal is 75,000 subscription years, and the national, regional, state and local auxiliary projects will use as their theme: Increased Reception Room Readership, with more subscriptions for physicians' and dentists' reception rooms.

Special advertisements and insert order forms are enclosed in all issues so that waiting patients, school, and library readers have an opportunity to subscribe to the magazine after becoming acquainted with it. The placing of *Today's Health* in physicians' and dentists' reception rooms helps to increase the percentage of returns in our Fall and Winter direct mail promotion efforts for new lay subscribers because a large percentage (approximately 33%) state that they subscribed to the magazine after seeing it for the first time in their doctor's waiting room.

The rising renewal percentage on subscriptions reflects a wider acceptance of the magazine and a healthy growth of interest by the laity. A comparison of the renewal percentages for the last two fiscal years shows:

July 1, 1954 thru June 30, 1955	*July 1, 1955 thru June 30, 1956*
42.0%	55.2%

This renewal percentage compares favorably with national magazines such as *Look*, *Life*, *Collier's*, and *Newsweek*, which are happy to approach a renewal percentage of approximately 48 percent.

In addition to the 24,346 schools and teachers who regularly subscribe to the magazine, 65 high schools and colleges used *Today's Health* in the classroom under the magazine's Group Study Plan during the 1955-1956 school year. An average of 2,638 copies per month were used in these schools and were supplied at a special bulk rate for quantity orders, including a monthly list of discussion topic questions and answers prepared by the Bureau of Health Education. Actually, an average of 26,984 copies per month were received by students and teachers during the last school year, and as each copy is normally used by more than one student and class, it is obvious that the magazine reaches a very large audience of high school, college, and university students.

Today's Health has been displayed at 10 national conventions this past fiscal year and sample copies, promotion circulars and subscription forms have been distributed to professional and health education leaders and personnel at the following meetings:

American Association for Health, Physical Education and Recreation, NEA
American Association of School Administrators, NEA
American Dental Association
American Library Association
American Nurses Association
American Public Health Association
National Education Association
Annual American Medical Association
Clinical American Medical Association
Student American Medical Association

Group subscriptions ranging from 10 to 1,200 copies have been received from industrial and business firms, and it is expected that the wider recognition of the health education value of *Today's Health* by industrial physicians and industrial and business leaders will stimulate this project. Also, many of the nation's leading railroads, airlines, and steamship lines are placing the magazine in the lounges of their passenger carriers.

The major portion of the subscription fulfillment activities are now performed under contract with McCall Corporation, the printers and mailers of the magazine. Making use of their experience and mass-production facilities has expedited the processing of subscriptions and is contributing to increasing the renewal potential.

ADVERTISING DEPARTMENT

Advertising promotion and merchandising services were intensified during the fall of 1955, and this resulted in increased billing. That billing decreased during the first six months of 1956 but is again on the upswing. It might be mentioned that the circulation guarantee for advertisers was raised from 220,000 to 330,000 in July of 1955. This made possible a 20% increase in advertising rates.

Perhaps the most significant promotion activity of the Advertising Department was a survey made in February, 1956, designed to show the use of *Today's Health* in physicians' waiting rooms. Of the 60,140 physician subscribers it is known that 98.2% put the magazine in their reception rooms. It is also known that these physician subscribers see 27,664,400 office patients each month, 331,972,800 each year. Further facts relating to age and sex characteristics of the patients, age and location of the physician, type of practice, etc., were established. Further research along this line, but concentrated on other segments of the *Today's Health* audience, is contemplated.

Advertising revenue is still territorially out of balance, in that approximately 60% of total volume is coming from the Midwest and only 35% from the East. It is hoped that the addition of an experienced, full-time *Today's Health* representative to the New York staff will correct this situation.

The advertising feature Helpful Hints for Better Living came into its own during the period covered by this report. This monthly feature gives the reader an opportunity to request additional information about advertised products, and during the Spring of 1956 the monthly inquiry total ranged between 16,000 and 20,000.

While *Today's Health* is basically a consumer publication, it is interesting to note that perhaps its best immediate potential for increased advertising sales comes from the pharmaceutical industry. That industry is, for the first time, promoting "over-the-counter" items, and has established a committee to develop a national public relations (education) program. *Today's Health* is being used as a springboard or base for several consumer campaigns and prospects are good that more will be forthcoming.

MECHANICAL PRODUCTION

Early in 1956 the *Today's Health* Production Department was established. A production coordinator was appointed to serve both the advertising and editorial departments and at the same time maintain proper control over printing, engraving, and paper costs. Many of the economies effected by the Editorial Department are reflected in decreased production costs. Furthermore, it is encouraging to note that over-all production costs this year are considerably below those of last year even in the face of increased printing and paper costs.

ADMINISTRATIVE DEPARTMENT

The most significant activity of the Administrative Department during the past year was the development of monthly (financial) operating statements for all *Today's Health* departments. These reports are invaluable to management and to the individual department heads from the standpoint of cost control they reflect operating statistics never before available. For the fiscal year 1955 approximately $80,000 was cut from the anticipated deficit and at the same time nearly 1,000,000 more copies of the magazine were printed than in the previous 12-month period. In March, 1956, it became obvious that an alternate 1956 budget should be established. This alternate plan has made it possible for *Today's Health* to remain within the bounds of its present budget. The fine cooperation of *Today's Health* department heads has made the plan work.

The Managing Publisher presented a recommendation to the American Medical Association Board of Trustees in June, 1956, to the effect that *Today's Health* be established as a separate entity within the operational framework of the Association. At the writing of this report no action had been taken by the Board.

Report of Law Department

This report covers the activities of the Law Department from July 1, 1955, to June 30, 1956. During that period the department continued to operate as the coordinating agency for the legal activities of the Association and in addition maintained its interest in the field of forensic medicine. It has expanded its work with state and county medical societies and increased its efforts in arranging joint programs with the legal profession at the national and state level.

The department has continued to provide staff assistance and to work closely with the Judicial Council, the Committee on Legislation, the Council on Constitution and Bylaws, and the Committee on Medicolegal Problems in the implementation of their respective programs. Inasmuch as separate reports will be filed by each of these councils and committees, no further comment will be made here regarding their operations. The Director would, however, like to express his sincere thanks and appreciation to the chairmen and members of each for the full cooperation and the pleasant working relationship that has prevailed.

General Legal Affairs

Under the direction of the Secretary and General Manager, the department has continued to act as the principal legal adviser to the Board of Trustees, the House of Delegates, the officers and the executive staff of the Association. The legal issues involved in this work are comparable to those facing any corporation as large and with as many and varied interests as the American Medical Association. Included are questions involving antitrust law, contracts, taxes, leases and the law of copyrights, trade-marks, libel, slander, and insurance.

In association with outside legal counsel, the department provides legal protection for the Association through (1) advice designed to prevent liability; (2) proper legal defense if sued; and (3) affirmative legal action if injured by another party or organization.

The members of the staff of the department have worked in close cooperation with outside counsel in connection with four cases currently pending in which the Association is involved. Assistance has been rendered in the assembling of background information, the taking of depositions, and in other ways in the preparation of these cases for trial.

Liaison Activities

Intraassociation Work.—The success of the closer liaison that has been established between the Law Department and the various councils, committees, departments, and bureaus of Association has been particularly gratifying. As indicated in the last annual report of the department, each of the attorneys on the staff has been assigned responsibility for maintaining liaison with, attending the meetings of, and advising the members and staff of specific councils and committees.

In addition to the permanent councils and committees of the Association, there are a number of temporary committees and subcommittees that have received legal and, on occasion, administrative assistance from the department. The assistance given to these committees, some of which are listed below, has varied considerably. Included is legal research, the preparation of reports and opinions, participation at meetings, and the answering of legal questions arising out of their deliberations. The Director of the department has participated as an active member of the first six of the following committees:

Committee on Scientific Councils
Advertising Committee
Committee on Medicolegal Problems
Committee on Dependent Medical Care
Joint Committee with the American Bar Association on Narcotic Addiction
Task Force on Rehabilitation
Committee on Medical Practices
Commission on Medical Care Plans
Committee on Graduates of Foreign Medical Schools
Committee on Specialists in Other Fields
Committee on Physician-Hospital Relations
Committee on Grievance Committees
Committee on Liaison with Labor and Management
Inter-Association Committee on Health
Committee on Medical and Related Facilities
Commission on Medical Care Plans
Committee to Review Functions of Joint Commission on Accreditation of Hospitals
Committee on Federal Medical Service

State and County Medical Societies.—In addition to liaison activities within the Association the department has through correspondence and personal visits established and maintained active contact with the executive secretaries and the legal counsel for state and and county medical societies. Representatives from the department have, on request, spoken on medicolegal subjects on innumerable occasions, at state and local medical meetings, and at joint medicolegal conferences. The staff of the department has also shown and explained exhibits on Medical Professional Liability and the Drunken Driver at state and county medical meetings.

In the opinion of the department one of the most significant and successful activities during the past year was the planning and conducting of the first national conference for attorneys and executive secretaries of state and county medical societies. The purpose of the meeting was to discuss mutual legal problems of organized medicine and to consider several recent court decisions of particular importance to medical societies. The meeting, which was attended by 93 attorneys and executive secretaries, proved to be a valuable postgraduate course in those branches of the law most frequently encountered by legal counsel for state and county medical societies. During the two-day meeting, 27 speakers presented papers and answered questions on the following six subjects:

Organized Medicine and the Antitrust Laws
Corporate Practice of Medicine
Grievance Committees and Disciplinary Proceedings
Medical Professional Liability
Interprofessional Codes of Conduct for Physicians and Attorneys
Legislation, Lobbying, and Tax Problems

On the basis of the reaction of the participants at the meeting it has been decided to sponsor the conference every two years.

The department has worked closely with individual physicians, medical societies, and allied health associations in explaining and clarifying the policies and programs of the Association and in seeking internal and outside support in the implementation of common objectives of the medical profession and allied groups.

Although a statistical record has not been kept of the number of letters received and answered by the department, there is no doubt that several thousand were processed during the period of this report. These letters from individual physicians, attorneys, state and county medical societies, and outside organizations deal with a wide variety of problems in the medicolegal field.

Preparation or Review of Published Material

The department has continued to work closely with the editors, the managing publisher, and the staffs of The Journal, the specialty journals, and *Today's Health* in preparing special articles, book reviews, and editorials. Assistance has also been provided in reviewing material submitted from other sources that might have legal implications.

The following list indicates the material prepared by the Department and the dates of publication:

Hospital Staff Privileges Contingent Upon Membership in County Medical Society	July 23, 1955
Blood Transfusion—Sale or Service	Aug. 20, 1955
Medicolegal Symposiums	Sept. 24, 1955
Medicolegal Aspects of Tissue Homotransplantation	Oct. 1, 1955
Publication of Precedent Opinions of the Judicial Council	Oct. 15, 1955
Hospital's Liability for Negligence of Laboratory Technician	Dec. 3, 1955
Group Medical and Hospital Service Plan: No Violation Found	Dec. 10, 1955
Court Holds Iowa Hospitals Engaged in Illegal Practice of Medicine	Jan. 7, 1956
Federal Income Tax: Deduction of Expenses Incurred in Taking Postgraduate Courses	Feb. 4, 1956
Report on Study of Professional Liability Insurance and Prevention Program	Feb. 4, 1956
The Tissue Committee	April 7, 1956
Committees for the Review of Medicolegal Testimony	April 14, 1956
Mutual Understanding Between Physicians and Attorneys	April 21, 1956
Publication of Precedent Opinions of the Judicial Council	June 9, 1956
In the Matter of the Appeal of Dr. Charles E. Bolinger to The Judicial Council of the American Medical Association	July 7, 1956
Tax-Deduction Expenses for Education	July 28, 1956
Internal Revenue Service Rejects Kintner Case as a Precedent	Aug. 11, 1956
The Presumption of Legitimacy and Laches in Relation to the Denial of Paternity	Aug. 11, 1956

The department also assisted in the preparation and in the negotiation of contracts incident to the transfer of the printing of The Journal and the specialty journals from the Association to the McCall Corporation of Dayton, Ohio, and the Baird-Warner Printing Co., Inc., of Nashville, Tenn.

Medicolegal Relations

The department has greatly accelerated its efforts in the field of medicolegal relations to meet what it considers to be a growing desire on the part of the legal and medical professions to join in a sincere cooperative effort to settle the real and imagined differences that exist. It has encouraged and participated in joint medicolegal conferences at the national, state, and local levels. Assistance has also been provided in the negotiation of written codes of understanding. These codes now exist in Cincinnati, Ohio; Maricopa County, Ariz.; Louisville, Ky.; Minnesota; Oregon; Pennsylvania; Utah; and Wisconsin.

Regional Conferences.—The department in cooperation with the Committee on Medicolegal Problems staged a series of three regional medicolegal symposiums last fall. Over a thousand physicians and lawyers from 20 states attended these meetings, which were held in Chicago on Oct. 9, in Omaha on Oct. 16, and in New York City on Oct. 30. They were the first joint meetings of members of both the legal and medical professions organized and sponsored by a national organization.

In developing the theme of the conferences, it was agreed that lawsuits are adversary proceedings and that conflict is a major element in the medicolegal field. Discussions and papers presented from the viewpoint of each profession proved that doctors and lawyers are both attempting to obtain the best results from individual and professional efforts. In presenting the view of medicine or law, every effort was made to clarify misunderstandings, not for the sake of understanding alone, but as a means to an end—the welfare of the individuals served, whether identified as patients, clients, or the public. At each meeting three broad areas of medicolegal relations were considered: medicine's contribution to the administration of justice; mutual medicolegal problems as viewed by each profession; and a demonstration showing a medical expert witness under proper and improper courtroom conditions.

In the area of the administration of justice there were provocative discussions on traumatic neurosis, trauma, and disease, medical expert testimony, and medical science in the administration of criminal justice. In the area of medicolegal problems there were discussions of the several aspects of professional liability, a consideration of the professional man as a taxpayer, and an exploration of the best methods to insure unbiased medical expert testimony. The balance of each session was devoted to the questioning of a medical expert witness in a two-part mock trial demonstration. In the first part of the demonstration the medical witness had not been prepared in any way for the role he was to play. He had poorly prepared himself and had not been adequately advised by the attorney for whom he testified. As a result he was laid open to a cross-examination that destroyed the credibility of his testimony and made him appear something less than an expert in his specialty. The same witness in the same factual situation was then characterized as a thorough and capable physician. He had conducted a complete physical examination of the individual, and his testimony was objective and factual. Because of preparation he was not subject to a successful attack on cross-examination. The department is indebted to Dr. Ralph E. DeForest, Secretary of the Association's Council on Medical Physics, who acted as the witness in this demonstration.

Medicolegal Conference: State and Local.—Since the last of the regional meetings, a number of requests have been received to present the expert witness demonstration at medical and legal meetings in all parts of the United States. During the period covered by this report, the demonstration has been presented on 10 occasions to over 5,000 physicians and attorneys. It is scheduled for presentation on four more occasions this year, the final showing to be given at the annual meeting of the American Academy of Orthopedic Surgeons.

Projects of Medicolegal Significance

During the year the department planned, developed, and directed a number of major medicolegal projects of substantial importance to the medical profession and the Association.

Establishment of Independent Commissions and Foundations.—The department participated in the establishment of new and independent corporate entities to handle the activities of the former State Journal Advertising Bureau and to examine foreign-trained medical students.

Model Post-Mortem Examinations Act.—In cooperating with the Committee on Medicolegal Problems the department has worked actively in support of the Model Post-Mortem Examinations Act as approved by the National Conference of Commissioners on Uniform State Laws. Speakers have been provided on several occasions to explain and discuss the provisions of the model law and the advantages of the medical examiner over the coroner system.

Medicolegal Film Project.—The department has coordinated the efforts of representatives of the American Bar Association, the American Law Student Conference, the Junior Bar Conference, the Association of American Law Schools, the Association of American Medical Colleges, the Student American Medical Association, and the American Academy of Forensic Sciences in the planning and production of a series of six medicolegal films dealing with such subjects as the doctor as a medical expert witness, medical science in the administration of criminal justice, medical professional liability, and chemical tests for intoxication.

Corporate Practice of Medicine.—The review of state statutes and court decisions dealing with the corporate practice of medicine prepared by the former Bureau of Legal Medicine and Legislation in 1949 was brought up to date to include all recent decisions, state statutes, and attorneys general opinions. This 46-page booklet has been distributed to all state and large county medical societies and is available upon request.

Compilation of State and Federal Laws.—The department has maintained a current compilation of state and federal laws, as well as pertinent regulations dealing with medicolegal affairs, taxes, workmen's compensation, and other areas of law involved in the activities of the Association.

Medicolegal Forms.—Preparation has been started on a set of medicolegal forms for use by the physician and his legal counsel. This set of over 50 forms, with accompanying legal analysis and case citations, will be published in The Journal and later in book form.

Study of Medical Professional Liability

In accordance with the request of the Board of Trustees and the House of Delegates, the Law Department has continued its study of medical professional liability. All of the facets of this survey referred to in our last report have been initiated and some have been completed.

1. A comparative analysis of state insurance laws and regulations in the professional liability field has been completed.

2. An investigation, by use of a questionnaire, of the experiences of state medical societies with group professional liability insurance and claims prevention programs has also been completed.

3. An opinion survey of 5% of the members of the Association (7,500) has been initiated to determine professional liability claims experience of the profession, the views of physicians on numerous aspects of the problem, and their suggestions as to a valid prevention program. The responses when tabulated should give an indication of the number of claims and suits that have been brought against physicians, the amount of professional liability insurance, if any, carried by physicians, and a consensus of opinion as to the best way to cope with professional liability claims and suits. All of this information will be broken down by age group, medical specialty, and geographical location.

4. An analysis of all reported cases that have been litigated during the past 20 years is completed. Information from these cases, about 750, is being broken down to show complete information concerning the patient, the parties to the litigation, the time and nature of the alleged malpractice, the number and types of medical witnesses, and complete information as to the disposition of each case.

5. Fifteen physicians and attorneys have been asked to write articles on various aspects of medical professional liability. We plan to publish each article, several of which have already been received, in a separate issue of The Journal. Thereafter, all the articles will be reproduced in booklet form.

6. Thirty-one of the known insurance companies writing professional liability insurance in the United States have been contacted and requested to cooperate with us in this survey. These companies have been asked to supply extensive statistical data relative to professional liability claims and suits. To date, with the assistance of the Council on Medical Service and the National Bureau of Casualty Underwriters, liaison has been established with many of these companies. It is our opinion that the insurance industry can make a valuable contribution to the survey by furnishing information which to date has not been available on a national basis.

7. A detailed study of the statutes of limitation of each state relating to medical professional liability suits has been completed.

8. Letters have been sent to the armed forces, Veterans Administration, U. S. Public Health Service, and the Department of Justice in an effort to obtain information on the causes, number, and disposition of professional liability claims and suits against government physicians, as well as the role the government is playing in assuming responsibility.

The department is confident that its survey of professional liability when completed will provide the basis for a complete and up to date statistical report and will supply sufficient material and information on which to formulate a sound long-range educational program of prevention for both the legal and medical professions.

Optometric Study

At the request of the Judicial Council, the Law Department has begun a review of the scope of optometric practice as well as current legislative and legal trends in this field. This study involves a review of national statutes and proposed legislation, state statutes and bills, and current decisions dealing with the scope of optometry and ophthalmology.

Postgraduate Medical Expenses: Tax Deductions

Since the beginning of federal income taxes in the United States, the expenses of industry in keeping abreast of scientific and technological developments have been considered as proper deductions. Yet similar expenditures on the part of practicing professional men in attending educational courses dealing with current developments in their professions have been disallowed. The specific question as to whether a practicing lawyer who handles tax matters may deduct expenses of tuition, travel, and board and lodging incurred in attending a series of lectures on federal taxation was considered by the courts in a recent case. The ruling of the court recognized the validity of a tax deduction for a professional man's expenses in taking educational courses to keep abreast of current developments in his field of practice. Although it would seem that the court's decision should have settled the question, some Internal Revenue agents arbitrarily took the position that it did not apply to physicians. Others limited the application of the decision in a discriminatory manner. For this reason it was felt that the resulting confusion and inequity could be remedied only by a regulation clearly recognizing postgraduate educational expenses of practicing physicians as a valid tax deduction. After numerous requests by the Law Department of the Association and by others, the Commissioner of Internal Revenue has now issued a "proposed" regulation. From a practical standpoint it is now effective, although there will be some clarifications in language before it becomes final. We believe it will grant needed tax relief and encourage practicing physicians to take short courses that will keep them current in medical knowledge and techniques with the assurance that the expenses involved are proper items of business expense. The Law Department has analyzed the regulation and has presented suggestions to clarify some minor ambiguities in language.

Medicolegal Abstracts

The Law Department has continued the work of preparing abstracts of court decisions in the medicolegal field. Some of these abstracts have appeared in The Journal from time to time, while others have merely been indexed and are being held for inclusion in the next permanent volume, which probably will include abstracts prepared during the period 1953-1957. References to a few of the cases abstracted and published during the period covered by this report are given below.

The Supreme Court of Illinois (Amaan v. Faidy, 114 N. E. [2] 412) overruled a 1900 decision and held that the estate of a viable child who suffered prenatal injuries and was thereafter born alive has a right of action against the person whose alleged negligence caused the injuries. The Supreme Court of New Jersey (Greenspan v. Slate, 97 A. [2] 390) held that a physician who renders medical services in an emergency to a minor child may recover from the child's parents the reasonable value of those services. The district court of appeals of California (Rosenberg v. Feigin, 260 P. [2] 143) indicated that it is not malpractice for a physician to render care and treatment according to accepted standards to a wife who has requested and consented to such care and treatment without first having obtained the consent of the husband. The Supreme Court of Louisiana (Katz v. Bernstein, 65 So. [2] 331) admitted that ability to pay is a valid criterion for setting medical fees but indicated that there must be adequate proof of the wealth of the patient to support the fee charged. The Supreme Court of Wyoming (Wright v. Wyoming State Training School, 255 P. [2] 211) decided that the contracting of dermatitis venenata by a nurse's aid in a school dispensary is an accident within the meaning of the workmen's compensation act for which she is entitled to an award. The Supreme Court of Pennsylvania (Powell v. Risser, 99 A. [2] 454) reaffirmed the general rule that a physician is not liable for injury to a patient that occurs as a result of nursing procedures, the procedure in this case being the application of wet-pack treatments to patients whose mental condition renders them violent.

The Supreme Court of the United States (Orloff v. Willoughby, 73 S. Ct. 534) held that a physician inducted into the armed forces under the doctor-draft provisions of the law but denied a commission because he refused to answer certain loyalty questions was entitled to be assigned duties falling within medical and allied specialist categories. The duties of a medical laboratory technician fell into such category. The New York Supreme Court, appellate division, (Kelly v. Gregory, 125 N. Y. S. [2] 696) agreed with the decision of the Supreme Court of Illinois referred to above and held that if a child born after an injury sustained at any period of his prenatal life can prove the effect on him of the tort, he makes out a right to recover.

When a drastic injury occurs to an otherwise healthy portion of the body as a result of chiropractic manipulations, a jury may conclude that the manipulator acted negligently, said the Springfield, Mo., court of appeals (York v. Daniels, 259 S. W. [2] 109). In this case the deceased, after chiropractic manipulation, suffered an injury to the spinal meninges resulting in intraspinal bleeding and compression of the spinal cord. The Supreme Court of Washington (Nelson v. Murphy, 258 P. [2] 472) held that a doctor is deemed negligent only if he departs from the normal standards of practice of his community and that the standards of the community, and the question of whether or not the defendant departed from them, can be established only by expert medical testimony. The court of civil appeals of Texas (Daniels v. Finney, 262 S. W. [2] 431) held that the proof of negligence to sustain an action for malicious persecution is the same as in a malpractice action and that if there is no wrong diagnosis there is no lack of probable cause. The Supreme Court of North Carolina (Nance v. Hitch, 76 S. E. [2] 461) stated that the doctrine of res ipsa loquitur does not apply merely because the machine used is under the exclusive control of the defendant. It is applied only where the injury involved would normally not result from what took place unless the person in control of the situation acted negligently. An operating surgeon, said the Supreme Court of Colorado (Maerchlein v. Smith, 266 P. [2] 1095), is entitled to rely on the statement of the referring physician that he has obtained the patient's consent to the performance of the operation. The Supreme Court of Oklahoma (Woodson v. Huey, 261 P. [2] 199) held that a surgeon is not liable for a battery committed by an anesthesiologist who administers a spinal anesthetic without the patient's consent and knowing that patient does not want such a type of anesthetic used upon her. The Supreme Court of Washington (Woods v. Pommerening, 271 P. [2] 705) said that for a physician not to make a full disclosure of all the dangers involved in a particular treatment is not malpractice in and of itself. The Court of Appeals of Maryland (Aitchison v. State, 105 A. [2] 495) concluded that the practice of naturopathy is within the broad definition of the practice of medicine and that a naturopath is therefore not permitted to engage in the healing art without a license from the board of medical examiners.

The Supreme Court of the United States (Barsky v. Board of Regents of University of State of New York, 74 S. Ct. 650) upheld the revocation of a physician's license upon a showing that he had been convicted for failing to produce certain records before a hearing of the House Committee on Un-American Activities. The court said that this was conviction of a crime. In a will contest, the Court of Appeals of New York (In re Coddington's Will, 120 N. E. [2] 777) held that objection had been properly sustained to questions asked of a physician concerning the mental and physical condition of the deceased while she had been under the physician's care. Such information was acquired by the physician as a result of confidence imposed in him by the deceased and was privileged.

Conclusion

The Law Department wishes to express its appreciation for the cooperation and assistance that it has received from the Board of Trustees, the House of Delegates, the various councils and committees, and the officers of the Association, as well as from state and county medical societies and from allied professional organizations and agencies with which it has worked during the period covered by this report.

Report of Committee on Medicolegal Problems

This report of the Committee on Medicolegal Problems covers the period from July 1, 1955, to June 30, 1956. During that time the Committee held one meeting, at which reports were received from the following subcommittees: Professional Liability, Courses in Medical Jurisprudence, Chemical Tests for Intoxication, Medicolegal Aspects of Blood Transfusions, Blood Grouping Tests, Forensic Pathology, and Forensic Psychiatry.

There have been a number of changes in the composition of the Committee during the past year due to the death of one of its original members, Dr. Louis J. Regan, and expert on medical jurisprudence and medical professional liability, and through the resignation of Dr. Francis J. Gerty of Chicago. Dr. Joseph F. Sadusk Jr. of Oakland, Calif., and Dr. Henry A. Davidson of Cedar Grove, N. J., were appointed by the Board of Trustees to fill the vacancies. Mr. C. Joseph Stetler, Director of the Law Department was appointed as a new member of the Committee by the Board of Trustees.

Regional Medicolegal Conferences

In cooperation with the Law Department, the Committee assisted actively in the conduct of three regional medicolegal conferences that were sponsored in October, 1955. These meetings are discussed in detail in the annual report of the Law Department. Drs. Alan R. Moritz, Richard Ford, and Louis J. Regan appeared as feature speakers at all three meetings and participated in the open forum and discussion at the end of each session.

Medical Professional Liability

The Committee has also worked jointly with the Council on Medical Service and the Law Department in conducting a thorough and complete survey of medical professional liability. The Committee is particularly interested in determining legal trends in this field and in the formulation of a sound and workable claims prevention program that will be accepted and implemented by the medical profession. The results of the study obtained to date indicate that this goal should be realized during the coming year.

Manual on Chemical Tests for Intoxication

A final outline has been prepared for a manual explaining and interpreting chemical tests to determine intoxication. It is contemplated that the manual will be completed and distributed in the near future.

Medicolegal Application of Blood Grouping Tests

In 1937 the first report of the American Medical Association Committee on Blood Grouping Tests was prepared and published. At that time only the four A-B-O groups and the three M-N types were in use. In 1952 a second report was published by the Association's Committee on Medicolegal Problems to cover the advances in the preceding 15-year interval, especially the Rh-Hr types. The developments that have occurred during the past four years have been reviewed by a subcommittee under the chairmanship of Dr. A. S. Wiener, and a tentative report outlining the Committee's findings and recommendations was published in the May 19, 1956, issue of The Journal.

The new report includes a discussion of the nomenclature of the Rh-Hr types, a description of certain recently discovered blood factors and blood groups and their medicolegal applications, the use of blood tests as substantial evidence of paternity, as well as the exclusion of parentage, and also a model blood test law. Of these topics the nomenclature is most important and difficult.

Because of the controversy that exists with respect to terminology it was the unanimous opinion of committee that it was best to present its findings, at this time, in the form of a tentative report. Other workers in the field have been invited to submit their comments to the full Committee that will decide, at its next meeting, whether a final report should be published, and, if so, the form it should take

Medicolegal Film Project

The Committee has continued to work in cooperation with the Law Department and with representatives of outside groups in the sponsorship of a series of medicolegal films. The Committee will participate actively in the preparation of the series of six films that is currently being planned Particular assistance will be given in connection with any films dealing with forensic pathology and forensic psychiatry.

Coroner–Medical Examiner System

In cooperation with the Law Department the Committee on Medicolegal Problems has worked actively in support of the Model Post-Mortem Examinations Act as approved by the National Conference of Commissioners on Uniform State Laws. Speakers have been provided on several occasions to explain and discuss the provisions of the model law and the advantages of the medical examiner over the coroner system

Medicolegal Aspects of Blood Transfusions

A special subcommittee under the chairmanship of Dr. Alexander S. Wiener was appointed to prepare a supplementary report on the Medicolegal Aspects of Blood Transfusions The first meeting of this committee has been held in Washington, D. C., and a tentative outline has been prepared for the supplementary report.

Causal Relationship Between Trauma and Disease

Dr. Alan R. Moritz, Chairman of the Committee, has begun the preparation of a Handbook on Medical Criteria for Establishing the Causal Relationship Between Trauma and Disease. It was the belief of the Committee that some guidelines are necessary in this area in order to assist physicians appearing in court as expert medical witnesses It is Dr Moritz's plan to appoint a subcommittee to assist him in his work.

Distribution of Pamphlets

During the year the Committee continued the distribution of several leaflets and pamphlets previously prepared by various subcommittees. During this period 10,100 copies of a leaflet entitled "Test Your A-Q (Alcohol Quotient)–Twenty Questions on Alcohol" were distributed. The Committee also continued its cooperative arrangement with the medical schools and distributed approximately 3,500 copies of the pamphlet entitled "Malpractice and the Physician" to graduating medical students. In addition 900 copies of this pamphlet were distributed to individual physicians on request Five hundred fifty requests were filled for the pamphlets "Medicolegal Aspects of Blood Transfusions" and "Medicolegal Application of Blood Grouping Tests."

Exhibits on Professional Liability and Intoxication Tests

The Committee assisted in the presentation and explanation of the exhibits on Chemical Tests for Intoxication and Medical Professional Liability. These exhibits were shown on 24 occasions.

Conclusion

The chairman, members, and staff of the Committee would like to express their appreciation to the Board of Trustees, officers, and members of the House of Delegates for the cooperation and consideration that has been received in carrying out the assignments of the Committee.

Report of the Committee on Legislation

This report covers the period from Oct. 1, 1955, through Aug. 31, 1956. It is necessary to include the months of July and August in order to portray accurately the activities of the Committee in relation to the Second Session, 84th Congress, which did not adjourn until July 27, 1956. As usual, final action on a large number of important measures was taken in the closing three weeks of the session. The President did not complete his action on acts transmitted to him until Aug. 14, 1956.

During the period covered by this report, the Committee has met three times, on Nov. 28, 1955, in Boston, on Feb. 4, 1956, in Washington, D. C., and on March 16, 1956, in Chicago. All pending legislation with medical implications was considered, Association policies and activities were reviewed, and appropriate recommendations were submitted to the Board of Trustees.

During this period, there have been several changes in the composition of the Committee. On Nov. 28, 1955, Dr. Joseph D. McCarthy, Omaha, resigned as Vice-Chairman because of the increasing pressure of his other duties. The Board of Trustees elected Dr. Frank C. Coleman, Des Moines, Iowa, to fill Dr. McCarthy's unexpired term, and reelected Dr. J. Lafe Ludwig, Los Angeles, and Dr. Reuben B. Chrisman Jr., Coral Gables, Fla., to five-year terms to succeed themselves. At its meeting on March 16, 1956, the Committee elected Dr. McKinnie L. Phelps, Denver, Vice-Chairman. On June 14, 1956, Dr. David B. Allman, Atlantic City, N. J., having been elected President-Elect of the Association, resigned as Chairman of the Committee. The Board of Trustees elected Dr. James R. Reuling as Chairman of the Committee to fill Dr. Allman's unexpired term. The Board also elected Dr. James R. McVay, Kansas City, Mo., as an additional member of the Committee.

SECOND SESSION, 84TH CONGRESS

Although fewer new measures were introduced in 1956 than in 1955, action was taken on many pending bills which had been dormant since the first session. The table below is indicative of the continuing increase in congressional activity, particularly in areas concerning medicine and public health:

	83rd Congress (1953-1954)	*84th Congress (1955-1956)*	*Percentage Increase*
Total measures introduced	16,372	19,039	16
Concerning medicine	407	571	40
Total public laws enacted	781	1,028	31
Concerning medicine	20	26	30

SOCIAL SECURITY AMENDMENTS

H. R. 7225.—This measure amending the Social Security Act in four important respects was introduced on July 11, 1955, and without benefit of public hearings passed the House by a roll-call vote of 372 to 31 on July 18, 1955. The measure provided for the compulsory inclusion in Social Security of virtually all self-employed persons except doctors of medicine. It reduced the retirement age for women from 65 to 62. Of the greatest significance to medicine was the provision for payment of cash disability benefits at the age of 50 to any covered individual found totally and permanently disabled. Finally, to finance the new benefits, taxes were increased by 25%.

At the adjournment of the first session, the measure was pending before the Senate Committee on Finance. Sen. Harry F. Byrd, chairman of that committee, had already received testimony from retiring Secretary of the Department of Health, Education, and Welfare, Oveta Culp Hobby. Mrs. Hobby cautioned against the extensive changes proposed and urged a careful investigation before the enactment of such far-reaching legislation.

During the fall of 1955, the secretary and members of the Committee on Legislation, the Director of the Law Department, and the Director of the Washington Office held an important series of meetings with the leaders of state medical associations. At these meetings, the ramifications of the measure were thoroughly discussed, and arrangements were made for state and local support of the position and activities of the Association in opposition to the medical features of the bill. In addition, the secretary and members of the Committee were active in discussing the proposed disability benefits before state and local medical meetings throughout the country.

With the adoption by the House of Delegates at the Boston meeting of a strong resolution opposing enactment of the proposed disability benefits and advocating a thorough study of the entire Social Security system, the position of the Association was firmly established. Dr. Elmer Hess, President of the Association, on Dec. 5, 1955, addressed a personal letter to every member of the Association, pointing out the contents, history, and status of the bill. He then requested the assistance of all physicians in the campaign against the proposal. The response from the profession indicated overwhelming agreement with the position of the Association, and many replies were extremely valuable in formulating a program of legislative action.

There was cause for concern at that time that the President would endorse the principle provisions of the bill in his State of the Union message in belief that there was great demand for the revisions and little effective opposition to their enactment. The Committee brought this situation to the attention of state and local leaders both within and without the medical profession. The result was a considerable volume of mail to the White House indicating firm opposition to the proposed changes and discrediting the carefully nurtured fable of public demand. The State of the Union message did not endorse the disability features of the bill.

On Jan. 23, 1956, Dr. Hess again wrote an individual letter to each of the several thousand physicians who had responded to his first communication. He asked that their views on the pending measure be transmitted to their own senators and to Senator Byrd, with a request that they be made a part of the record of the hearings then in progress. Again, the response of the profession was excellent. A large part of the record of the printed hearings consists of communications from physicians in all parts of the country registering and explaining their personal opposition to the measure.

On Feb. 9, 1956, 12 physicians, representing national professional organizations and state medical societies, testified before the Senate Finance Committee. All opposed cash disability payments for a variety of reasons. Principally, the testimony demonstrated that the disabled patient would be the eventual loser if the proposal became law. On Feb. 22 and 23, 16 additional witnesses, all, except one, practicing physicians, testified in opposition to the disability section of the measure. Included in this group of medical witnesses were Dr. F. J. L. Blasingame of the Board of Trustees and Dr. David B. Allman, then Chairman of the Committee on Legislation, who presented the views of the Association. Drs. Blasingame and Allman strongly urged against hasty legislative action and warned the committee that, in the face of unknown costs and human effects, it might prove harmful to the public to scrap the proved systems for meeting the needs of the disabled in favor of a new experiment in social insurance. The witnesses pointed out the inevitable growth of the proposal into a system of national compulsory health insurance with its staggering cost and certain deterioration in the quality of medical care.

On March 22, 1956, Hon. Marion B. Folsom, the new Secretary of Health, Education, and Welfare, testified in opposition to the enactment of the disability provisions and supported the testimony previously offered by medical witnesses. Late in May, 1956, after the conclusion of several months of hearings, the Senate Finance Committee voted unofficially, 11 to 3, to delete the disability provisions from the bill. Subsequently, Sen. Paul Douglas of Illinois was appointed to the committee to succeed Senator Barkley and, although he had attended no hearings, signed the minority report.

On May 25, 1956, the action of the committee being then publicly known, Dr. Hess addressed a personal letter to each member of the Senate, warning that a determined effort by the minority to restore the disability benefit section to the measure was planned. Each senator was urged to support the position of the Republican administration and the Democratic majority of the Senate Finance Committee.

On June 6, 1956, the Senate Finance Committee favorably reported the bill to the Senate, amended to delete the new disability benefits, the reduced retirement age for women (except in the case of widows), and the tax increase to finance these proposals. Supporters of the original version worked quietly and effectively behind the scenes to rally Senate support for the controversial proposals. Senator George became the principle sponsor of a compromise amendment designed to accomplish this end. The George amendment provided for voluntary retirement of women at age 62 with an approximate actuarial reduction in their retirement benefits. It also restored the original disability provisions, but established a separate fund under the Social Security Act in order to meet the argument that the unknown cost of the benefits would imperil the Old Age and Survivors Insurance Trust Fund. Finally, it provided for a tax increase one-half the size originally proposed to finance the benefits.

The measure was called up during the week of July 9, 1956, but debate on several other controversial measures was interspersed in its consideration. On the afternoon of July 17, the George amendment was debated under a unanimous consent agreement which limited debate to three hours. It was then adopted by a roll-call vote of 47 to 45. This vote departed only slightly from party lines with seven Democrats voting against the amendment and six Republicans deserting the administration to vote for it. Following this crucial vote, the amended bill passed the Senate unanimously. Late that night, the House and Senate conferees adopted substantially the Senate version of the disability section, and the conference report was agreed to by both Houses on the last day of the session.

Because of the importance of the measure, an effort was made by the opponents of the disability provision to persuade the President to withhold his approval. This effort was unsuccessful, and on Aug. 1, 1956, the measure became Public Law 880.

OTHER LEGISLATION

There follows a review of other measures on which either oral or written statements were presented to the committees or members of Congress, together with the names of the witnesses, a brief resumé of each proposal, a note as to its status at the end of the Second Session of the 84th Congress, and an indication of the nature of the testimony submitted by the Association.

S. Res. 67.—Early in 1955 the Senate adopted this resolution, authorizing a subcommittee of the Judiciary Committee to conduct an investigation of the narcotics problem in the United States. Sen. Price Daniel of Texas, chairman of the subcommittee, conducted extensive hearings on the subject. On Sept. 20, 1955, Drs. Leo H. Bartemeier and Richard J. Plunkett, chairman and secretary, respectively, of the Association's Council on Mental Health, testified before the Daniel subcommittee in New York City. Dr. Plunkett informed the subcommittee of the history of the Association's interest in the narcotic problem, outlining a six-point policy established by the House of Delegates in June, 1924. This policy includes opposition to ambulatory treatment of narcotic addicts, strict enforcement of state and federal narcotic laws, and a recommendation for follow-up and supervision of addicts discharged from hospitals. The subcommittee was also advised of the review of Association policy being currently conducted by the Council on Mental Health and the Council on Pharmacy and Chemistry and of the cooperation of the Association with the American Bar Association in investigating this problem. Dr. Bartemeier discussed the medical aspects of narcotic addiction. He informed the committee that modern psychiatric opinion did not consider addiction as a disease in itself, but rather a symptom or behavior pattern masking much deeper, underlying emotional disturbances and conflicts.

S. 3760.—On April 30, 1956, after the hearings described above had been completed, all members of the Daniel committee joined in introducing this bill, designed to provide greater control of narcotic drugs. Its principle features included outlawing heroin completely in the United States, prescribing mandatory sentences ranging from 5-years' imprisonment to death for specific smuggling violations, establishing mandatory 10-years' imprisonment (or death sentence on jury recommendation) for selling or giving narcotics to a juvenile, and establishing in the Bureau of Narcotics a central records unit on all addicts and violators. After brief hearings, the measure was favorably reported by the Judiciary Committee and passed the Senate with minor amendments on May 31, 1956. In the House the measure was tabled, and H. R. 11619 was passed instead.

H. R. 11619.—During the same period as the investigation of the narcotic problems by the Senate Committee, a subcommittee of the House Ways and Means Committee under the chairmanship of Rep. Hale Boggs of Louisiana conducted similar hearings on the problem. This committee, however, devoted considerable attention to the illicit distribution and evil results of the improper use of barbiturates and amphetamines.

Dr. George F. Lull, Secretary of the Association, wrote to Mr. Boggs on Oct. 14, 1955, explaining the lack of official position with respect to these drugs, advising of current studies, and offering to present for the committee's information one or more witnesses with exceptional knowledge of the medical problems involved in the use and abuse of narcotics, barbiturates, and amphetamines. As a consequence, Dr. Bartemeier appeared before the Boggs committee in October, 1955, accompanied by Dr. Maurice H. Seevers, a member of the Council on Pharmacy and Chemistry. These witnesses presented no prepared statements, but discussed with the members of the committee the medical problems involved and answered technical and medical questions on the subject propounded by the committee.

This bill was introduced on June 6, 1956. It established severe mandatory sentences for narcotics violators but prescribed no death penalty. Its other major controversial provision involves wire tapping by narcotics agents but in its final form was watered down to do no more than prescribe penalties against persons using communication facilities in the illegal sale or distribution of narcotic drugs. This measure passed the House on June 20, 1956, and was sent to the Senate where, on June 22, 1956, its entire text was stricken and the text of S. 3760 was substituted. As thus amended, the bill passed the Senate and went to conference. The conferees adopted the Senate version, including the death penalty for peddlers of heroin to minors and the prohibition of the use of communication facilities in the illegal distribution of narcotics. The conference report was adopted by both Houses and the measure, approved by the President on July 18, 1956, became Public Law 728.

H. R. 9 and H. R. 10.—The legislative activities of the Association in support of these measures sponsored by the American Bar Association continued. During 1955 Association witnesses testified before the House Committee on Ways and Means, urging the enactment of equitable tax deferment privilege for the self-employed who desire to set aside a reasonable portion of their current income for the creation of voluntary retirement funds. On Jan. 9, 1956, in cooperation with the presidents of other organizations of self-employed and professional men, Dr. Elmer Hess addressed an individual letter to each member of the House of Representatives and to each senator calling attention to the existing discrimination against the self-employed and soliciting the support of each individual member of Congress in enacting legislation to correct this inequity in 1956. Responses received by Dr. Hess were encouraging. A tabulation of these responses, as well as those received by other cooperating organizations, indicated that nearly 30% of the membership of both Houses of Congress would support such a proposal if it cleared the House Ways and Means Committee. The measure was never reported from committee, but activities in the closing days of the session indicate that some action in this area is virtually certain in the next Congress.

Because of the continuing pressures on the Ways and Means Committee for various types of tax relief, both for the self-employed and for the employed who are now beginning to complain about their heavy social insurance tax burden, it can be expected that 1957 will bring a decision in this area.

H. R. 483.—This measure, authorizing the appointment of osteopaths as medical officers in the armed services, passed the House on July 18, 1955. In the last annual report the letter from Dr. Lull to Sen. Richard B. Russell, Chairman of the Senate Armed Services Committee, opposing this measure was reported. As a result of this letter and the opposition to the measure by the three surgeons general, a subcommittee of the Senate Armed Services Committee under the chairmanship of Sen. Stuart Symington of Missouri conducted hearings on the measure. Dr. James R. McVay of the Board of Trustees, accompanied by Dr. Edward L. Turner, Secretary of the Council on Medical Education and Hospitals, testified before this subcommittee on Feb. 14, 1956. Dr. McVay expressed the opposition of the Association to the invasion of the military medical services by osteopaths, provided by the bill. The committee was advised that persons licensed to practice only osteopathy, as well as those licensed to practice medicine or surgery, could be commissioned under the measure. A comparison between the education and clinical experience of graduates of accredited schools of medicine and schools of osteopathy was made. The relationship of the bill to current attempts to build a career medical service was also discussed. The extension of both the regular draft and the special doctor draft, it was pointed out, would have the effect of making the measure mandatory rather than permissive, as is the case with similar legislation under which the Veterans Administration and the United States Public Health Service operate. Dr. Turner discussed with the committee the standards of approved medical schools and approved internship and residency training programs, emphasizing the comparison between these programs of medical education and the past and present standards of osteopathic education.

Despite strong representations by the Association and the surgeons general of the Army, Navy, and Air Force, the subcommittee favorably reported the measure to the full committee. On March 15, 1956, Dr. Lull again wrote Senator Russell relating the Association's opposition to H. R. 483. On April 11, 1956, Dr. Dwight H. Murray, Dr. Harold C. Lueth, and Mr. Frank W. Barton, in testifying before Senator Russell's committee in connection with H. R. 9428, stressed the reasons for the opposition to H. R. 483. Supplementing Dr. Murray's testimony, detailed statements were submitted dealing with the state licensure laws and previous actions by the House of Delegates concerning osteopaths.

On April 26, 1956, the Senate Armed Services Committee, having amended the measure to permit the appointment of any individual osteopath only upon the recommendation of the surgeon general of the appropriate service, favorably reported it to the Senate. The bill passed the Senate, as amended, on May 21, 1956. Since the Senate version differed from the House bill, a conference was requested and the conferees adopted the Senate restriction substituting the decision of the secretary of the appropriate service. Both Houses agreed to the conference report and, with the President's approval, on July 24, 1956, the measure became Public Law 763.

S. 890.—This bill, to extend the Water Pollution Control Act of 1948 and modify the mechanism and federal cooperation in this field, passed the Senate and was favorably reported by the House Committee on Public Works during the First Session. Association witnesses had testified favorably on the measure prior to such action. On Jan. 23, 1956, the measure was recommitted to the committee by unanimous consent. Hearings were then held on another bill, H. R. 9540, referred to below. After the committee favorably reported the substitute bill, the House declined to act on it and instead discharged the committee and passed S. 890 with an amendment providing for federal grants-in-aid to state or local governments for the construction of treatment works for sewage and other waste. The measure then went to conference; the conferees approved the House version and with the President's signature on July 9, 1956, the bill became Public Law 660.

H. R. 9540.—The measure was introduced as a substitute for S. 890. It differed principally from that bill in its authorization of up to one billion dollars for federal matching grants to state or local governments for the construction of treatment works for sewage or other waste. On March 22, 1956, Dr. Lull, by letter, reiterated the Association's endorsement of S. 890 and the features of H. R. 9540 which represented improvements in the existing law. The Association, however, disapproved of the new construction grant provision as inconsistent with the underlying philosophy of the act, recognizing the primary responsibility of local and state governments in the control and abatement of pollution. The Association recommended instead an extension and, if necessary, an improvement of the unused loan provisions of the existing act.

The bill was reported from the Public Works Committee on May 21, 1956, containing the grant provisions to which the Association objected. It was subsequently tabled in the House and S. 890 enacted in its place.

H. R. 2108.—This measure would have provided for the repeal of certain laws relating to professional examinations for the promotion of medical, dental, and veterinary officers of the Army and Air Force. No provision for the repeal of similar examinations for medical and dental officers of the Navy was made, inasmuch as professional examinations are required for the promotion of all Navy officers. On Jan. 23, 1956, Dr. Lull wrote to the House Armed Services Committee stating that the Association was in full accord with the purposes and provisions of H. R. 2108. The measure was favorably reported by the committee on Feb. 8, 1956, and passed the House on Feb. 20, 1956. It was pending in the Senate when the 84th Congress adjourned.

S. 2587.—This measure was requested by the Public Health Service to accomplish a number of changes designed to facilitate personnel administration in the commissioned corps. In addition to providing substantial benefits to the officers of the commissioned corps, the bill authorized the President to make that corps a military branch in time of emergency involving the national defense. Under existing law, such status was permissable in time of war but not in time of emergency. The Public Health Service considered this change in the law necessary to discharge adequately its new civil defense responsibilities.

The measure was favorably reported by the Committee on Labor and Public Welfare, without hearings, on July 29, 1955, and passed the Senate the next day. The concern of the Association lest military status be the vehicle through which physicians were drafted to staff the Public Health Service was expressed to Chairman J. Percy Priest of the House Committee on Interstate and Foreign Commerce. As a result, no action was taken on the measure until 1956. In the meantime, adequate assurances were received from the surgeon general of the Public Health Service that military status in time of national emergency would not be used for the purpose of placing calls for civilian physicians with the Selective Service System. Dr. Lull then wrote Chairman Priest on Feb. 8, 1956, indicating the Association's support for the measure.

The bill was favorably reported by the committee on April 9, passed the House on April 16, and upon approval by the President on April 27, 1956, became Public Law 492.

S. 3076.—This measure, introduced at the request of the Department of Health, Education, and Welfare, provides for a continuing survey and special studies of sickness and disability in the United States and for periodic reports of data obtained. The last such survey was conducted in 1935 and 1936 and is concededly of little value now.

On Feb. 23, 1956, Dr. Lull wrote to Senator Hill, Chairman of the Senate Committee on Labor and Public Welfare, suggesting as an alternative to the pending measure, the desirability of one or more periodic surveys in accordance with the recommendations in the President's health message. The measure was favorably reported and passed the Senate on March 29, 1956. On April 17, 1956, Dr. Lull wrote Chairman Priest of the House Committee on Interstate and Foreign Commerce supporting the enactment of S. 3076 on the basis of assurance from the Department of Health, Education, and Welfare that periodic checks of specific aspects of illness and disability would be made to supplement the basic data obtained. The measure was reported by the committee on May 3, 1956, passed the House under a suspension of the rules on June 18, 1956, and upon approval of the President on July 3, 1956, became Public Law 652.

H. R. 4446.—This measure was one of nearly a dozen similar bills intended to provide assistance to the states in the construction, renovation, and improvement of domiciliary buildings of state and territorial soldiers' homes by federal grants to subsidize part of the capital outlay. Under a federal law enacted in 1888, federal contributions to states to aid in the care of certain war veterans domiciled in state homes have been paid on a per capita basis. Veterans in such homes are generally indigents whose illness or disability are known to be more than 90% non-service-connected.

When hearings were held on the measures, Dr. Thomas H. Alphin, Director of the Washington Office, wrote Chairman Olin E. Teague of the House Committee on Veterans Affairs expressing the opposition of the Association to the measures. Dr. Alphin stated that the Association viewed the problem of resident veterans in state soldiers' homes as a part of the total medical care program for indigent citizens, veteran and non-veteran alike, the responsibility for which rests with communities and states.

The measures remained pending in the House Committee on Veterans Affairs when Congress adjourned.

H. R. 6376.—This measure was designed to assist the territory of Alaska in the establishment of a modern and effective program for the care of its mentally ill residents. The measure was reported by the House Committee on Interior and Insular Affairs on July 25, 1955, and at the close of the first session was pending before the House. On Jan. 18, 1956, the measure passed the House and was referred to the Senate Committee on Interior and Insular Affairs. Largely because of a misunderstanding of the commitment procedures of the measure, it became highly controversial.

The measure was carefully considered by the Committee on Legislation and the Executive Committee of the Board of Trustees, and on March 20, 1956, Dr. Lull wrote Senator Murray recommending the enactment of the measure, with three reservations. In this letter it was pointed out that the establishment of any commitment procedure involves a very difficult medicolegal problem, presenting a conflict between the desirability of instituting a course of therapy as early as possible and with a minimum of disturbance to the patient and the legal necessity of preserving the civil rights of the person sought to be committed. This being the most controversial section of the measure, the Association, from a medical point of view, endorsed the commitment procedure proposed but recommended that the Committee obtain recommendations from the American Bar Association with respect to the legal protection afforded by the procedure. The Association also recommended clarification of the language authorizing reciprocity between Alaska and the states in the commitment and treatment of their respective residents found to be mentally ill in other jurisdictions. Finally, the Association recommended that certain criminal penalties for fraudulent abuse of the commitment procedures, which had been present in an earlier draft, be reinstated.

On May 25, 1956, after eliminating the commitment procedure in its entirety, the Senate committee reported the measure. Since Congress was acting as the territorial legislature in establishing the procedure originally, leaving to that legislature full freedom to alter, amend, or repeal these provisions, the effect of this elimination was merely to permit the territorial legislature to enact its own procedure. The measure passed the Senate on June 7, 1956, and after a conference in which the conferees agreed to the Senate version, the measure was adopted by both Houses. The President approved the law on July 28, 1956, and it is now Public Law 830.

H. R. 7994.—This measure was introduced by Chairman Vinson of the House Committee on Armed Services on Jan. 3, 1956, to provide medical care for the dependents of members of the armed forces of the United States.

On Jan. 25, 1956, Dr. Edwin S. Hamilton, Secretary of the Board of Trustees, Dr. Woodruff L. Crawford, Chairman of the Committee on Maternal and Child Care of the Council on Medical Services, and Mr. C. Joseph Stetler, Director of the Law Department, testified on the measure before a subcommittee of the House Committee on Armed Services under the chairmanship of Rep. Paul J. Kilday of Texas. These witnesses advised the committee that the Association had adopted no position on the question of the responsibility of the government to provide medical care for military dependents. They urged strongly, however, that if Congress elected to provide such care, increased emphasis be placed on the utilization of civilian facilities and the services of civilian physicians. Several possible systems for the financing of medical care of dependents by civilian agencies were discussed, without committing the Association to the support of any of these systems.

At the conclusion of hearings, a clean bill, H. R. 9429, adopting many of the Association's recommendations was introduced by Representative Kilday.

H. R. 9429.—This measure, a substitute for H. R. 7994, incorporated many major changes found desirable as a result of hearings on the previous bill. One section, however, was controversial.

Dependents entitled to medical care under the bill were permitted freedom of choice between military and civilian facilities except that the Secretary of Defense was authorized to limit this right in the case of dependents residing with their military sponsor where the serviceman concerned was assigned to an installation with adequate military facilities for the care of such dependents. This provision was inserted at the insistence of the surgeons general of the armed forces, who feared that an exodus of dependents from military facilities might otherwise occur. It was opposed by the Association in the belief that it would deprive dependents of a free choice of physician and that it might lead to the construction of additional medic
and the procurement of additional military physi
the purpose of providing dependent care.

On Feb. 17, 1956, Dr. Lull wrote each
Armed Services Committee expressing the A
tion to the proposed section, together with the
Hearings were held by the full committee, at
views of the Association were considered and
measure was then favorably reported by the Arm
Committee on Feb. 22, 1956, and passed the House on
1956.

On March 15, Dr. Lull wrote Senator Russell, Chairm
the Senate Armed Services Committee, expressing opposition
the lack of free choice of physician.

Hearings on the measure were held on April 13, 1956, by the Senate Armed Services Committee. Dr. David B. Allman, then Chairman of the Committee on Legislation, accompanied by Dr. Crawford and Mr. Frank W. Barton, Secretary of the Council on National Defense, presented testimony for the Association. Their statements were essentially the same as those presented by Association witnesses before the House Armed Services Committee earlier, but considerable emphasis was placed on the concern that this measure, particularly in view of the authority vested in the Secretary of Defense to restrict civilian care, might result in a program of increased military construction and staffing solely to provide dependent care. On May 3, 1956, after the Senate Armed Services Committee had amended and favorably reported the measure, Dr. Lull again wrote Senator Russell. In this letter he pointed out that the changes made by the committee tended to again weight the measure toward greater utilization of military facilities. Specifically he recommended against the severe limitation of civilian medical care written into the bill, a change in the cost to dependents of civilian hospitalization for short-term illnesses, and the addition of a large number of reservists and their dependents as potential beneficiaries.

The measure passed the Senate, with these amendments, on May 14, 1956. Since this version of the bill differed materially from that which passed the House, a conference was held. The conferees adopted most of the House provisions. Both houses then adopted the conference report, and the measure was signed by the President on June 7, 1956, becoming Public Law 569.

H. R. 8500.—During the testimony of Association witnesses in opposition to the extension of the Doctor Draft Act in June, 1955, a strong recommendation was made that the Department of Defense and Congress take steps to make career military medicine more attractive, thereby eliminating the need for such a large number of physicians to serve under compulsion. During the fall of 1955, a military task force of the Department of Defense conducted an extensive survey to determine what measures could be taken to achieve this end. This group recommended increases in longevity pay, a more favorable promotion policy, and a substantial increase in special pay based on contracts obligating a physician to serve for three, six, or nine years. Representatives of the Association were afforded an opportunity to examine the recommendations of this task force before the introduction of enabling legislation. With the exception of the contract service proposals, the Association agreed to support the recommendations.

On Jan. 16, 1956, Chairman Vinson of the House Committee on Armed Services introduced a watered-down Career Incentive Bill. A subcommittee of the Armed Services Committee held extensive hearings on the measure. Dr. Edwin S. Hamilton of the Board of Trustees, accompanied by Dr. Harold C. Lueth, a member of the Council on National Defense, and Mr. Frank W. Barton, Secretary of that Council, testified on Feb. 16, 1956. These witnesses endorsed the measure but urged adoption of the original recommendations for substantial increases in special pay.

As a result of these hearings, Representative Kilday, on Feb. 20, 1956, introduced a greatly improved clean bill.

H. R. 9428.—This measure, designed to increase the career attractiveness of military medicine, was a substantial improvement over H. R. 8500. The principle new feature was authorization for increases in special pay in increments of $50 after three, six, and nine years of service. The measure was favorably reported by the full Committee on Feb. 22, 1956, and passed the House on March 2, 1956.

Hearings were held on the measure in the Senate on April 11, 1956, with Dr. Dwight H. Murray, President-Elect of the Association, accompanied by Dr. Lueth and Mr. Barton, appearing. The Association again strongly supported the measure but recommended further improvements, including a change from three years to two years in the initial increased special pay and an increase in the amount of special pay to more nearly equalize military salaries with the salaries offered physicians of equal training and experience as civilian employees of the government. The first modification suggested was adopted by the Committee, which favorably reported the measure on April 16. It passed the Senate on April 18. The House agreed to the Senate amendments, and it was signed by the President on April 30, 1956, becoming Public Law 497.

S. 3430.—This measure proposed the establishment of a National Library of Medicine to be created from the Armed Forces Medical Library. The bill prescribed neither the government agency to supervise the institution nor its location. Hearings on the measure were held by the Committee on Labor and Public Welfare on April 10, 1956, with nearly a score of witnesses endorsing the construction of the library. Dr. Preston A. McLendon, representing the Association, supported the bill and recommended that the Library be "administratively and geographically attached to the Department of Health, Education and Welfare." On May 29, the measure was reported to the Senate providing for the creation of the library in the U. S. Public Health Service with a 15-member board of regents as its governing body. On the same date, the House Committee on Interstate and Foreign Commerce conducted hearings on a companion bill, H. R. 11524. On July 23, 1956, the House amended the measure to permit the board of regents to select the location for the library, thereby avoiding a regional controversy, and passed the measure. The House version was accepted by the Senate; the measure was signed on Aug. 3, 1956, and became Public Law 941.

H. R. 11524.—This was a companion measure to S. 3430, introduced by Chairman Priest of the House Interstate and Foreign Commerce Committee on May 29. Hearings on this compromise version were held on June 11, and Dr. McLendon again represented the Association, reiterating the testimony which he had delivered on S. 3430. Due to the controversy developed by the introduction of H. R. 11267 and other similar measures, Dr. Lull wrote Chairman Hill of the Senate Labor and Public Welfare Committee, Chairman Priest of the House Interstate and Foreign Commerce Committee, and Chairman Burleson of the House Administration Committee, reiterating the recommendation of the Association that construction of the library be expedited and that the facility be "administratively and geographically attached to the Department of Health, Education and Welfare." After having been approved in Committee, this measure was tabled in favor of S. 3430.

H. R. 11267.—This measure provided for the construction of a National Medical Library and directed that the facility be located in Chicago. Due to a jurisdictional dispute, hearings were conducted on June 19 before the House Administration Committee. The Association submitted no testimony on this measure, but was instrumental in arranging the compromise through which the location of the facility was left to the board of regents. This bill, like H. R. 11524, was then tabled in favor of the enactment of the amended version of S. 3430.

H. R. 11630 and H. R. 11633.—These identical bills would have provided nonoccupational group major medical expense insurance for federal employees and their dependents and authorized voluntary payroll deductions for other group medical expense benefits. The major medical expense protection would have been supplied without additional cost to all employees covered by group life insurance under the Federal Employee Group Life Insurance Act, but the government would have borne no part of the cost of other medical expense contracts providing other basic protection. The measure was highly controversial, with spokesmen opposing the measure in favor of contributory basic coverage. Most spokesmen for federal employee unions supported the proposal as the best program obtained at the time. The Administration opposed payroll deductions because of administrative expense.

In a letter to Chairman Murray, Dr. Lull expressed the support of the Association for the principle of voluntary group hospital, surgical, medical, and other personal health expense benefits for federal civilian employees commenting on the value of such voluntary programs in application of other employee groups. No position on the details of the measure, or on the controversies surrounding it, was taken by the Association. After failure to obtain agreement on any of its provisions, the bill was dropped by the committee and died.

S. 3958.—From the information obtained during hearings on the Omnibus Health Bill (S. 886) in 1955, Sen. Lister Hill, joined by most of the members of the Senate Committee on Labor and Public Welfare, introduced this clean bill on May 29, 1956. The measure embodied traineeships for graduate or specialized training in public health for physicians, engineers, nurses, and other professional public health personnel; traineeships for nurse educators, supervisors, and administrators; earmarked grants to states for vocational training of practical nurses and auxiliary health personnel; grants to states for personnel training and research projects in improving the treatment of the mentally ill; and a two-year extension, until July 1, 1959, of the Hill-Burton Hospital Construction Act. The measure was reported on the same day it was introduced and passed the Senate on June 11, 1956.

An identical bill, H. R. 11549, was tabled in the House Committee on Interstate and Foreign Commerce in favor of this measure, which was reported July 19, 1956, and passed the House on July 23. Upon signature by the President on Aug. 2, 1956, it became Public Law 911.

H. R. 11549.—This measure, a companion bill of S. 3958, was introduced by Chairman J. Percy Priest of the House Committee on Interstate and Foreign Commerce. Hearings were held on this measure at the same time as on H. J. Res. 485. On June 13, 1956, Dr. Lull wrote Representative Priest concerning both bills. Since the position of the Association on other features of the measure had already been made known to both committees during the 1955 hearings, comments were limited to the nursing features.

Reiterating the Association's long-standing recommendation of the value of adequately trained practical nurses and auxiliary hospital personnel to the care of the patient, and emphasizing the growing shortage of adequately trained graduate nurses, Dr. Lull outlined two prerequisites to a solution of the problems. First, he recommended a thorough and impartial evaluation of the nursing situation to the end that all concerned might reach agreement on the steps required to improve that situation and the proper role of the federal government in any improvement program. Second, he emphasized the community aspects of existing nursing problems, and urged that initiative and direction of new training programs for practical nurses and auxiliary hospital personnel come from the communities rather than from Washington. Based on these principles, Dr. Lull's letter supported the establishment of traineeships for nurse educators, administrators, and supervisors, supported the establishment of a commission to investigate nursing services, and opposed the enactment of a new program of earmarked grants for the vocational education of practical nurses.

After these hearings, H. R. 11549 was tabled in favor of S. 3958.

H. J. Res. 485.—This measure proposed the establishment of a Presidential Commission on Nursing Services to investigate and report on the needs for improvements in such services, including new or expanded personnel-training programs. This measure was similar to H. J. Res. 171 introduced by Mrs. Bolton in 1955 to establish a Congressional Commission for this purpose. The Association supported both measures. The only hearings held on this resolution were those conducted before the House Interstate and Foreign Commerce Committee in connection with hearings on H. R. 11549. Dr. Lull's letter of June 13, 1956, to the chairman of that committee supported the measure.

No further action was taken on the resolution, and it remains pending before the House Committee on Interstate and Foreign Commerce.

S. 849.—This measure, to authorize federal matching grants of 30 million dollars annually for three years to nonprofit, accredited schools of medicine, dentistry, and osteopathy, and to hospitals for the construction of nonfederal research and laboratory facilities, passed the Senate in 1955. During hearings before the Senate Committee on Labor and Public Welfare, the Association had opposed the bill because of a conviction that an emergency of sufficient proportions to justify federal subsidy in so broad a field had not been demonstrated.

In preparing its legislative program in 1956, the Department of Health, Education, and Welfare expanded the measure to include the construction of teaching as well as research facilities, thereby combining the objectives of Senator Hill's measure and S. 1323, the Medical School Construction Bill. H. R. 9013 and H. R. 9014, coordinating the two proposals, were introduced on Feb. 1, 1956. On April 12, 1956, as hearings on these measures were conducted, Dr. Lull wrote Chairman Priest, reiterating the opposition of the Association to S. 849 unless it were coordinated with other research and construction measures. In the same letter, Dr. Lull restated the Association's support of S. 1323, the Medical School Construction Bill, and endorsed the coordinated approach to the two problems as exemplified in H. R. 9013 and H. R. 9014. Dr. Lull urged, however, that the measure be amended to eliminate osteopathic facilities from its benefits and to make it clear that optometric institutions would not receive research grants since the diagnosis and treatment of pathological conditions of the eye are beyond the scope of optometric practice.

The measure, without the modifications suggested by the Administration or the change recommended by the Association, was favorably reported on May 21, 1956. The measure remained pending before the Rules Committee until after the House defeated the Federal Aid to Education Bill. It was then cleared for floor action, without amendment, and passed the House on July 13, 1956.

The House version differed from the Senate version because of its broader definition of facilities eligible for the construction grants. A conference was necessary, and the conferees adopted the House bill. Both Houses agreed to the conference report and the measure was signed by the President on July 30, 1956, becoming Public Law 835.

CIVIL DEFENSE APPROPRIATIONS

On June 19, 1956, Association witnesses appeared before the subcommittee on military operations of the House Committee on Government Operations which, under the chairmanship of Rep. Chet Holifield of California, was conducting hearings on civil defense preparedness. Statements were presented by Mr. Frank W. Barton, Secretary of the Council on National Defense, and Dr. Harold C. Lueth, a member of that Council. The witnesses related the interest and activities of the Association in the medical aspects of civil defense over a 10-year period, and stressed the necessity for preparation to meet the medical disasters certain to follow thermonuclear attack. Specifically, Dr. Lueth recommended federal rather than state and local responsibility of planning, training personnel, and conducting medical civil defense operations.

No legislation was introduced to implement any of the recommendations received by the Committee during these hearings.

VETERANS LEGISLATION

On March 23, 1956, the House Committee on Veterans Affairs, under the chairmanship of Rep. Olin E. Teague of Texas, conducted hearings on a number of bills providing that a variety of chronic and disabling conditions be presumed by the Veterans Administration to be service-connected if arising within certain defined periods of military service. Dr. Walter B. Martin, Past President of the Association, accompanied by Dr. Desmond O'Doherty, testified. Both witnesses reiterated the position of the Association in opposition to the establishment of service-connection by legislation rather than in actual review of the facts in each case. The witnesses then discussed for the committee the medical problems involved in determining the causal relationship between a disability or disease and an incident arising in military service. The measures considered during this hearing were not acted upon and remained pending before the House Committee on Veterans Affairs at adjournment.

CONCLUSION

In closing its report, the Committee on Legislation wishes to express its appreciation to the Board of Trustees, the Washington Office, the Woman's Auxiliary, and the officers and staff of the Association, as well as to the state medical societies, for their cooperation and assistance during the period covered by this report. It particularly wishes to acknowledge the significant contribution of "key legislative personnel" and individual physicians.

Report of the Washington Office

The last year has been a significant one in national medical legislation, a year that may have strengthened the long-established trend for more and more government participation in health and medical activities. Perhaps because of fewer foreign affairs crises, the 84th Congress turned more of its attention to domestic issues. While foreign aid and military spending remained in prominence, such domestic questions as school aid, the farm program, and desegregation, as well as health legislation, assumed new legislative importance. In the absence of actual threats of war, many legislators believe there is no reason to expect that Congress will reverse itself in future sessions and take less interest in legislation which has the demonstrated popular appeal that health programs carry.

In the last two years there were few senators or representatives who were not actively interested in at least one medical bill of major importance. A total of 18,939 bills were scanned by the Washington Office for medical implications. Of these, 571—many with a number of sponsors—were followed through their legislative course. During the two years, 25 were enacted. For much of this legislation, the first session was a warm-up—bills discussed, hearings held, texts written, and rewritten—but there was not much action. In 1956 Congress set to work on health legislation in earnest, and in the closing weeks of the session decisions came rapidly as the lawmakers attempted to establish records on which to face their constituents in the fall election.

Here are just a few of the major health bills to be enacted late in the second session: A broader program for medical care of military dependents; new grants for training of health personnel; OASI payments to the disabled at age 50; a national health survey; a bill setting up a new mental health program for Alaska; establishment of a National Library of Medicine, and a 90 million dollar program of grants to construct and equip medical research facilities.

During the year a total of 21 physicians appeared as official witnesses for the American Medical Association. Thirty others testified along the lines of Association policy, although not as the Association's official witnesses. Another 30 or more appeared at the hearings, some of them answering committee questions. On a score of bills, the Association submitted written testimony but was not represented by witnesses.

Strengthening the profession's legislative position, state and local medical society publications consistently carried information on the American Medical Association's legislative objectives, some of it from the Washington Office publications, some from Chicago headquarters, and some prepared by the editors themselves.

Stepped-up medical activity in Congress has resulted in some changes in operations of the Washington Office staff, all designed to keep abreast of the increased workload and the increased opportunities to present the medical viewpoint. A better liaison has been developed with Chicago headquarters and with the Committee on Legislation. At the request of the committee, the Washington Office has been represented at many of its meetings by the director and other personnel who have worked closely on Capitol Hill with the legislation under consideration. Freer and more frequent exchange of information between the Washington Office and the committee's secretariat and others in the Chicago headquarters has developed. This closer coordination has taken an appreciable amount of time, but situations that might have led to confusion or misunderstanding often have been eliminated.

During the two years 42 hearings were held by Senate and House committees on bills of major importance to medicine, the vast majority of them during the second session. The longest hearing was by the Senate Finance Committee on the social security amendments, extending from late January until early May, with interruptions while the committee took up other matters. During the two years, congressional committees conducted more than 250 days of hearing on important health bills (154 this year alone) all of which were covered in person by one or more representatives of the Washington Office.

In addition to covering the day-to-day public hearings, Washington Office personnel kept in close contact with congressional leaders and committee staffs handling the legislation. Through such direct liaison on the technical staff level, the Association's representatives were able to assist in the drafting of workable legislation while at the same time consistently presenting to committees the viewpoints of practicing physicians. This healthy working relationship between the American Medical Association and committees was maintained on all important pieces of legislation, resulting in the improvement of some objectionable legislation and the strengthening of desirable bills.

At the same time the Washington Office participated to a greater extent than at any time in the past in the drafting of regulations and in the interpretation of new laws by federal departments and agencies. In the course of the past year it has become apparent that here is an opportunity that may not have been taken advantage of sufficiently in the past. Once bills are enacted, the original intent of Congress may be modified one way or the other in the process of writing the regulations to implement the law. In most cases agency officials welcome the cooperation of American Medical Association personnel in setting up the guidelines. Efforts exerted in this direction often can minimize the unfortunate effects of some bills and improve the beneficial effects of others. In this area conspicuous work was done with the Small Business Administration on loans to health facilities, with the Department of Health, Education, and Welfare on Salk poliomyelitis vaccine legislation, with the Civil Service Commission on bills for health insurance for U. S. civilian employees, and with the Defense Department on the dependent medical care bill. Currently the Washington Office is assisting Chicago headquarters in doing everything possible to help the Department of Health, Education, and Welfare write the best possible procedures for the new social security amendments.

If the sudden rush of medical legislation was a little startling this year, the reaction from the medical profession was encouraging. Physicians from all parts of the country, realizing that they had a stake in what was happening, came to Washington to testify before congressional committees. Others, by letter, wire, and phone call, advised their senators and representatives on how the medical profession stood on each bill. It is to their credit that so many objectionable bills were stopped and so many others made more workable before their enactment. While the technique for keeping the profession informed politically is not as effective as it might be, and while the average doctor's sense of political responsibility is not what it could be, these factors only add to the credit due those who did respond every time their help was asked.

A new departure this year was the inauguration of the Washington Office Legislative Analysis service, designed to supply exact and detailed information, under a legalistic format, to a relatively small mailing list. The list is made up mostly of American Medical Association officers and officials, members of the Committee on Legislation, state secretaries, and others who have a continuing and critical interest in the details of national legislation. During the year a total of 84 pages of Legislative Analysis of new bills were published.

The weekly A. M. A. Washington Letter continued to report on new bills, without so much detailed information, as well as on all other medical developments in Washington. Also continued were the Special Reports and Quarterly Legislative Reviews, supplemental to the Letter and sent to the same mailing list. During the two years a total of 25 Special Reports were published. In 1955 they covered a variety of subjects. This year a majority of them were devoted to various phases of the Association's fight against the social security amendments. Two Special Reports this year attracted more than the usual attention. One summarized all federal spending for health and medical matters—information available nowhere else, except at the Bureau of the Budget. Although a long report, it was reprinted in a number of journals. The other was an analysis, in easy-to-comprehend language, of the new military dependent medical care bill, published shortly after the bill became a law. This was the first such analysis of the bill to be published, and more than 6,000 reprints were issued at the request of various medical and other groups.

The office continued to mail out a Month in Washington column tailored to the needs of state and regional journals. It is published intact regularly in about half the large medical journals. Many others use the column occasionally, or incorporate parts of it in other articles.

As in the past, the office furnished The Journal of the American Medical Association with a weekly summary of all Washington medical developments, carried in the first part of The Journal under the heading "Washington News." As a special service to Journal readers interested in more complete details on legislation, the office also furnishes a column devoted to the contents and implications of new bills and a summary at the close of the session.

For the second year, the Washington Office also has supplied to the *Journal of the Student American Medical Association* a monthly column emphasizing Washington news of interest to medical students.

Supplying assistance of various types to individuals and groups, including officials of the Association, is a growing responsibility of the Washington Office and demands more and more staff time. Services include the supplying of legislative material and similar information, preparation of speech and special article material, editing and preparation of testimony, and assistance on reports or special projects. The Office uses its own legal, editorial, mechanical, and stenographic personnel and facilities to prepare, reproduce, and mail this material.

The increased tempo of medical legislation and the mounting interest of many state societies in Washington developments naturally have resulted in a significant increase in Washington contacts of all types with doctors in the states. Washington staff people have traveled to state society meetings to discuss legislation, the volume of correspondence has stepped up, and during the critical legislative situations the long distance phone has been used extensively. The Washington Office continues to comply promptly with requests from state societies for information on particular Washington situations, a service that frequently involves a large amount of research time, but which it is felt is needed and which the office is glad to be able to furnish. Other inquires also continue to increase—from congressional offices, from press and radio representatives, and from other organizations in the health fields. Some of these also require extensive research, but all are handled as expeditiously as possible in relation to available manpower.

The Washington Office undertook an experiment in mailing. Early in the spring, most of the mailing list was sent out as third class rather than first class mail. Each of the states subsequently was asked to advise the office of any complaints about delay. Although only three states advised of confusion, it was decided, because of the importance of pending legislation, to return to the used first class mail for the entire list while Congress was in session. When the Congress adjourned, the more economical mailing plan was reinstituted, with first class postage used in certain situations where the delay would be excessive. By following this procedure it is expected that approximately $2,500 a year will be saved in postage.

When the Association discontinued its printing operations in Chicago, a surplus graphotype machine was made available to the Washington Office. As a result of this acquisition, immediate changes or additions to the mailing list of Washington Office publications can be made.

A qualified librarian was hired to make the volume of information flowing into the Washington Office readily available to the staff, but there were no other additions of personnel during the year. The staff continues to consist of a director, an assistant to the director, two assistant directors who are physicians and assigned to the Senate and House, a legal adviser, a political adviser, an editor and an associate editor, two men in the duplicating and mailing operations, and nine secretaries, stenographers and clerical assistants. The duties and responsibilities of all members of the staff have been augmented and continue to increase. Although each staff member continues to serve in the special capacity for which he is peculiarly qualified, all of the executive staff are expected to be able to supplement each other. To this end three more staff members, all of whom are attorneys and experienced in legislative activities, have been registered as lobbyists as provided by law. These are in addition to the three physicians, who continue to register as lobbyists.

Report of Department of Public Relations

The period covered by this report is July 1, 1955, to June 30, 1956. As in the three previous years, the American Medical Association's public relations program again emphasized positive, practical activities designed to improve physician-patient relationships, promote closer relations between the Association and its members, assist state and county medical societies in the establishment and improvement of organized public relations programs, and create a better understanding of medicine's policies and objectives among both the professional and the general public. Particular attention also was devoted to special projects such as Medical Education Week, National Science Fair, Farm-City Week, the "Meet Medicine" luncheon at the annual meeting, the American Medical Association public opinion survey, increased activity in the field of television, and an intra-professional educational program concerning the Social Security issue.

ADVISORY COMMITTEE

The Advisory Committee to the Director of Public Relations met four times during the period of this report. The committee provided valuable advice on specific projects, both current and proposed, and also on broad, long-range public relations problems facing the medical profession. Present members of the Advisory Committee are:

Mr. James A. Waggener, Chairman
  Executive Secretary, Indiana State Medical Association
Mr. Theodore Wiprud
  Executive Director and Secretary, Medical Society of the District of Columbia
Mr. Ralph W. Neill
  Executive Secretary, Washington State Medical Association
Mr. Robert D. Potter
  Executive Secretary, Medical Society of the County of New York
Dr. John E. Farrell (Sc.D.)
  Executive Secretary, Rhode Island Medical Society
Mr. Ralph R. Marshall
  Executive Secretary, New Mexico Medical Society
Mr. Harold Parham
  Assistant Managing Director and Public Relations Supervisor, Florida Medical Association
Mr. Don Taylor
  Executive Secretary, Iowa State Medical Society
Mr. George Saville
  Assistant Executive Secretary and Director of Public Relations, Ohio State Medical Association

PRESS RELATIONS

Annual Meeting.—The 1956 Chicago meeting attracted a near-record press room registration of 144 reporters and writers, exceeded only by the 1953 New York meeting and the 1955 Atlantic City meeting. In addition to advance packets of news releases mailed to science writers, newspapers, and magazines throughout the country, the press section for the first time sent out an advance program containing abstracts of scientific papers. Another innovation was use of a new photo copying machine which made multiple copies of important papers available in the press room and for special requests after the meeting. Improvements also were made in the system of supplying and explaining House of Delegates resolutions to the press. All of these new procedures brought favorable comments from reporters and writers. During the meeting, press conferences were held with the Distinguished Service award winner, with a gastroenterological specialist on President Eisenhower's illness, and with delegates and officials concerning an important resolution on medical education. After the meeting the press section handled an unusual number of requests for additional information and copies of scientific papers.

Clinical Meeting.—Press registration for the 1955 Clinical Meeting in Boston totaled 68, which was more than double that of the 1954 Miami meeting. In addition to advance press packets and news releases written during the meeting, coverage included press conferences with Dr. Paul Dudley White, with the General Practitioner of the Year, and with several physicians on the scientific program.

Special Conferences.—There was marked increase in both the volume and variety of the Department's work in providing advance press room and follow-up news coverage for annual conferences and special meetings sponsored by the Association. Meetings covered were three regional medicolegal symposiums sponsored by the Law Department, Conference on Physicians and Schools, Civil Defense Conference for county medical societies, Mental Health Conference for state medical societies, Congress on Industrial Health, Congress on Medical Education and Licensure, and Conference on Rural Health. In addition to advance stories in the regular American Medical Association weekly news release and many other releases written during these meetings, more than 50 advance releases and 7 summary stories were sent to special lists totaling approximately 3,500 publications, writers, organizations, and interested individuals.

Special Releases.—Wide press distribution was given to special news releases concerning the Chronic Illness Commission, Sears-Roebuck Foundation grants, chemical health hazards, Ford Foundation grants, Joint Blood Council, and Association staff appointments. A feature style release was prepared for local use whenever the medicolegal mock trial is presented at one of the regional medicolegal symposiums.

Weekly News Release.—Based mainly on newsworthy articles or editorials in THE JOURNAL, *Today's Health*, and the A. M. A. specialty journals, the weekly news release of from three to five stories was sent to more than 2,000 publications every week, except during the annual and clinical meetings. Use of the weekly release is steadily increasing, both as straight news and as the basis for local feature stories.

MAGAZINES, TELEVISION, AND FILMS

Magazine Relations.—Editors and writers made 173 requests, ranging from specific questions on medical subjects to the checking of manuscripts. Screening of all general magazines with a circulation over one million showed a total of 387 articles or medicine and health. Summaries of popular health articles were published each week in THE JOURNAL, and the department also maintained a reference file listing health articles by author, subject, and title. Liaison with magazine editors and writers wa continued by means of personal letters, personal interviews, an mailing of the weekly news release.

New TV Committee.—A new 12-man Physicians Advisor Committee on Television, Radio, and Motion Pictures was estal lished to assist the Department in improving liaison with thos mediums. Operating primarily in the Los Angeles and New Yor areas, which are the major production centers, the committee provides technical assistance and advice to producers, networks, and script writers on shows involving medicine or health.

New TV Series.—In May, 1956, a contract was signed with the CBS television network for American Medical Association participation in a new dramatic series on forensic medicine to be titled "Probe." Through the new Physicians Advisory Committee the Association will supply technical assistance in planning, scripting, producing, and presenting the series.

General Activities.—In addition to special requests, the Department continued to cooperate in presentation of the "March of Medicine" series over the NBC-TV network and the weekly "Medical Horizons" over the ABC-TV network. Close liaison was established with network script clearance and publicity departments. Advance news of network shows involving medicine or health was published in THE JOURNAL. "Television News" was sent monthly to state and county medical societies to provide a regular roundup of pertinent, helpful information. Association films: "A Life to Save" was shown 193 times to an estimated 9,050,000 television viewers, and "Operation Herbert" was presented 130 times to approximately 5,140,000 viewers. The Department answered numerous requests from state and county medical societies for advice and materials in planning, producing, and promoting local television programs.

New TV Film.—Negotiations were completed for production of a new half-hour filmed television program, "Even For One," emphasizing the "human" qualities of the practicing physician, for use over local stations.

New Membership Film.—The Department provided script outline, material, and liaison for production of a 27-minute American Medical Association membership film, "The Case of the Doubting Doctor," designed to show how the Association serves its members. Produced primarily for showing before medical audiences, the film had its premiere Aug. 29 at the American Medical Association Public Relations Institute.

Other PR Films.—In showings at schools, clubs, churches, and similar places, the numbers of people viewing Association films were as follows: "Your Doctor," 285,999; "A Life to Save," 84,084; and "Operation Herbert," 63,482.

Literature Distribution

The Department distributed a total of 4,147,327 pamphlets, leaflets, brochures, and reprints. A major new piece was the 12-page pamphlet "To All My Patients," of which more than three million copies were distributed for use by doctors in promoting better physician-patient relations. Other leading items of distribution were the health series ("Quack," "On Guard," "Health Today," "Why Wait?"), total of 695,847; "A Clinical Analysis of H. R. 7225," 235,000; "What's Up with Our Medical Schools?" (revised), 62,000; "Winning Ways with Patients," 11,488; and "Needed Now" (on the Social Security issue), 8,600. New and old pieces available for distribution totaled 74.

Special Projects

Medical Education Week.—The Department handled the Association's participation in Medical Education Week, observed nationally from April 22-28 and co-sponsored by the American Medical Association, Student A. M. A., Women's Auxiliary to the American Medical Association, Association of American Medical Colleges, American Medical Education Foundation, and National Fund for Medical Education. National and local promotion was integrated by a national coordinating committee and more than 1,000 community coordinating committees. This Department's principal responsibility was in promoting establishment of the local committees, coordinating their activities, and supplying them with complete kits of program materials and suggestions. National and local efforts brought extensive publicity in newspapers, national and professional magazines, network and local radio and television programs, salutes by national and local advertisers, and endorsements or proclamations by President Eisenhower, 26 state governors, and 28 mayors.

National Science Fair.—The Department handled the Association's first-time participation in the National Science Fair, sponsored by Science Clubs of America and held May 10-12 in Oklahoma City, where 213 high school students exhibited as finalists from 110 regional science fairs. An American Medical Association six-member judging committee from the Council on Scientific Assembly awarded citations to the four best exhibits in the basic medical sciences. The two top award winners then came to Chicago as guest exhibitors at the Association's 105th annual meeting, where their presence occasioned much favorable comment and publicity. The House of Delegates at the Chicago meeting commended this department for its work on the science fair project and urged that the Association "continue to use every resource at its command to bring the whole of organized medicine into active participation in this worthwhile and constructive program to encourage the youth of our nation to take a serious interest in the field of science as their career."

Farm-City Week.—The Department handled the Association's participation in the first observance of Farm-City Week, held nationally Oct. 23-29 under the sponsorship of a large number of industries and farm, civic, and professional organizations, with Kiwanis International as the coordinating agency. The Department publicized the event among medical societies, provided them and their auxiliaries with specific activity suggestions, supplied promotional literature, and promoted the observance through The Journal and other publications.

"Meet Medicine" Luncheon.—The Department conceived and carried out all arrangements and publicity for the "Meet Medicine" luncheon at the Chicago annual meeting. Through this new feature, 150 Chicago leaders in politics, industry, religion, banking, insurance, education, the law, civic work, the arts, business, and philanthropy had lunch at Navy Pier with American Medical Association officers and delegates and then toured the scientific and technical exhibits.

Public Opinion Survey.—"What Americans Think of the Medical Profession," a two-volume survey conducted for the Association by an independent research organization under the supervision of the Department, was analyzed and publicized extensively to both the public and the profession as follows:

Two separate news releases, timed for Feb. 8 and 15, were sent to a total of 6,207 newspapers, wire services, radio and TV news editors, magazines, free-lance writers, medical and allied publications, state and county medical society officers, editors, and PR executives, American Medical Association officers, delegates and department heads, and a wide variety of individuals, groups, and institutions. Three mimeographed summaries, one with the first release and the other two with the second release, were sent to about half of the mailing list of 6,207.

A 68-page summary booklet, illustrated with charts and graphs, was printed in quantity of 10,000 copies, 3,000 of which were sent immediately to state and county medical society executives, allied medical organizations, and Association officers and delegates.

Two special articles and one editorial were published in two issues of The Journal to coincide with timing of the news releases. Three editorials were sent to state and county societies, and editorial material was distributed through a syndicate service to weekly newspapers throughout the country. Visual aids were prepared for use with speeches on the survey. News items were placed in the Secretary's Letter and A. M. A. News Notes. Personal contact was made with national news magazines and Chicago newspaper science editors. Numerous newspapers, hospital and medical publications, and others were provided with special-interest material. Hundreds of requests were filled for additional copies of the news releases, summaries, booklet, and full survey report.

Results, as indicated by analysis of the first 300 clippings received, show an unusually extensive use of both news stories and editorials in papers of all sizes throughout the nation.

H. R. 7225.—In cooperation with officers and other departments of the Association, this Department carried out an intraprofessional education program to acquaint physicians with the proposed disability amendment to the Social Security Act. This work included the writing and/or production of 14 different booklets, pamphlets, and reprints; special articles and an editorial for The Journal; several speeches or speech inserts; an editorial for state and county society publications; report material for the Board of Trustees; special letters from Dr. Hess to members of the Association and to members of the U. S. Senate; and a study conference for representatives of state medical societies.

Services to State and County Societies

A. M. A. News Notes.—Twelve issues of this monthly newsletter were distributed to state and county editors, state executive secretaries, and headquarters department heads and guides, to keep them informed on new Association activities and services.

PR Doctor.—Five issues of the PR Doctor Newsletter and Exchange, containing news, suggestions, and examples of medical society public relations activities, were produced. Distribution to medical society personnel was 4,500 for the newsletter and 250 for the newsletter and exchange.

PR Packets.—The Department continued distribution of the 11 informational packets already made up and planned the addition of several new titles in the latter part of 1956. State and county societies were surveyed in April for up-to-date material on member indoctrination, anniversary celebrations, and medical society-sponsored newspaper health columns.

House of Delegates Report.—At both the Boston and Chicago meetings a roundup story on House of Delegates actions and convention highlights was mailed out on the final day to about 715 delegates, state and county editors, and medical society officers and personnel. The total run on the report, to meet additional requests after the meetings, was increased from 800 at Boston to 975 at Chicago.

Services to Councils, Bureaus, and Committees

Special Conferences.—In addition to the press coverage already described, the Department provided summary stories in The Journal on the Congress on Industrial Health, Conference on Rural Health, Conference on Physicians and Schools, Law Department Medicolegal Symposiums, Congress on Medical Education and Licensure, and Conference on Medical Care in the Bituminous Coal Mine Area. The Department also arranged and coordinated radio and television coverage at the industrial health and rural health meetings.

Chronic Illness Newsletter.—In cooperation with the Council on Medical Service, the Department produced three issues of this four-page newsletter formerly handled by the Commission on Chronic Illness. Distribution is about 11,000.

Mechanical Quackery.—In cooperation with the Bureau of Investigation, the Department wrote and produced a threefold, eight-panel, two-color pamphlet on mechanical quackery and also prepared a one-page promotion flyer for mailing. Distribution total so far is 13,000.

General Services.—The Department assisted several other departments in the writing, editing, and production of numerous pamphlets, booklets, digests, and reports, and also handled promotion of the American Medical Association Employee Credit Union for the Personnel Department.

Presidential Inauguration Program

For the fourth consecutive year the Department handled all arrangements, script writing, promotion, and publicity for the presidential inauguration ceremony at the annual meeting. This year's program, held at the Chicago Civic Opera House and including the Bluejacket Choir of the Great Lakes Naval Training Center, was attended by 2,000 people. An additional 100,000 Chicago area viewers saw a half-hour portion of the program over Television Station WBKB. For the first time, part of the President's inaugural address was filmed in advance and distributed to television stations throughout the country for use on news programs. The filmed material was used by more than 100 stations and seen by an estimated 10 million televiewers. Dr. Murray's inaugural address, entitled "The Personal Touch in Medicine," was printed in booklet form for distribution.

Services to President and President-Elect

Activities of the executive assistant assigned to the President and President-Elect included the following: 19 trips covering 64 days and 21,000 miles; assistance in the preparation of 21 speeches; 10 special press releases; 25 press interviews; arrangements for 15 radio interviews and 10 television appearances; six special articles and several short statements for periodicals; collaboration in the writing of 12 President's Pages for The Journal; preparation of the President-Elect's biography; assistance with correspondence and itineraries; and the filling of requests for special materials or information.

Miscellaneous Services

In addition to work mentioned in all the foregoing categories, Department staff members also arranged the 1955 Public Relations Institute in Chicago and the Eighth Medical Public Relations Conference in Boston; published the Daily Bulletin at the Boston and Chicago meetings; prepared monthly Public Relations Pages for The Journal; distributed 1,200 "Lessons for Living" kits at the General Federation of Women's Clubs annual convention; supervised the Association's guided tour program which this year accommodated nearly 1,000 visitors; assembled kits on medical assistants for medical societies and assistant's groups; distributed 400 packets on socialized medicine; continued the sale of "To All My Patients" office plaques; handled production of 22,000 copies of the general program at the Chicago annual meeting; supervised photography and filled requests for prints at the Boston and Chicago meetings; assisted in the writing, reproduction, and distribution of the Secretary's Letter; continued reorganization and coordination of mailing lists in this department and others at Association headquarters; wrote at least 10 speeches for Association officers and trustees, in addition to those for the President and President-Elect; and attended meetings of councils and committees as liaison representatives of the department.

Field Trips.—The Director of the Department fulfilled 39 engagements to speak before or attend meetings of medical societies and other organizations. In addition, the Assistant Director, Director of Press Relations, and other staff members made a total of 38 trips for the same liaison purposes.

Conclusions

The Department feels that continual progress is being made in formulating, improving, expanding, and carrying out a sound medical public relations program based on positive principles and activities. The Department wishes to express its appreciation to the House of Delegates, officers and Board of Trustees of the Association, the state and county medical societies, and the departments and staff members at Association headquarters for their cooperation and help during the period of this report.

Report of the Council on Mental Health

Since its last annual report the Council on Mental Health has held three Council meetings: September, 1955; February, 1956; and June, 1956. The Executive Committee of the Council, composed of Drs. Leo H. Bartemeier, Lauren H. Smith, and Walter Baer, has met twice. The matters of primary consideration to the Council during the past year have been the preliminary work concerned with setting up the Joint Commission on Mental Illness and Health, Inc.; considerations with respect to problems of the medical use of hypnosis; deliberations concerned with organized medicine's attitude toward problems of narcotic addiction; problems surrounding hospitalization of patients with alcoholism in general hospitals; legal certification of clinical psychologists; and the development of a closer liaison between the Council and committees on mental health of the state medical associations.

Joint Commission on Mental Illness and Health, Inc.

About two and a half years ago a small group from the American Psychiatric Association, led by their then president, Dr. Kenneth E. Appel, and members of the Council on Mental Health of the Association held a series of informal meetings with a view to finding out how the Association could best work with the American Psychiatric Association to accomplish something that would be of continuing value in the field of mental illness and health. The consensus of these discussions was that what was now urgently needed was a new over-all review of the present status in this field, and a search for ways in which the present approaches could be improved. This led to the setting up of the Joint Commission with full and formal recognition by the official bodies of the American Psychiatric Association and the American Medical Association. It was then recognized that in such an all-embracing undertaking many additional organizations whose work was closely tied in with the problems of mental illness and health needed also to be included because of the definite contributions they could make. Some 20 such national organizations were then invited and accepted participation.

The Joint Commission was legally incorporated as a nonprofit organization in mid-1955, with Dr. Leo H. Bartemeier, Chairman of the Council, as chairman of its board of trustees, along with four other members of the Council appointed by the Association as members of a 15-member board. Fortunately for the Commission, the "Mental Health Study Act of 1955" passed by Congress allotted the sum of $1,250,000 for a nationwide study of mental illness and health. The Joint Commission applied for these funds through the National Institute of Mental Health and was granted a sum of $250,000 to start work in January, 1956. Under the direction of Dr. Jack Ewalt as principal research investigator, headquarters offices were set up in Cambridge, Mass., in mid-February, 1956. The over-all research model which has been set up for the work of the Commission, concentrates the attention of the study on people and what happens to them in our society. Starting with considerations of people's genetic, biological, psychological, and cultural background, the model envisions a study of individuals as they relate themselves to critical stages of development, from birth through preschool and working periods, and as they relate themselves to family, church, marriage, and other sociocultural factors in our society. In these respects the study will attempt to find out what these sociocultural institutions do to and with people that contributes toward or inhibits the development of an effective emotionally functioning person. For those persons who do not achieve this status, the study will include an investigation of the nonprofessional helping agencies in the community to find out what they actually achieve, a study of professional people and agencies, to find out what they achieve after the person has arrived at the status of patient, and a study of the hospitalized patient situation. The Joint Commission believes that there are vast numbers of persons in America, perhaps hundreds of thousands, who for long periods of their lives go through agonizing mental and emotional disturbances who do not receive help from any source. The Commission, in its study, wants to find out who and where these people are. The Commission believes also that there are perhaps millions of persons who weather these same emotional storms successfully without help from any organized source. It therefore, as part of its study, wishes to find out how these people help themselves.

In its development so far, the Commission has set up task forces in the areas of mental health processes in schools, a resurvey of mental health and illness research, a mental health and illness manpower study, and a national sampling opinion survey in an attempt to elucidate the real, and perhaps unrecognized, mental health problems of the general population. These studies are being undertaken in collaboration with personnel of Harvard University, the University of Michigan, the University of Texas, and New York University.

Other areas that the Commission plans to enter in the proposed three-year study include patterns of patient care in the mental hospital, general hospital, and the community; a study of law as it relates to mental health, delinquency, court and penology practices; the economics of mental illness; religion as it relates to mental health; epidemiology of mental illness; and the mental health aspects of military and family life and leisure time activities. The expected total financial needs of the Commission for three years will be approximately 4 million dollars.

Medical Use of Hypnosis

During the past two years there has been a rapidly increasing interest in the medical profession about the possible values and uses of hypnosis in medical practice. During this time, the Council has received repeated inquiries concerned with what the attitude of medicine generally should be with respect to hypnosis in practice. In addition to this, the Council has received repeated inquiries concerning short two-to-three-day courses that are being set up throughout the country by so-called "schools" of hypnosis teaching that are not sponsored by any university or medical school. There are also some "schools" of this nature that are advertising courses in the practice of hypnosis as correspondence courses. These matters have been discussed at Council meetings frequently, and in view of the obvious need for an official medical opinion concerning use of hypnosis in medicine, the Council has set up an *ad hoc* committee under the chairmanship of Dr. M. Ralph Kaufman, Council member, to review the present status and use of hypnosis in American medicine. The committee is at the present time making an extensive review, primarily of the American literature, on the medical use of hypnosis, and has prepared a bibliography for physicians of the books pertinent to this subject, which is available from the Council office.

The Council has also reviewed the report of the British Medical Association on "Medical Use of Hypnotism" and the summary of this report which was published in The Journal. It was the view of the Council members that the British position was a position that American medicine might well adopt; however, it was felt also that, before an official opinion in this respect was adopted by the Association, a representative group in the field of American medicine should be brought together to discuss this whole area. In view of this, Dr. Kaufman has called a representative group from American medicine to a joint meeting of the Council acting as a committee of the whole, for Sept. 18, 1956, at the Drake Hotel, Chicago. The Council expects that from this meeting it will be in a position to develop a report for presentation to the Board of Trustees so that it can take official action toward adopting a policy regarding medical use of hypnosis that will reflect the opinion of American medicine generally.

Committee on Narcotic Addiction

On Sept. 10, 1955, the members of the Council on Mental Health and members of its Committee on Narcotic Addiction met together for a one-day meeting with representatives of the Medical Society of the State of New York, the New York Academy of Medicine, the U. S. Bureau of Narcotics, the American Bar Association, and the Chicago Police Department. The main subject under consideration at this meeting was whether the Council might wish to make recommendations to the Board of Trustees that would reflect the present attitudes of American medicine toward the control and treatment of narcotic addiction and whether present attitudes required change. Dr. Robert H. Felix, chairman of the Council's Committee on Narcotic Addiction, reviewed the background viewpoint of American medicine toward narcotic addiction, which was essentially that adopted by the House of Delegates in 1924. Dr. Felix indicated that the present position, as adopted in 1924, was that: (1) The American Medical Association expresses opposition to the ambulatory treatment of narcotic addicts either by a private physician or in a so-called clinic; (2) the Association strongly urges the state and national authorities to put an end to this kind of treatment; (3) the Association recommends the strict enforcement of national and state narcotic acts to eliminate the illicit supply of drugs; (4) the Association recommends the establishment of special institutions for the treatment of addicts, both by the state and by the federal government; (5) the Association deplores and condemns "skript" doctors, that is, physicians who provide addicts with prescriptions under the guise of treatment; and (6) the Association recommends the follow-up and supervision of addicts following their discharge from a hospital.

Dr. Felix indicated that this program has been largely followed, with the exceptions that the number of hospitals established for the treatment of addicts, even including Lexington and Fort Worth, were still insufficient and that clinic follow-up for addicts once discharged from hospitals has been almost negligible.

Each of the groups represented were given opportunity to discuss the present position. There were widely divergent opinions offered. Representatives of the U. S. Bureau of Narcotics felt that its program, pursued since 1924, had been effective in that there had been an actual drop in the number of addicts in the United States from about 150,000 at that time to an estimated 60,000 today. Representatives of the other groups believed that the present method of taking care of the narcotic problem in the United States was a punitive rather than a medically oriented program and that there was no way of accurately estimating the present number of narcotic addicts in the United States. They felt also that the present methods of enforcement of the Harrison Act were punitive as far as medical practice itself was concerned, and were in effect preventing narcotic addicts from obtaining the help they need from the medical profession. They further stated that the narcotic clinics that had been opened around 1919, for the most part, had not been given a fair trial, and suggested that the medical profession should now take under consideration a reorientation in the handling of the narcotic problem so that these patients could be cared for under a medical orientation rather than a punitive legal one. They also suggested that the present methods of enforcement of narcotic control were greatly increasing the illicit importation of drugs into the United States and thereby maintaining a "narcotic racket" and increasing the number of addicts through proselyting by users and peddlers.

A member of the American Bar Association, reviewing the problem legally, suggested that the present methods by which physicians are controlled in their use of narcotics by the Bureau were unlawful in that in the latest decision of the Supreme Court, the so-called "Linder" case, the court had indicated that the Harrison Law was not to be construed as an intent to regulate medical practice in the states when a physician was using drugs in good faith and in the ordinary course of his duties to his patients.

The complete proceedings of this meeting are mimeographed and available at Council headquarters offices. The Council so far has made no recommendations to the Board of Trustees based on this meeting but will reconsider the whole matter again with its Committee on Narcotics for the purpose of reaching a series of recommendations that can be sent to the Board of Trusteess and that, if adopted, would represent a more current view of American medicine toward the entire narcotic problem.

Committee on Alcoholism

The Council's Committee on Alcoholism has had three regular meetings since the last annual report. This Committee has been concerned primarily this year with the problem of hospitalization in the United States for patients with alcoholism, the drawing up of a series of articles on modern methods of treating alcoholism, the dissemination of information through its alcoholism exhibit developed last year; and the dissemination of information on alcoholism to physicians through the use of the "classified abstract archives of alcohol literature" which has been set up at Council headquarters.

With respect to the hospitalization of patients with alcoholism, the Committee has drawn up a "Resolution on Hospitalization of Patients with Alcoholism," which was presented to the Council. After a joint meeting with the Council at which changes and corrections on the resolution were made, the resolution was forwarded to the Board of Trustees for consideration and/or approval in June, 1956. A program is now under way for the development of a treatment manual to be developed as a series of articles dealing with modern medical and psychiatric treatment approaches to alcoholism including also articles on the physiological and sociological approach to this problem which it is hoped will be published as a series of special articles in The Journal during the coming year.

Mass Mediums

For the past three years the Association, through the Council, has been supporting a study of the effects of mass mediums, including radio, television, and comic books, on children. These studies have been carried out through a cooperative arrangement between the Council and the Laboratory of Human Development at Harvard University and the department of psychology at Boston University under the general direction of Dr. Nathan Maccoby, chairman of the department of psychology at Boston University. It is expected that a full report on these studies will become available late in 1956. However, a preliminary report made in August indicates that the following studies under the grant have been completed or are under way: (1) the effect of different types of aggressive film content upon children's aggressive responses and identification choices; (2) a study of exposure habits to the mass mediums and their cognitive effects; (3) the effects of mass mediums as a socializing agency; and (4) the effects of emotional arousal on retention of aggressive and nonaggressive moving picture content.

It had been the original hope that these preliminary studies might lead to the development of a large-scale research proposal on the effects of mass mediums on children, with a request for foundation support. However, the present feeling of the investigators is that at the present time the problem can best be tackled by a series of small-scale studies by individual researchers, allowing for a high degree of research integration through the usual channels of scientific communication such as professional meetings and professional journals. The final reports on the studies mentioned should be available in December, 1956.

Conference of Mental Health Representatives of State Medical Associations

On Nov. 18 and 19, 1955, the Council sponsored a second annual conference of mental health representatives of the state medical associations to consider common problems in the mental health and illness field. The conference was held at Chicago headquarters. It was chaired by Dr. Leo H. Bartemeier, Council Chairman, and welcoming addresses were given by Dr. Elmer Hess, President, and Dr. George F. Lull, Secretary and General Manager of the Association. The general subjects for discussion were: (1) the narcotics problem, with particular reference to the attitude of the American medical profession; (2) the integration of public mental hospitals within the total medical community; (3) future relationships between medicine and clinical psychology; (4) the development of committees on mental health at county medical society levels; (5) what a mental hygiene clinic should be from the medical viewpoint; and (6) the present development of the Joint Commission on Mental Illness and Health. Dr. Ernest B. Howard, Assistant Secretary of the Association, and Dr. Nicholas Dallis, developer of the Dr. Rex Morgan strip, were speakers at the dinner meeting.

The proceedings of this conference have been published and distributed to all state medical associations, and copies are available at the headquarters office. A third conference has been scheduled for Nov. 16 and 17, 1956.

The conference developed a "resolution on composition and tenure of mental health committees of the state medical associations." In this resolution, the conference members unanimously agreed that such committees, in order to maintain continuity, should be appointed for terms of three to five years, with at least one member being replaced annually. They further agreed that such committees, in order to function most effectively, should have representation not only from psychiatry, but also from such other fields as surgery, internal medicine, pediatrics, public health, and general practice, and such other specialty representation as would be particularly appropriate for the area.

Headquarters

The interdepartmental contacts of the Council have been increasing rapidly over the past two years. Dr. Francis J. Gerty has been recently appointed to represent the Council on the newly created Intra-Association Committee on Rehabilitation.

The Council has had considerable supervisory contact with the Woman's Auxiliary to the Association in the development of its own program on mental health promotion. This year the Council has reviewed and approved a program in mental health for the Auxiliary, stressing the need for developmental work along the lines of providing mental health services and hospitalization for children with mental illness, an area that has been grossly neglected over the past years. Council members have also been active in providing material for congressional hearings on such matters as legislation with respect to narcotic addiction and the need for increased funds for mental health research. The Council is also at present cooperating with the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association in the development of a brochure for use in mental health teaching in the schools. This work is being carried out through the agency of the Judge Baker Clinic in Boston under the direct supervision of Council member Dr. George Gardner.

There have also been increasing demands for consultation and advice from the Council to mental health committees of the state medical associations. With respect to the development of the Joint Commission on Mental Illness and Health, the Secretary, Dr. Richard J. Plunkett, has been loaned on a part-time leave basis to act as Associate Director of the Commission at its headquarters offices in Cambridge, Mass.

Requests for liaison contacts from the Council are increasing rapidly. These include requests for liaison contact from such organizations as the American Nurses Association, the National League for Nursing Education, the American Association for Mental Retardation, the National Epilepsy League, Inc., and the American Bar Association. For the most part these requests have been satisfied on an informal liaison basis through the headquarters offices or the executive committee of the Council, which is also set up as a liaison group.

Report of the Council on Rural Health

The Council on Rural Health is grateful to the Board of Trustees, the House of Delegates, and the management of the American Medical Association, and to the constituent state medical associations and their staffs for the encouragement, support, and cooperation it has received during the past year. The Council regards this as its most profitable year of operation since the Committee on Rural Health was established in 1945 and since it became a Council. Progress has been made in many fields. Certain of the controversial subjects that existed at the outset of the work of this Council have disappeared from many areas. The point has now been reached where programs can be developed with state medical associations and lay organizations that are well planned and in the long-time interest in both the practice of medicine and the health of the people of rural America.

The Council is grateful also to the many farm organizations, educational agencies, and groups with whom it has been privileged to work during the past year, for their cooperation, support, and understanding. These organizations have displayed a magnificent spirit of cooperation in which the Council on Rural Health and the American Medical Association have developed an unusual sharing of the profit motive from every point of view. We believe that during the past year we have advanced the understanding of sound practice of medicine among these organizations throughout the nation to a greater degree than has been done before. Moreover, we have been privileged to work with these lay organizations in broadening their understanding of the lay responsibility for lay programs of health, for which medicine in times past has been charged as having the total responsibility, but in which they can only carry their proportionate share and serve as leaders and guides in the broad field of understanding and mutual assistance.

We have made ourselves available to all types of organizations at all levels of their endeavor throughout the country. We have supplied information and consultation wherever the opportunity was presented. We have assisted them in developing their own programs to meet their needs. We have continued to pursue the "old fashioned virtue" of self-help and have had wide acceptance of our basic philosophy that any problem that exists in any community in America can be solved by the people and the resources that are already available in the community or which are available to the community from the outside. We believe this combination of personal and community responsibility in these affairs has greatly lessened in all cases the once commonly accepted thought that programs in health and medical care could be solved from a central source in government.

The nine regional directors of the Council have functioned throughout the year with one replacement. The death of Dr. Henry Randel of Fresno, Calif., who served the Pacific coast and far western area of California, Nevada, and Arizona, made necessary the replacement in that position. Dr. Robb Smith of Orange Cove, Calif., was appointed to the Council, but later, due to his resignation, Dr. Carroll B. Andrews of Sonoma, Calif., replaced him.

Every state medical association has carried a rural health program of one type or another during the year. Forty-four states have been very active in this regard, with each of them continuing their committees on rural health and the liaison relationships with the organizations interested and active in this field. New Mexico has recently appointed a committee on rural health which is just beginning its activity.

In 24 states health conferences or other similar activities in lieu of state conferences were held during the last year. In some states, the conferences were broken down into regional meetings in addition to a statewide conference. In others they were substituted for the state conference. In all cases, state medical associations and their committees on rural health are staying in close contact with the major farm and rural groups in these states and providing leadership and guidance for their health activities.

In the New England region we have previously not held state conferences. A regional conference was held in April of this year where more than 200 New England rural leaders assembled and spent a day in exploring possible local activities which might be carried on in their states or in smaller regions of the area.

The 11th National Conference on Rural Health which was held in Portland, Ore., March 8-10, was an outstanding success. Although it was held in the far Northwest, there was good national representation. Particularly outstanding this year was the large number of physicians attending and participating. In addition, we had the largest number of lay rural leaders that has attended any of our conferences. The participation of all the groups was good, their interest ran high, and we believe it to be the most successful conference we have held.

During the past year the Field Director has visited 41 states. Some, of course, were visited a number of times. A good deal of time was taken in visiting the states of the Northwest which were eager to support the National Conference in Portland, Ore. He worked with them in developing plans for attendance, getting suggestions for the program, and in getting personnel to carry out the suggestions they made. It is believed that this has been one of the more profitable activities, because the conference was one of the most successful that the Council has held.

During the year the Field Director prepared manuscripts for two pamphlets which are in special demand by various lay organizations. One of these is entitled "A Member of the Family—Your Doctor" and the other, "Check and Know."

The Parade of Progress has been prepared and issued periodically and fills a need for both medical associations and rural organizations as an idea exchange.

Constant liaison has been maintained with the leaders of national farm organizations, the Land-Grant Colleges, the Agricultural Editors Association, and many other national organizations, as well as the state units of these component groups.

About 90% of the Field Director's time has been spent in traveling from state to state promoting the program of the American Medical Association and the philosophy of the Council on Rural Health. Many radio and television appearances have been made, public speaking engagements fulfilled, new contacts established during the year, and old ones strengthened.

The chairman of the Council believes this has been the most successful year of the Council's existence. The National Conference was the highlight of the year's activities insofar as public functions are concerned. An analysis of the attendance showed that the largest number of community lay leaders were in attendance of any year. It was the largest total attendance of any of the conferences, and the enthusiasm of the group ran higher than heretofore. It is acknowledged that this attendance was somewhat limited to the Northwest, but the purpose of rotating the conferences around the United States has been to reach lay leaders in local regions who would not otherwise be reached if the meeting were held at one central point. An optimum number of old and faithful friends were at this meeting and these have been the reliable and devoted supporters of the program from its inception.

During the year the Council organized a new service for farm magazines of the United States which came about as a result of the request from the advisory members representing the Agricultural Editors Association. This service, though organized and prepared now, will go into effect early in the fall. Physicians who are members of state rural health committees have prepared items for the magazine service. These are rewritten by a person especially qualified and employed by the Council and then rechecked by the original author. They are to be given to the state farm magazines in an orderly monthly basis.

We continue to receive the wholehearted support of many organizations with which we have been associated through the years and our philosophy and support seems to be gaining acceptance and respect throughout the nation.

This year we again cooperated with Texas A & M College and the Agricultural Extension Services of the 15 southern states in supplying a teacher for a course in health organization for negro county extension agents. The course was taught at Prairie View College for Negroes, a part of the Texas A & M system. The teacher was Miss Helen Robinson, Extension Health Education Specialist, University of Arkansas Agricultural Extension Service. She is well known to Arkansas physicians and to extension people through the nation. She was ably assisted by Mr. Donald Anderson of the Texas Medical Association and other personnel he provided.

The Council office, in addition to regular routine duties, has acted as a clearing house of information for various health services of organizations and agencies in rural areas. It also continues to maintain a close working relationship with state medical societies and state committees handling rural health matters, and maintains a current roster of all state rural health committees. In addition, the office handles special assignments delegated by the chairman and members of the Council, which include attendance at state rural health meetings, annual sessions of national farm groups, inspection trips to various parts of the country in connection with future sites for the national conferences, and making definite arrangements for the conferences after final approval by the Council.

A mailing list of approximately 1,600 names is kept current for the Parade of Progress Newsletter, as well as a mailing list of approximately 5,000 in connection with invitations to the national meetings. Three issues of the Newsletter have been printed and distributed during this period.

In the carrying out of plans for the 11th National Conterence, a preconference flier and a conference program were designed, printed and distributed, as well as approximately 5,000 personalized invitations. A digest covering the 11th National Conference was compiled and approximately 4,000 copies have been distributed.

Arrangements were made for one advisory meeting which was held jointly with the Council, two council meetings, and one executive meeting during this period. Approximately 22,403 pieces of material have been sent out during this fiscal period.

Report of the Division of Councils of Therapy and Research

The Division of Councils of Therapy and Research was created by action of the Board of Trustees on Nov. 5, 1955, and a Director appointed. The Division consists of the Council on Pharmacy and Chemistry, Council on Foods and Nutrition, Council on Medical Physics, Committee on Research, Committee on Pesticides, Committee on Toxicology, Committee on Cosmetics, Bureau of Investigation, and American Medical Association Laboratories.

The seal-acceptance programs of the American Medical Association were discontinued as of Feb. 15, 1955, and during the past year the Director has assisted and advised in the creation or improvement of new programs of operation for various departments within the Division in order that they can render a better service to the medical profession. The detailed report of the new program of the Council on Pharmacy and Chemistry was published in the July 30, 1955, issue of THE JOURNAL. The Oct. 22, 1955, issue of THE JOURNAL contained a description of the new program of the Council on Foods and Nutrition.

During the past year the editorial section of the Division has checked the various department reports, monographs, statements, and books for correctness of grammar and uniformity of style prior to their publication.

Numerous inquiries pertaining primarily to general or specific aspects of drug therapy or research have been answered directly by the Director of the Division.

As Chairman of the Association's Advertising Committee, the Director of the Division has screened all proposed advertising copy for American Medical Association publications in order to effect compliance with the Association's principles governing advertising and to maintain high standards.

Report of the Council on Pharmacy and Chemistry

This annual report of activities of the Council on Pharmacy and Chemistry covers the period from July 1, 1955, to June 30, 1956. In passing it is appropriate to record the completion of the Council's 50th year of service to the medical profession, which occurred on Feb. 11, 1955, during the previous report period. The 50th anniversary year was commemorated in an editorial appearing in THE JOURNAL of the American Medical Association for Dec. 3, 1955. This event was further highlighted by the presentation before the House of Delegates on Nov. 29 at the 1955 Clinical Meeting in Boston, of a special citation to the Council's charter member and chairman since 1936, Dr. Torald Sollmann, in recognition of his many years of outstanding service to the medical profession and on behalf of the advancement of medical science.

Of importance early in the current report period was the publication of a statement by the Council in THE JOURNAL of July 30, 1955, outlining its new program of operation for evaluation of drugs which had been instituted during the previous annual period on Feb. 15, 1955. The altered procedure for evaluation of drugs provided under the revised program subsequently was reflected by a change of format in the New and Nonofficial Remedies section of the Council's column of THE JOURNAL for Aug. 27, 1955. Of incidental interest was the appointment of Dr. Harold D. Kautz to succeed Dr. Robert T. Stormont as Secretary of the Council, effective at the close of business on Nov. 5, 1955.

The Council held its regular annual meeting Nov. 4 and 5, 1955. Actions taken at this meeting were designed chiefly to bring the content of subsequent editions of New and Nonofficial Remedies into conformity with the Council's revised program of operation. Of primary interest in this connection was the decision to expand the revised program to provide for the alphabetic listing (in conjunction with monographs and the index to New and Nonofficial Remedies) of trade names known to be applied to commercial preparations of evaluated drugs. The Council accordingly adopted a change in operation to permit the listing of such names as a matter of information to aid physicians and others who may be unfamiliar with the nonproprietary terminology under which the Council describes evaluated drugs. This change in operation, effective Jan. 1, 1956, was announced and simultaneously implemented in the Council's column in THE JOURNAL for Jan. 7, 1956, and in the 1956 edition of New and Nonofficial Remedies which became available the first week in May, 1956. At its annual meeting the Council also voted to adopt Oct. 1 instead of Dec. 31 preceding the year of publication as the annual closing date for the 1957 and succeeding editions of the book so as to permit future release as early as January of each year.

The Council launched another important step during the year to increase its service to physicians by another decision, voted at its annual meeting, to consider a list of proposed topics for the publication of reports dealing with the current status of therapy in various diseases. It was felt that such reports, reviewing therapy in diseases or conditions involving the selection of a variety of drugs, would be especially helpful to practicing physicians as a supplement to the Council's regular program for evaluation and description of individual drugs in New and Nonofficial Remedies. Following this decision the Council reviewed a series of approximately 25 topics for such reports and expressed a desire to invite their preparation by selected outside authors. Leaders in various fields were invited to write special reviews of the subjects for publication as reports to the Council, some of which already are in preparation and/or under consideration for future publication.

The 10th edition of the Epitome of the Pharmacopedia of the United States and the National Formulary, periodically revised to provide comments on drugs currently included in these official publications, became available in January, 1956. The 10th edition, based upon the U. S. P. XV and N. F. X, was expanded to serve as a companion volume to New and Nonofficial Remedies by incorporation of more detailed comments on drugs no longer described in the latter publication.

Primarily significant during the current report period was the increasing realization of the advantages that had been gained under the revised procedure for drug evaluation. Elimination of the former tedious listing of commercial dosage forms and the names of manufacturers and distributors in New and Nonofficial Remedies enabled the Council to provide more and earlier basic information on new drugs. Of equal significance under revised procedure was the provision for wider sampling of expert opinion from outside consultants concerning available evidence to support the use of new drugs. The Council found such opinions to be of great assistance in arriving at suitable early conclusions concerning the clinical effectiveness and limitations of drugs. Especially important, the Council found itself free, under the revised program, to evaluate and describe each new drug whether or not currently available evidence was sufficient to establish its usefulness in medicine. Many pharmaceutical and drug manufacturers forwarded data to the Council for evaluation of new drugs and showed increasing interest and desire to cooperate with its revised program.

During the current report period, the Council completed a total of 76 drug evaluations comprising 46 new drugs, 10 additional salts or esters of previously evaluated compounds, 15 proposed new uses, and 5 proposed new routes of administration of previously evaluated drugs. As of June 30, 1956, 26 additional evaluations comprising 21 new drugs, 4 new uses, and one additional route of administration were also in progress. Over this same period, the Council published in its column in THE JOURNAL a total of 100 new monographs on drugs and 14 supplemental statements on new uses or routes of administration of previously described drugs. This exceptionally large annual number of published statements on individual drugs was accounted for in part by monographs already included in the 1955 and 1956 editions of New and Nonofficial Remedies that had been held for publication until after the appearance of the Council's statement on its revised program, and in part by the accelerated number of drug evaluations which has become feasible under the revised procedure. A total of 58 new monographs on individual drugs was added to the 1956 edition as compared to a total of 39 added to the 1955 edition of New and Nonofficial Remedies.

During this report period, the Council initiated evaluation of approximately 35 older drugs that never had been described in New and Nonofficial Remedies, and invited the cooperation of interested manufacturers in furnishing available scientific data for this purpose. The response of industry has been gratifying and will aid the Council in describing some of the older previously unevaluated drugs in New and Nonofficial Remedies. The Council, however, continues to place primary emphasis on evaluation of new drugs and retains its policy of omitting monograph descriptions for drugs that have been included in the U. S. P.,

N. F., or N. N. R. for a cumulative period of 20 years or that are no longer commercially available. As the Council catches up with previously unevaluated drugs, it is expected eventually that all new drugs can be described in New and Nonofficial Remedies from the time, or shortly after, they become commercially available.

Through the cooperation of American manufacturers and with the assistance of the American Medical Association Chemical Laboratory, the Council considered and adopted during the year a total of 37 nonproprietary names for drugs not then available or evaluated. The Council continues to urge manufacturers to cooperate in the early selection of such terminology for all drugs that are expected to become commercially available in the United States, and routinely transmits all adopted nonproprietary names upon which agreement has been reached to the World Health Organization and the U. S. Pharmacopeia. The rapidly multiplying number of new compounds and the multiplicity of names for existing drugs in the United States has greatly increased the difficulty in developing distinctive domestic nonproprietary terminology for new drugs. Selection of convenient names that are free from conflict in the United States and at the same time suited to the language and terminology used in other countries poses an even greater problem from the standpoint of international nomenclature.

Over the year the Council published a total of five special reports. These included three reports of the Council dealing with the current status of therapy in nausea and vomiting of pregnancy, leukemia, and amebiasis respectively. There were two reports to the Council, one prepared by a representative of the Veterans Administration-Army-Navy conference studies on the chemotherapy of tuberculosis concerning the present status of the treatment of that disease, and one jointly prepared by outside experts on the current status of the drug therapy of epileptic seizures.

During the year the Council staff provided information for various other Association headquarters departments in the form of opinions on inquiries and papers or articles and reviews of books dealing with drugs for publication in The Journal and non-American Medical Association periodicals, nomenclature decisions of the Council for the Library and other interested departments, and opinions on proposed scientific exhibits and medical motion pictures for showing at Association meetings. The Council office also furnished replies to various outside inquiries and requests for specific information on drugs from physicians, pharmacists, and allied groups. The secretary of the Council also addressed several medical and pharmaceutical groups concerning the Council's revised program of operation and attended or participated, with other members of the professional staff, in scientific meetings and conferences of importance to the work of the Council.

Report of the Council on Foods and Nutrition

The past year has seen a great expansion in the activities of the Council on Foods and Nutrition, particularly as they affect the medical profession. The termination of the former seal-acceptance program has resulted in the Council being able to devote much more time to its program of nutrition education. Statements on subjects of current interest and articles on various aspects of nutrition have appeared in The Journal frequently. These articles, all of which have been prepared by nationally known authorities at the request of the Council, have been very popular as evidenced by the large number of requests for reprints.

In the Oct. 22, 1955, issue of The Journal, the Council published a statement explaining in general terms its new method of operation. Since its inception the Council has recognized its responsibility of interpreting the findings of nutritional research and disseminating accurate nutritional information to the physician and to the public. This phase of the Council's activities has been greatly expanded. In addition, the periodic publication of official Council opinions relative to the usefulness and nutritional value of certain types or classes of foods is to be noted. As of June 30, 1956, reports concerning vitamin D milk and certain dietary sources of vitamin C have been published.

The Council also reviews upon request educational food advertising, that is, informative advertising dealing with classes of food without reference to specific brands, processors, or distributors. If such advertising is found to be consistent with current authoritative medical opinion, permission is granted to use a statement indicating this fact. This service of the Council has been widely used by various trade organizations such as the American Bakers Association, the American Meat Institute, the National Dairy Council, and others.

Because of the apparent misunderstanding in connection with vitamin D fortified milk created by the action taken in terminating the Council's seal of acceptance, the Council issued a report on the importance of vitamin D milk, especially in the diet of infants and children. Accompanying the report was a list of certain nutritional qualities that the Council believes are necessary for vitamin D milks. Receiving nationwide notice, the report has served to reemphasize to the physician and to the public that vitamin D milk is an extremely important dietary item.

The publication of the Council report entitled "Importance of vitamin C in the Diet" called the physician's attention to the need for dependable dietary sources of vitamin C, since this is one of the nutrients incapable of being synthesized or stored by the human body. The almost universal use of citrus and tomato juices as dietary sources of vitamin C led the Council to develop certain criteria that it believes are desirable for such products. These criteria were published in The Journal with the aforementioned report. The Council contends and wants to emphasize that such juices should have a certain minimum ascorbic acid content obtained by careful selection and processing rather than by the addition of synthetic ascorbic acid to juice of poor quality. Reports on other types of foods will be published from time to time whenever the Council feels such are indicated.

The current role of vitamin B_6 in the human was discussed in a paper by Dr. Richard W. Vilter entitled "Vitamin B_6 in Medical Practice." Written at the request of the Council, the paper brought out the fact that although vitamin B_6 is a very important nutrient and essential for human beings, deficiency states occur only under unusual circumstances. Therapeutic claims for vitamin B_6 are still obscured by uncertainties.

In a report to the Council entitled "Cirrhosis in Alcoholics—Protein Nutrition and Hepatic Coma" by Dr. Charles S. Davidson, Chairman of the Council, the current status of high-protein diets in the treatment of cirrhosis is succintly reviewed for the general practitioner. When high-protein diets are used in the treatment of cirrhosis, the physician must remain alert to early signs of hepatic coma frequently resulting from such a diet.

The widespread interest of the medical profession on the subject of lipotropic agents prompted the Council to request Dr. George J. Gabuzda to write a report on the subject. This report entitled "Clinical and Nutritional Aspects of Lipotropic Agents" emphasized the role of such agents in the pathogenesis and treatment of fatty cirrhosis of the liver. Although it has been definitely demonstrated that a dietary deficiency of lipotropic factors such as choline and methionine results in fatty cirrhosis of the liver in some species of animals, metabolic studies to date have failed to indicate convincingly that such a deficiency is present in man with liver disease.

Two of the papers presented at the Council-sponsored symposium on "Some Inorganic Elements in Human Nutrition" at Nashville, Tenn., April 4, 1955, were published in The Journal. These were "Magnesium Deficiency Syndrome in Man" by Dr. Edmund B. Flink and "Copper Metabolism in Man" by Dr. Clark J. Gubler.

With the publication of the second cumulative volume of reports from the Institute of Nutrition of Central America and Panama (INCAP), the Council published a brief statement calling attention to the nutritional work being done in the Central America countries. In addition to building an exceptional regional international institute, contributions of highly significant value to the world at large as well as to the Central American region have been made.

In a statement in The Journal, March 10, 1956, the Council also brought to the attention of the physician the recent report of the Food Protection Committee, Food and Nutrition Board of the National Research Council, entitled "The Safety of Artificial Sweeteners for Use in Foods." Because of the wide use of artificial sweeteners in foods for weight reduction diets, the Council felt this valuable report merited special mention.

Whereas the artificial sweeteners—saccharin and the sodium and potassium cyclamates—were deemed safe for use in special diets, the report did not support the unrestricted use of these sweeteners in general purpose foods and beverages.

In spite of the almost universal awareness of the importance of vitamin C, Dr. Calvin Woodruff reported to the Council that there was an increasing incidence of scurvy in the Nashville area. His report entitled "Infantile Scurvy" suggested that a possible etiological factor for this increase might be the increasing urbanization and abandonment of time-honored local feeding practices with failure to ensure an adequate intake of ascorbic acid-containing foods in the infant's diet. Although the Council is unaware of increased incidences of scurvy in other regions, it has requested that it be notified of any other such instances. It is indeed surprising that scurvy occurs at all in this country today; however, the need for constant medical supervision of infant diets and for education of the parents has again been shown to require more emphasis.

At the request of the Council Dr. E. M. Nelson of the Food and Drug Administration wrote a brief summary of two conferences on antibiotics that were held in Washington, D. C. in the fall of 1955. One, the International Conference on Antibiotics in Agriculture, dealt primarily with the use of antibiotics in increasing the production of animals for food. The other, the third annual Symposium on Antibiotics sponsored by the Food and Drug Administration, reviewed the recent developments concerning the use of antibiotics in medicine; a sound basis for the growing trend of combining antibiotics with various therapeutic agents could not be found.

An excellent article entitled "Folic Acid and Vitamin B_{12} in Medical Practice" by Walter G. Unglaub and Dr. Grace A. Goldsmith, a member of the Council, reviews the present status of these two vitamins. Dr. Unglaub and Dr. Goldsmith emphasized that the inclusion of folic acid in multivitamin preparations is a potentially dangerous practice since it can completely mask the symptoms of pernicious anemia while having no effect upon the development and progression of the neurological complications of this disease.

Dr. Clement A. Smith, another member of the Council, recently reviewed the changes that have occurred in infant feeding. His report, entitled "Current Trends in the Feeding of Infants and Children," delineates for the physician how the knowledge of nutrition has been applied with striking success in the care of infants and children. Dr. Smith noted that many infant diseases that were common a generation ago are practically nonexistent today.

SYMPOSIUMS

On May 21, 1956, the Council on Foods and Nutrition, in conjunction with the Los Angeles County Medical Association and the School of Medicine, University of California (Los Angeles Campus), sponsored its annual symposium at Los Angeles on "The Relation of Proteins and Amino Acids to Nutritional Health." The papers presented will be published individually in THE JOURNAL and then will be combined within one cover. The symposium was attended by representatives of the medical profession, the dietetic profession, the federal Food and Drug Administration, and members of the food industry.

These symposiums have proved so popular that the Council proposes to schedule at least one each year to be held in various sections of the United States. One on fats in human nutrition with particular reference to fats, cholesterol, and atherosclerosis has already been scheduled for New Orleans on March 15, 1957. The Council is pleased to have as co-sponsors of this meeting the Orleans Parish Medical Society, the New Orleans Graduate Medical Assembly, the School of Medicine of Louisiana State University, and the Tulane University Medical School. Tentative arrangements have been made to have one dealing with nutritional requirements during pregnancy at Columbia, Mo., in the fall of 1957.

OTHER COUNCIL ACTIVITIES

At its meetings in October, 1955, and May, 1956, the Council discussed ways and means of cooperating with other organizations in the field of nutrition education. The Nutrition Foundation has indicated that it would like to cooperate with the Council in this area and at the present time details of this endeavor are being worked out. Many other groups have also expressed an interest in having the Council either advise them or actively co-sponsor various nutritional education projects. The National Research Council's Food and Nutrition Board asked the Council to cooperate in the revision of its publication no. 234 entitled "Therapeutic Nutrition." This very popular publication is currently out of print, and because of the great advances in knowledge since its appearance in 1952 the Council agreed to help the Food and Nutrition Board with the revision.

As part of its expanded educational activities the Council participated as an exhibitor at the St. Louis meeting of the American Dietetic Association in October, 1955. The exhibit featured the new program and made many new friends for the Council. A display on popular food fads and fallacies was exhibited at the Washington, D.C., meeting of the American Home Economics Association in June, 1956. The Council also furnished the exhibit that was shown by the Chicago Nutrition Association at the West Side Health Fair held in Chicago in April, 1956. It is anticipated that this activity of the Council will be continued and enlarged as it is able to construct new exhibits on subjects of general nutritional interest, both for the profession and for lay groups. Exhibits sponsored by the Council have been extremely well received and have served to acquaint diverse groups with the work of the Council.

The prestige enjoyed by the Council and the Association can be extremely effective in counteracting misrepresentations about foods and nutrition appearing in the popular press. A number of science writers for newspapers and popular magazines have sought information and assistance from the Council during the past year. Hundreds of inquiries about foods and nutrition were answered by the Council office. These came from physicians, laymen, advertising agencies, better business bureaus, and various trade organizations.

APPRECIATION

The Council wishes to express its sincere appreciation for the cooperation and assistance of the Board of Trustees and of the various departments at Association headquarters. The willing help given by the many consultants called upon by the Council during the past year is also gratefully acknowledged.

Report of the Council on Medical Physics

The new Council on Medical Physics was appointed in the early part of 1956 by the Board of Trustees, in accordance with the actions of the House of Delegates at the December, 1955, meeting in Boston and the June, 1956, meeting in Chicago. The new Council had its organizational meeting on June 15 and 16, 1956.

The purpose of the Council is to encourage an understanding of the actions and rational uses of apparatus and physical methods used in the diagnosis, treatment, and prevention of disease. In order to accomplish this purpose, the Council is initiating a program for the evaluation of evidence in support of the usefulness of various classes of medical apparatus and physical methods of treatment intended for use by the profession.

Another part of the Council program is to encourage research needed to assess the usefulness of various new medical apparatus intended for use by the practitioner. There is need for the development of guides to expected performance and uniform test methods for medical apparatus. The Council has created a special committee from among its members to report its findings to the Council after studying the complexities involved in the development of such a program. The evaluation reports of the Council will contain, where applicable, the actions, uses, contraindications, and appropriate safety warnings regarding the class of apparatus under consideration.

The Council also expects to publish articles for the information of the profession on the use of various classes of apparatus, instruments, and devices in the treatment of specific diseases and in general and special areas of medical practice.

This constitutes a report on the initial phases of the new Council's activities. The Council has formed a committee of its members to study its program and make recommendations regarding other areas which should receive attention in the course of carrying out its program of service to the profession.

Report of the Committee on Research

The Committee on Research has revamped its activities and operating procedures during the past year. First, the Committee dissolved the Subcommittee on Steroids and Hormones as constituted and reorganized two study groups as separate *ad hoc* subcommittees to streamline and consolidate their projects. Second, the Committee formed a new subcommittee to stimulate the preparation and submission of original articles, reviews, and abstracts on research in the basic medical sciences. Third, the Committee introduced several innovations in connection with its report forms and in the routine handling of information to make these functions more practical. The Committee has gone on record as favoring the establishment of a permanent organization the chief function of which would be to award grants to medical schools for the purpose of stimulating research in the basic medical sciences and related fields.

COOPERATIVE INVESTIGATION

The Committee on Research sponsors several collaborative investigations. Its purpose is to assemble information in matters where an investigator has a small series of cases and would hesitate to publish on the subject. In such instances, the Committee will develop a plan of study and with the aid of experts will devise the necessary criteria and forms to acquire this information. The Committee will assemble and collate reported cases and will subject the data to statistical evaluation. A final report in which the facts are set forth will be published for the benefit of the profession.

Steroids and Hormones in Mammary Cancer.—The Cancer Study Group is reviewing data accumulated over a period of several years. It is anticipated that a report discussing the value of steroid and hormone therapy in the treatment of mammary cancer will be available for publication shortly. The group has devised a simplified report form which may be used in connection with the proposed study of the question of the influence of such ablative procedures as oophorectomy, adrenalectomy, and hypophysectomy on the course of mammary cancer.

Pregnancy Complicated by Diabetes Mellitus.—A survey was made of this project during the past year, and it was concluded that the decline in the reporting of cases was associated with the treatment schedule requiring daily injection of hormone or steroid. It was determined that a long-acting substance is available, and arrangements have been made to provide supplies for the study. The members of the study group have approved this substitution of medication. The profession will be apprised of the value of steroid and hormone therapy complicated by diabetes upon completion of the study.

Hypertension and Hypotensive Agents.—During the past year a statement of classification of hypertension was prepared by a selected group of participants who had attended a conference sponsored by the Committee on Research. The Committee on Research did not feel justified in continuing in this field at the present time but felt that the statement was of sufficient merit to warrant wide distribution. It recommended, therefore, that the text be discussed with representatives of the American Heart Association with a view toward publishing it as a joint statement. The preliminary phase of these arrangements is being undertaken, and it is hoped that such a joint statement will be forthcoming in the not too distant future.

Registry of Blood Dyscrasias.—A decrease in the number of case reports during the past year suggested the need for a study of this project. It was determined that the difficulty developed because the report form was too long and too detailed. A new short report form was devised and adopted by the subcommittee. More clinicians and institutions have been enlisted to report in the registry. Effort will be made during the ensuing months to extend and expand the registry. As a corollary, it has been suggested that a series of regional groups be organized to expedite the exchange of information and to facilitate the reporting of cases.

Registry of Adverse Reactions.—The Committee on Research has sponsored several meetings during the past year to consider the possibility of developing a registry for the reporting of adverse reactions to therapeutic agents. The physicians who attended these meetings were unanimous in the opinion that a registry should be launched, that the American Medical Association should sponsor it, and that the Committee on Research should be charged with the responsibility of organizing and operating it. The Committee on Research has appointed one of its members to serve with the secretary in determining what steps are needed to implement this suggestion.

EDUCATIONAL AND INFORMATIONAL PROJECTS

The Committee on Research sponsored a conference during the year dealing with the problem of the steroidal alteration in the management of advanced mammary carcinoma. A preliminary report covering more than 1,000 "accepted" cases was made at this time. The conference considered such subjects as the effect and value of adrenalectomy, oophorectomy, and hypophysectomy in the treatment of mammary cancer. The two-day meeting was well attended and there was considerable discussion during each portion of the program. The minutes of a conference held in Detroit which considered the "Comparison of the Biologic Aspects of Steroids" have been transcribed and should be off the press within a short time.

GRANTS-IN-AID

The Subcommittee on Grants-in-Aid encountered a tremendous task this year in attempting to make an equitable distribution of its allotted funds. This developed because of an unanticipated curtailment of funds from an outside source which drastically reduced the over-all total for this purpose. The reduction placed the subcommittee in the position of having to distribute a smaller amount of money in the face of a mounting number of applications. The secretary reports that a study of the grant-in-aid program for the past three years shows that there has been a steady increase in the number of applications as well as an increase in the total amount of money requested. It is expected that this need will increase, and it is hoped that some provision will be made to meet the future requests for such assistance.

Report of the Committee on Pesticides

This is the seventh annual report of the Committee on Pesticides. Present members of the Committee are: E. W. Constable, Ph.D.; Kenneth P. DuBois, Ph.D.; Chairman, Harvey B. Haag, M.D.; H. L. Haller, Ph.D.; Albert Hartzell, Ph.D.; Arnold J. Lehman, Ph.D., M.D.; S. W. Simmons, Ph.D.; Torald Sollmann, M.D.; and Justus C. Ward, M.Sc. During the past year the following activities were engaged in by the Committee in furtherance of its study program on the health hazards of pesticides.

EDUCATIONAL ACTIVITIES

The series of Committee reports reviewing medical and public health aspects of pesticidal chemicals has been extended to 17 with the publication in The Journal of statements entitled "The Present Status of Chlordane" and "Fatal Chlordane Poisoning." A report of a study of effects of DDT in human volunteers is presently awaiting publication.

ANNUAL MEETING

The Committee held its annual meeting on March 28, 1956, at the headquarters of the American Medical Association. Current problems affecting the use of agricultural chemicals and pesticides used in the home were discussed. Certain of the more important topics considered and actions taken by the Committee are set forth.

The problem of impurities in pesticides which produce variations in their toxicity was the first topic considered. It was agreed that when variations in the toxicity due to highly toxic impurities occur frequently controls should be instituted to check this at the manufacturing level. Whether bioassay was necessary in addition to chemical analysis in product control depends on whether chemical techniques for the determination of toxic impurities had become standardized. It was pointed out that each pesticidal must be dealt with individually and that the problem cannot be generalized.

The place of toxicology in the medical curriculum was reviewed by an outside specialist. It was the discussant's opinion that toxicology should be separated from pharmacology in the medical curriculum. He based this contention on the fact that the number of poisonous substances used in household articles are increasing rapidly and all too often the physician is ignorant of a product's potential toxicity. The establishment of the Poison Control Center in Chicago indicated that physicians were inadequately trained in school in this subject. He pointed out that in the field of forensic medicine, Europe is and has been far ahead of the United States. If a separate department of forensic medicine could be established, more time should be spent on toxicology within the medical curriculum. The discussant advocated that toxicology be separated from pharmacology and biochemistry, and that toxicology be given greater consideration in courses already established. The ensuing discussion brought out the point that courses in toxicology never covered practical treatment details, but dealt rather with the general principles and demonstrations of substances in which toxicology played a part. While poison control centers provided a service where information on the composition of new compounds could be obtained, knowledge of the composition of all products was almost impossible since there are about one-quarter of a million chemical products on the market. It was concluded that more adequate informative labeling, education of the public, and emphasis in the medical curriculum would increase awareness of poisons. Suggestions were made that Committee members make themselves available to medical schools to present this problem and point out that it can make information available.

Reports of severe poisoning of public health workers applying dieldrin sprays in Venezuela were reported. Although the spray teams were provided with adequate equipment, it was found that workers were often careless about exposing themselves to dieldrin by removing their respirators or neglecting to change clothing. It was found that those poisoned had been exposed to concentrations of dieldrin higher than are usually encountered. A movie was presented which showed reactions of animals to dieldrin poisoning: weight and appetite loss, possible blindness, muscle incoordination, and convulsions. Experiments have demonstrated that use of barbiturates may be of some benefit in dieldrin poisoning. It was brought out that transient changes in personality in man and dogs had been noticed. It was proposed that antiepileptic drugs be tried in future studies of dieldrin poisoning.

The toxicology of nicotine was next considered. The minimum death rate for nicotine was estimated at around 10-12 per year. The fatal dose of nicotine ranges between 60-100 mg., which is the same amount absorbed by an average smoker during a day. Epidemics of acute nicotine poisoning usually occur when plants are improperly treated or harvested. A recent series of food poisoning occurred in California when a commercial preparation was used on Texas mustard greens. The waxy leaf of the greens induced alkaloid to remain in the plant. No specific antidote for nicotine poisoning is available. The value of supportive measures, such as gastric lavage, prompt removal from the skin, and use of an anticonvulsant drug was reemphasized.

The neurological effects of organic phosphorus insecticides were reviewed by an investigator active in the study of this problem. Jamaica Ginger containing triethylcresolphosphate produced paralysis in people who drank this beverage during the prohibition era. Experiments have been carried out with certain organic phosphorus insecticides (malathion, EPN) on chickens with the production of generally similar type of paralysis. No information is available to explain why some compounds produce paralysis and others do not, although the production of paralysis appears to be related to dosage.

Other topics considered at the meeting included factors involved in setting tolerances under the Miller Amendment to the FDC Act, the advisability of using partially volatile insecticides in termite control of new housing, and background data on new developments in pesticides.

SERVICE ACTIVITIES

The Committee on Pesticides collaborated with other groups and organizations during the past year on problems of mutual concern. It continues to cooperate with the Interdepartmental Committee on Pest Control. Through the secretary it also maintained its representation on the Sectional Committee on Common Names for Pest Control Chemicals of the American Standards Association, and on the Liaison Panel of Food Protection Committee of the National Research Council. During the past year this Committee has participated in the selection of eight generic names for new pesticides.

The Committee was requested by the Federal Housing Administration to participate in a study of the safety of proposed procedures for termite control in wooden structures. A general statement outlining the Committee position was provided the Committee representative on the study panel.

At the request of the British Ministry of Agriculture, representative state and federal legislation on pesticides and pesticide residues in foods were compiled by members of the Committee on Pesticides. The compilation was obtained with the assistance of various state regulatory agencies and trade associations.

During the past year the Committee was asked by physicians and private agencies to consider and render opinion on a variety of medicoeconomic problems involving the hazardous potentialities of pesticides. Requests for information and assistance is typified by the following instance involving the sale of an unregistered insecticide. This problem was brought to the attention of the Committee by a Texas physician following a frustrating attempt to get information locally on the composition of a product suspected of causing injury. No information about a door-to-door distributed insecticide could be obtained from local health and regulatory agencies or the Better Business Bureau. A report was made to the Committee on Pesticides, one of whose members analyzed the product. The Committee brought to the attention of the state medical board and appropriate federal agencies the health problem inherent in this and similar types of unregistered insecticides.

Report of the Committee on Toxicology

This is the second annual report of the Committee on Toxicology. During the past year the Committee expanded its educational and research program for the study of accidental poisoning. The following is a resumé of its more important activities and accomplishments.

EDUCATIONAL ACTIVITIES

The series of Committee reports has been extended to eight with the publication of a status report and three editorials. A report on "The Problem of Accidental Poisoning in Children as It Exists Today" calls attention to the increasing need for recognizing the hazards of children ingesting drugs and common household chemicals and presents the means for solving the problem. Editorials on lye and kerosene poisoning stressed the importance of these agents as common causes of childhood injury. A third editorial stressed the problem of prevention in accidental poisoning. A fourth status report on the health problems of household chemicals is presently under consideration. This was one of several papers presented at the Symposium on the Health Hazards of Household Chemicals co-sponsored by the Committee at the annual meeting of the American Association for the Advancement of Science.

INVESTIGATIVE AND RESEARCH ACTIVITIES

The Committee has accepted an invitation to participate with the American Academy of Pediatrics and the American Public Health Association in a national cooperative project with poison centers and certain medical schools and major medical centers in a clinical study of the treatment of poisoning following ingestion of kerosene and other petroleum distillates. Over 25 poison centers and affiliated hospitals and medical centers have agreed to participate in the program. Arrangements have been made with the research laboratories of a leading petroleum company to study means for determining blood levels of absorbed petroleum distillates. A grant-in-aid from the American Medical Association has been obtained for a Committee investigator to study anti-inflammatory agents in the treatment of kerosene poisoning.

Committee on Toxicology participation in the kerosene clinical study is a further extension of its cooperative relationship with the American Academy of Pediatrics and the American Public Health Association. Previously it cooperated with the Academy in spearheading the movement to provide precautionary labeling and safer packaging of children's aspirin. It also is cooperating with the Academy and the American Public Health Association in the formation of a national clearing house for poison control centers. A report to the medical profession on the status of poison control centers is presently being formulated.

The Committee has taken the initiative to arrange for an exploratory meeting of interested groups with the medical advisors to the petroleum industry. Persons with a special knowledge of the medical problems of this class of chemicals have been invited to participate in a fall meeting.

SERVICE ACTIVITIES

The Committee on Toxicology has collaborated with other groups and organizations during the past year. A joint meeting of representatives of the Precautionary Labeling Committee, Chemical Specialties Manufacturers Association, and the Committee on Toxicology has been scheduled for Sept. 11, 1956. The pending conference intends to explore solutions to problems involved in use of household chemical products. Current problems include precautionary labeling, regulations for poisons not under legal control, industry cooperation with poison centers, education of the public on the safe handling and storage of products containing potentially harmful chemicals, and cooperation between health and regulatory agencies and industry.

The Committee is also participating in the pilot study of the Research and Reference Branch of the United States Food and Drug Administration on toxic reactions to drugs in select hospitals throughout the country. The current study, which is being conducted with the cooperation of medical record librarians, is intended to determine the frequency, extent, and duration of injury from drugs among hospital patients.

Through the secretary, representation is maintained on the Committee of the Chicago Poison Center, the Steering Committee for a National Clearing House for Poison Centers, and the American Standard Association Z66 Committee on Hazards to Children. The secretary also participated in the program of the Public Health Forum of Long Island University's College of Pharmacy, 60th Anniversary of the Association of Food and Drug Officials, Symposium on Childhood Poisoning, mid-year conference of the American College of Apothecaries, and the annual meeting of the Maine Pharmaceutical Association.

Report of the Committee on Cosmetics

This is the seventh annual report of the Committee on Cosmetics. During the past year the Committee has continued its essential task of accumulating, preparing, and disseminating educational material. It has aimed to promote better understanding of the functions, maintenance, and significance of the normal skin, with special reference to the role of cosmetics and allied preparations; to emphasize the serious psychological implications of those conditions characterized by temporary or permanent skin disfigurement; and to stimulate increased cooperation between the health profession and the toilet goods industry in providing the public with safe, effective products promoted with reasonable informative claims.

The Committee disseminates educational information mainly through reports and articles published under its auspices in THE JOURNAL and in *Today's Health*, seminars, and its extensive inquiry service. A Committee report may represent the cooperative efforts of all Committee members, in which event it is published as a report of the Committee, or a report may be prepared by an individual scientist, in some instances a nonmember, at the request of the Committee. This report is then reviewed by the Committee and, if acceptable to all, is published as a report to the Committee. In the past year, the following reports have been published in THE JOURNAL: "Acne Vulgaris" by Dr. Frederick D. Malkinson; "Treatment of Acne Scars by Dermabrasion" by Drs. Herbert Rattner and Charles R. Rein; "Ways and Means to Safe Sunbathing"; and "The Effects of the Sun on the Skin" by Dr. Beatrice M. Kesten. At present, there is under preparation the first of a series of reports on hirsutism, in which emphasis will be placed on temporary or permanent corrective measures for the cosmetic disfigurement of this condition. For the fifth year, a monthly series of educational articles on skin care and cosmetics was published in *Today's Health*. Reprints of published reports and articles are available on request.

The newest educational activity of the Committee is its sponsorship of a series of symposiums. The first symposium on the significance of cosmetics in medical practice was presented at the annual meeting of the American Medical Association in Chicago in June, 1956. Attendance was near 300, with both physicians and industry scientists equally represented.

The second symposium will be held during the annual meeting of the American Association for the Advancement of Science, Dec. 27, 1956, in New York City. The tentative program includes papers on axillary odor and its control, skin cleansing, cosmetic usefulness of pigment forming drugs, and toxicity of cosmetic ingredients. Individual Committee members have participated in a number of programs of cosmetic industry-sponsored scientific meetings. The Committee's secretary has, during the past year, addressed American Medical Association Woman's Auxiliary groups, the Maine Pharmaceutical Association, and the Cosmetic Career Women, a group whose membership is limited to women executives in the cosmetic industry.

For the second consecutive year, a Committee member has been singularly honored by the cosmetic industry. Dr. Irvin Blank was given an award of $250 and a scroll for the most original paper presented before the Scientific Section of the Toilet Goods Association during 1955. Dr. Blank's paper entitled "Mechanism of Agents for the Relief of Dry Skin" is considered to be one of the most important contributions to cosmetic science. A year previous, Dr. Stephen Rothman, Committee chairman, received the first $1,000 award of the Society of Cosmetic Chemists in recognition of his book "Physiology and Biochemistry of the Skin."

This year has been further characterized by a greater interest by dermatologists of other countries in the Committee's activities. The president of the International Congress of Dermatology, to be held in Stockholm, Sweden, has requested that the Committee participate in that program. Reprints of Committee reports will be made available for distribution, and plans are under way for presentation of a paper on the objectives and functions of the Committee on Cosmetics. Several Committee members have a significant role in the organization and presentation of the program of the Congress. At the request of the editor, an article on the Committee's activities is being written for a German medical publication, *Journal Furmedizinische Kosmetik.*

As in other years, the Committee office has continued to serve as an information center and advisory board for groups and individuals whose activities influence the flow of information on cosmetics to the public. These include official groups of the allied health professions, better business bureaus, government agencies, writers, radio and television networks, newspapers, and magazines.

The Committee is particularly indebted to the many consultants who have so willingly offered and rendered assistance in special problems during the past year.

Report of the Chemical Laboratory

The study and development of a new program for the American Medical Association Chemical Laboratory was undertaken during the period covered by this report July 1, 1955, to June 30, 1956. The scope of the work to be done in the future by the Chemical Laboratory was outlined, then planned in considerable detail for the consideration of the Committee on Scientific Councils. In the preparation of these plans, the particulars were developed through decisions reached after correspondence and discussion with representatives of many pharmaceutical firms, the Food and Drug Administration, the American Pharmaceutical Association, and several interested departments and councils at American Medical Association headquarters. The plans were revised, amended, and finally presented to the Committee on Scientific Councils for its final consideration. The Committee made its recommendations to the Board of Trustees, which in turn approved the proposed program of the Chemical Laboratory. Several phases of the new program were initiated during this time—in particular, the work on tests and standards of new drugs.

During this period there was an opportunity to do additional laboratory work on problems of medical interest. A comparative study of available "in vitro" methods for the determination of antacid efficiency was completed and published. Additional work on methods for determining the amounts of medicament released with time from sustained release medication was carried out. A comparative study of methods for the determination of the hexachlorophene content of soaps was completed. Work has been undertaken to develop methods of determining saccharin and sucaryl where they occur together in food and drink. Human gastric juice and several simulated or artificial juices including the official U. S. P. and N. F. juices and that developed in our own laboratory were compared as mediums for testing antacids and enteric coatings. Several commercial enteric-coated products were tested for resistance to the acidity of simulated gastric mediums and simulated intestinal juice. Literature reviews and statistical analysis of available data have been completed as a basis for a proposed program related to the uses and limitations of spectrophotometers and flame photometers as analytical instruments in drug assay. A survey was conducted on the composition of certain suntan preparations on the market. An infrared spectrophotometer was obtained and is now being used for both qualitative and quantitative analytical work. A register of both infrared and ultraviolet absorption curves of drugs has been begun and will be an important source of reference on identification, purity, and characterization of drugs.

At the request of other departments within the American Medical Association, several laboratory problems were undertaken. Analyses were carried out on an antistatic agent, several claimed cancer cures, a deodorant, a new type of cigarette filter-holder, a chloral hydrate preparation, a nitroglycerin medication, and several clinical chemical testing devices. An analysis of low-sodium milk is near completion. A comparative study was made on the difference in light transmittancy of coated and uncoated lenses. Work was initiated and completed on a collaborative laboratory project conducted by the Food and Drug Administration on Rauwolfia assays.

The Laboratory continues to serve in an advisory capacity to other departments such as the Council on Pharmacy and Chemistry, Council on Foods and Nutrition, Bureau of Investigation, Council on Medical Physics, Committee on Cosmetics, Committee on Pesticides, Editorial Department, Library, and Advertising Department. These services are concerned with chemical nomenclature and information, drawings of structural formulas, indexing chemical and pharmaceutical names, checking chemical data and reactions to appear in articles and correspondence, reviewing chemical articles proposed for publication in THE JOURNAL, requests for data on composition of products, book reviews for THE JOURNAL, and laboratory work to check claims and data.

There has been considerable correspondence with physicians in reply to questions of a chemical nature and in a few instances analyses were carried out on problems of general medical interest at the request of individual physicians. Individual members of the laboratory staff have served as referees for papers to be published by outside technical journals.

Report of the Bureau of Investigation

During the year ended June 30, 1956, the Bureau of Investigation accelerated its program of personal appearances in talks, lectures, radio and television presentations, and exhibits. There were 69 appearances before organizations and groups, and on television and radio programs. Included were talks before medical societies, woman's auxiliaries, university groups in Colorado, Illinois, Indiana, Oklahoma, Virginia, and Wisconsin, service clubs, health groups, women's clubs, church groups, and one luncheon talk before a local bar association meeting in Ohio. The Director spoke on cancer quackery at several district meetings of the Illinois division of the American Cancer Society and at the annual meeting of the Iowa division, and one district meeting in Michigan. Television and radio presentations included one network and several local programs.

In cooperation with the Bureau of Exhibits, exhibits were manned at the South Carolina State Fair at Columbia, the Eastern Carolina Agricultural Fair at Florence, S. C., the American Medical Association Clinical Meeting at Boston, the "Cavalcade of Health" at Los Angeles, the Cleveland Health Museum at Cleveland, the "Akron Health Days" at Akron, Ohio, the Michigan Clinical Institute at Detroit, and the inspirational meeting at Tyronza, Ark., of the First, Second, and Third Districts of the Arkansas Medical Society, sponsored by Dr. L. H. McDaniel of Tyronza.

The Director attended two meetings of the Committee on Cancer Diagnosis and Therapy of the National Research Council, as a representative of the Association as a sponsor. The Committee studies and evaluates unestablished cancer treatments and diagnostic techniques. He also attended meetings of the American Cancer Society in New York and Detroit, as a member of the Committee on New and Unestablished Cancer Treatments, and attended the National Meeting to Commemorate the 50th Anniversary of the Food and Drug Laws in Washington.

The Bureau submitted one article for THE JOURNAL on the subject of a medical impostor and an editorial, which were published. In its day-to-day activities, approximately 3,800 inquiries were received on the subjects with which the Bureau deals. The largest single number came from physicians, followed closely by letters from laymen asking for information on subjects with which the Bureau deals. Government agencies, students and teachers, better business bureaus, and newspapers and magazines also used Bureau facilities for their own information.

During the last several years the principal subject of interest was cancer "cures" and treatments. More than 800 inquiries were received on this category alone. The second largest group inquired about were the cultists. This resulted partly from the fact that in two southeastern states the state medical societies were successful in sponsoring legislation to repeal laws which provided for separate naturopathic examining boards. The legislation, incidentally, also provided for revocation of licenses previously issued by such now defunct naturopathic examining boards. The legislative action was challenged by the naturopaths in South Carolina. The Supreme Court of South Carolina, however, has since upheld the action of the legislature as a proper exercise of state police powers.

During the year the Bureau, in cooperation with the Public Relations Department, published a leaflet on "Mechanical Quackery." This is a most popular propaganda piece, and a second printing has been necessitated. More than 300 inquiries were received on advertising institutions—the commercial establishments prevalent particularly in western Missouri, which "specialize" in piles, prostatism, rheumatism, and hernia. These are, for the most part, corporations organized for profit, and the situation involves the corporate practice of medicine in its worst form.

Considerable lay and professional interest was shown in an itinerant "faith healer" who has not only a magazine but also a filmed television presentation shown weekly on more than 200 television stations in this country. Added to that, he has a good many radio outlets.

There were also a large number of inquiries on medical impostors, vitamin and mineral products, and rheumatism "cures," and the seasonal (spring and summer) interest in the flamboyantly advertised "new," "amazing," "scientific" vehicles for the treatment of obesity continued as in years gone by. These involve not only the reducing salons but also products advertised widely to the laity as short-cuts to a slim, trim figure. The trend in this field seems to be toward the vibrating tables and the personal attention to be obtained at the well-advertised and "plush" reducing salons which have proved to be such great money-makers for the astute promoters thereof.

Of particular interest, also, was an abortive effort in December, 1955, and June, 1956, on the part of a physician, the secretary of a board of examiners in an eastern state, to admit to medical licensure approximately 80 unqualified persons with either naturopathic or chiropractic background. This matter is now pending in the courts by injunctive process.

As in the past, the Bureau has functioned as a clearing house of information on the subjects which comprise the unscientific side of medicine, particularly nostrums, quacks, faddists, cultists, and impostors. In doing its work, the Bureau relies upon, and appreciates sincerely, the cooperation of state and local medical societies, state medical boards, health departments, and federal agencies having the enforcement of the laws which touch upon these subjects. Particular acknowledgment is made at this time to the fine work of the National Better Business Bureau in the investigation of certain "patent medicines" which are not as represented, and the business dealings of their promoters. The Bureau obtains scientific data, and in some instances chemical evaluations of products, from the Councils and Laboratory of the Division of Councils of Therapy and Research.

Report of the Council on Industrial Health

The Council program during the period covered by this report, July 1, 1955, to June 30, 1956, received a severe blow due to the untimely death of the secretary, Dr. Carl M. Peterson, in an airplane crash in September, 1955. During the remainder of the period, Mr. Clark D. Bridges served as acting secretary. Dr. William P. Shepard, chairman of the Council, gave freely of his time and invaluable assistance in conducting Council affairs during this period. Under the leadership of the chairman and with the assistance of the members of the Council, a considerable number of physicians were considered and interviewed in the search for a new secretary. Dr. B. Dixon Holland was selected, assuming the post on July 16, 1956.

Council Meetings and Congress on Industrial Health

Three meetings of the Council were held during this period, namely, in Houston, Texas, in September, in Detroit in January, and in Philadelphia in April.

The Houston meeting was held in conjunction with the eighth annual Houston Industrial Health Conference to provide recognition of this Conference by an important national group and to promote industrial health and improve its standing in this growing industrial area. Council members also participated in the Conference program.

At the Detroit Council meeting, conferences designed to improve rapport and cooperative action were held with the chairmen of state medical society committees on industrial health and with the officers and directors of the Industrial Medical Association.

The Detroit meeting was followed by the 16th annual Congress on Industrial Health, a well-attended and very successful series of open meetings on "Occupational Medicine in Industrial Relations," "Medicine's Responsibilities in the Automotive Age" (in cooperation with the American Medical Association Committee on Medical Aspects of Automobile Injuries and Deaths), and "Absence from Work due to Nonoccupational Illness and Disease" (sponsored by the Joint Committee on Medical Care for Industrial Workers of this Council and the Council on Medical Service).

Taking advantage of the usual attendance of many of the Council members at the Industrial Medical Association's annual convention, the Council held its third meeting of the period in Philadelphia in April.

Until recently, the Council on Industrial Health has met on an average of twice a year. A minimum of three meetings a year, and possibly four, are now contemplated due to the increase in the number and complexity of subjects requiring attention.

Committee Activities

Shortage of staff personnel forced partial curtailment of standing committee activity; however, many subcommittees continued to meet and pursue work on their assignments.

COMMITTEE ON INTERPROFESSIONAL RELATIONS

Subcommittee on Standing Orders for Industrial Nurses.—This project was completed as "Guiding Principles and Procedures for Industrial Nurses," published in The Journal of Nov. 5, 1955, reprinted in several other medical and nursing journals and in special pamphlet form. This is very evidently a sorely needed document, as over 15,000 copies have been ordered from the Association. A second printing has been necessary.

Subcommittee on Plant Hygiene Studies.—This project is virtually complete, and a brochure is in the final editing stage. This emphasizes the importance of inspections of the industrial environment by physicians and includes a primer on how to make the survey and what to look for.

Committee on Medical Education and Training

Attention was given to the need for added special training of physicians wishing to qualify for examination by the American Board of Preventive Medicine for certification in occupational medicine. This has culminated in plans for a meeting of preventive and industrial medical educators and leaders in Chicago in September to develop special courses to be offered by the summer of 1957.

Committee on Public Services

Subcommittee on Workmen's Compensation.—Last fall, after many months of intensive study and preparation, the Council submitted two reports on workmen's compensation to the Board of Trustees. One report, entitled "Medical Relations in Workmen's Compensation," was designed to serve as a guide for the evaluation and implementation of a progressive program by the medical profession. The other report dealt specifically with the subject of physician selection under workmen's compensation laws. The essence of the latter report was the recommendation that appropriate official medical organizations in each workmen's compensation jurisdiction examine and, where necessary, seek adoption of statutory provisions to the end that all patients subject to these laws have the option of accepting the services of a physician designated by the employer or of selecting an attending physician from a register of all other physicians in the community who are willing and qualified to perform the essential services. The Council was indeed gratified by the approval of these reports by the Board of Trustees and their subsequent adoption by the House of Delegates last December.

Much favorable comment followed the publication of these statements. While there are definite indications that in some areas the medical profession has undertaken to implement these recommendations, the Council believes that more widespread and intensive thought and activity by the medical profession is essential to bring about long overdue improvements in these programs.

The value of these reports was immediately apparent when the U. S. Department of Labor asked for comments on its "Discussion Draft of Proposed Model Workmen's Compensation Law," on which the Council was asked to report to the Board of Trustees. Guided by the policies set forth in the two reports, the Council, with the able assistance of its committee and consultants on workmen's compensation, prepared a lengthy series of constructive remarks confined to those aspects of the draft of interest and concern to the medical profession. In April the Council's report was accepted by the Board of Trustees and forwarded to the U. S. Department of Labor. At the same time, the Board authorized the Council to continue to cooperate in further activities connected with the preparation of the model law.

In addition to these activities, the Council has continued to fulfill as many requests as possible by state medical societies and other professional organizations for assistance in the development of improved medical care programs for the occupationally disabled.

Joint Committee on Medical Care for Industrial Workers.—This is a Joint Committee of the Councils on Industrial Health and Medical Service. Three meetings were held by the Committee during the past year. They were primarily concerned with two major activities: the United Mine Workers Welfare and Retirement Fund, and work absence due to nonoccupational disability.

A unique feature of the fourth Conference on Medical Care in the Bituminous Coal Mine Area, which was held in Charleston, W. Va., on May 6, 1956, was an extensive two-day field trip to the Beckley and Bluefield coal mine areas by a group of fifty doctors. Delegates from various state medical societies and the United Mine Workers Welfare and Retirement Fund had an opportunity of securing on-the-scene information about working and housing conditions and medical care provided to miners and their families from hospital administrators and other medical personnel. Two meetings with local medical societies provided for a further exchange of information.

The committee realized one of its major goals on Jan. 23, 1956, when it held a one-day conference devoted to work absence due to nonoccupational disability in Detroit as part of the Congress on Industrial Health. Over 500 physicians, including general practitioners and medical directors, as well as management representatives and other medical personnel, heard four distinguished panels discuss various aspects of this problem. To the committee's knowledge, this was the first time that a project of this scope had ever been undertaken by the Association, dealing with the broad ramifications of this problem. Over twenty speakers talked on a wide range of topics dealing with job absence, and answered scores of questions from the audience.

The joint committee issued the following publications during the past year: (1) "Company Medical Programs and Work Absence;" (2) "A Syllabus on Work Absence;" (3) "Management Health Centers;" (4) "Guiding Principles for Management and Union Health Centers;" and (5) "Report of the Fourth Conference on Medical Care in the Bituminous Coal Mine Area."

The full report of the joint committee is presented in the annual report of the Council on Medical Service.

COMMITTEE ON SCIENTIFIC DEVELOPMENT

Subcommittee on Physical Examinations in Industry.—This subcommittee's project has been completed as "Guiding Principles of Medical Examinations in Industry," published in THE JOURNAL, July 7, 1956, and reprinted in pamphlet form. Orders for large quantities are being received.

Subcommittee on Occupational Cancer.—Two major projects are now in draft stage: (1) "Occupational and Environmental Cancer of the Skin" and (2) "Means of Determining Inordinate Risks to Cancer." The House of Delegates has approved the resolution of this committee regarding the need for continuation and expansion of vital statistics relating to neoplastic diseases.

Subcommittee on Occupational Dermatoses.—A series of six related papers are in various stages of completion. When published, they will constitute a comprehensive primer on this important industrial disease. Titles in the series are: (1) "Introduction—from the Dermatologist's Viewpoint" and "Introduction—from the Medical Director's Viewpoint;" (2) "Causes and Predisposing Factors;" (3) "Clinical Types of Industrial Dermatoses;" (4) "Prevention of Industrial Dermatoses;" (5) "Medicolegal Aspects;" and (6) "Prolonged and Recurrent Dermatitis."

Subcommittee on Estimation of Loss of Visual Efficiency.—This project was completed and published in the A. M. A. *Archives of Ophthalmology*, September, 1955, and, with a glossary added, in the A. M. A. *Archives of Industrial Health*, October, 1955. There has been a heavy demand for this reprint.

MISCELLANEOUS COUNCIL ACTIVITIES AND PLANS

"Impact of the Atomic Energy Industry on Community Health" was the topic of a series of sessions at the Council's 1955 Congress on Industrial Health in Washington, D. C. The proceedings were printed intact in the May, 1956, A. M. A. *Archives of Industrial Health*, and are now ready in pamphlet form to fill a timely and growing need.

Liaison has been maintained on the industrial noise and hearing-loss problem with the American Academy of Ophthalmology and Otolaryngology. It is hoped the Council and the Academy can cooperate in the development of acceptable procedures and standards for measuring accurately hearing loss due to industrial noise. This will be a picking up of the activity previously carried on in this field by what is now the Council on Medical Physics.

Liaison has been maintained with the American Public Health Association and American Society of Mechanical Engineers on the problem of air pollution.

There is a continuing demand for the Council's exhibit on "Hazards of Solvents—At Home and on the Job." It was shown at several local and national medical meetings as well as to other groups. The exhibit won second prize among scientific exhibits at the April meeting of the Industrial Medical Association. The Argonne National Laboratories plan to use it for five weeks for personnel education.

Action was taken toward solution of the Council's need for an effective Committee on Industrial Ophthalmology, functioning under its own aegis, and approval was given by the Board of Trustees.

The Council's general liaison activities were somewhat curtailed, but constructive contact was maintained with certain groups, such as

President's Committee on Employment of the Physically Handicapped
National Safety Council
Industrial Medical Association
American Association of Industrial Nurses
American Nurses Association
Industrial Hygiene Foundation
American Industrial Hygiene Association
American Heart Association

Overlapping of interests and areas of activity in the field of health conservation are common to most of the medical and paramedical groups. Maintaining a cooperative and friendly but watchful relationship has paid dividends. The Council is regarded as a guardian of medical principles and a spokesman for the American Medical Association. Its advice and counsel are sought and well received.

Plans for the future include resumption and intensification of standing committee activities. It is hoped that a Committee on Health Education in Industry can be formed and start functioning, as there has long been a great need for such activity. This would be in cooperation with the Bureau of Health Education.

The next Congress on Industrial Health is scheduled for Los Angeles, Feb. 4 to 6, 1957. The program is nearly complete, and session topics are: "A Complete Industrial Vision Program," "The Management of Burns," "Herbicides and Pesticides," and "Developments in the Control of Industrial Noise and Hearing Loss."

The employment of persons with neurological disorders requires rather thorough investigation to develop techniques for evaluating their employment potentialities and suitably placing them in jobs. Advantage is taken of advances in medicine which make more of these individuals employable in industry. Exploratory discussions have been held, and it is planned to establish in the very near future a Subcommittee on Neurological Disorders in Industry, having as its objectives the discussion of current problems, compilation of available information on the various special phases of the subject, a full-scale conference or symposium, and publication of pertinent papers.

As heart disease assumes ever greater importance in the general population, it becomes equally significant as a factor in industry. How do the various types of cardiacs compare with one another with respect to employment potentialities? What are the best techniques for evaluating such potentialities? When is heart disease a legitimate claim under workmen's compensation? The problem grows more acute, and considerable resolution is needed if cardiac cripples are to have gainful employment. The Council is co-sponsoring a conference next May in Milwaukee on "Work and the Heart." Preliminary discussions have been held with the American Heart Association, particularly its Committee on Trauma. To implement these current activities and continue them as needed, a Committee on Heart Disease in Industry is probably needed.

It is hoped that during the fiscal year 1957 work can begin on the development of a planned series of scientific exhibits designed for education of the general practitioner on facets of industrial medicine which may be involved in his practice.

Report of the Council on National Defense

This report covers the activities of the Council on National Defense beginning July 1, 1955, and ending June 30, 1956.

MEETING AND ADMINISTRATIVE ACTIONS

In this annual reporting period, the Council and its committees held two regular meetings. On the first day of these two-day meetings, each committee meets separately, followed by a meeting of the full Council on the second day. Meetings were held in Washington, D. C., on Oct. 26 and 27, 1955, and in Chicago on April 7 and 8, 1956.

Each succeeding year has seen an increase in the importance of participation by the medical profession in military medical affairs and civil defense matters. We have witnessed significant expanded activities in both fields for the past few years, and today it is essential for the Council to maintain close and constant liaison with a number of federal departments and agencies in order to keep currently posted and advised of changing developments in these two areas. The Council, therefore, decided to hold one of its two yearly meetings in Washington, D. C., and to schedule it during week days rather than on a week-end, the time usually scheduled for a regular meeting. It was felt that such a change would be decidedly more desirable and convenient for representatives of the governmental departments and agencies. The first such meeting was held on Oct. 26 and 27, 1955, and it was most successful and well received by members and invited guests. In spite of certain disadvantages to members in attending week-day meetings, the Council will continue to hold a yearly meeting in Washington, D. C. for the purpose of considering and discussing with federal representatives items of mutual concern and interest.

The executive committee of the Council met during the Association's 1955 Boston Clinical Meeting and its 1956 Annual Meeting in Chicago. In addition, Council and committee members, including the secretary of the Council, have participated in a number of meetings with federal agencies, medical societies, and various allied medical and health groups.

The creation by the Board of Trustees early in 1955 of two permanent committees of the Council has assisted greatly in a more orderly and effective discharge of work by the Council. Under direction of the Council, a Committee on Military Medical Affairs and a Committee on Civil Defense assist, within their respective areas, with the responsibilities and programs administered and developed by the Council. With the exception of the chairman, each Council member serves as a member of one of the two committees. Each committee chairman is also a Council member. Both committees have seven members. The Committee on Civil Defense has three non-council members and the Committee on Military Medical Affairs has two such members. Upon recommendation of the Council in May, 1956, the Board of Trustees established the terms of service of Committee members who are not Council members on a three-year rotating basis.

In December, 1955, Dr. Carroll P. Hungate was reelected to Council membership by the Board for a five-year term ending in December, 1960, and Dr. Walter B. Martin was elected for a similar term to succeed Dr. Arthur A. Brindley. At the same time, the Board named Dr. Max L. Lichter to membership on the Committee on Civil Defense. Dr. Hugh H. Hussey Jr. was designated by the Board in June, 1956, as its liaison representative to the Council to replace Dr. F. J. L. Blasingame.

Military Medical Activities

At the first Washington, D. C. meeting of the Committee on Military Medical Affairs, a number of high-ranking federal government officials attended and participated. In attendance, among others, were Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical); Major Gen. Silas B. Hays, Surgeon General, U. S. Army; Major Gen. Dan C. Ogle, Surgeon General, U. S. Air Force; Rear Adm. Bruce E. Bradley, Deputy Surgeon General, U. S. Navy; Major General Lewis B. Hershey, Director, Selective Service System; and Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service. Committee and Council members also met with Dr. Arthur S. Fleming, Director, Office of Defense Mobilization, Executive Office of the President, in his offices from 5 to 6 p. m. Dr. Fleming discussed with the group the several possibilities of attack on the United States and the recent directive of the President providing for the "trigger orders" for the Director of the Office of Defense Mobilization to utilize should this country become engaged in hostilities. Similar plans were discussed which would meet the medical and health needs of this country under various conditions of hostility.

This meeting, as well as the subsequent committee meeting on April 7, 1956, resulted in a full discussion of the many problems of military medical services and provided an opportunity for the military representatives to outline some of their specific problems and to further acquaint the committee on the over-all subject. Following these meetings, the committee suggested, and the Council approved, status reports to the Board of Trustees, including a number of recommendations pertinent to military medical items. A brief review of some of these subjects is herewith included:

Medical and Dental Officer Career Incentive Program.—The Council's last annual report recognized the importance and outlined some of the efforts of the Council and the Association in the past ten years for the development of a strong and attractive military medical corps. For a number of years, the Council observed with great concern the alarming physician loss rate of the military medical services. It recognized that this trend had to be reversed to preserve, strengthen, and maintain the prestige and very existence of military medicine. In May, 1955, it suggested action and the Board of Trustees brought the critical problem, with recommendations thereon, to the attention of the President of the United States.

In June, 1955, the Secretary of Defense established a special inter-service Task Force to explore all phases of the problem and present recommendations for its solution. As a result of these studies, the most frequent reasons for lack of interest in a military medical career were (1) inadequate pay, (2) lack of promotion opportunities, (3) frequent moves and greater separation from families, (4) inadequate housing, and (5) a general dislike of military life, or a preference for civilian-type life. The Council reviewed the suggestions and legislative recommendations of the Department of Defense on this subject at its October, 1955, meeting. In November, 1955, it advised the Board of Trustees of the proposed career incentive program. It also commended the Department of Defense for its serious consideration and constructive proposals and reported that the Council was favorably impressed with the essential features of the program, recommending Association support of the general principles as outlined.

During hearings on the career incentive bill, early in 1956 before Senate and House Armed Services Committees, witnesses on behalf of the Association testified in support of the legislation as a "step in the right direction." However, the Association witnesses pointed out that the bill did not go far enough, since it provided only "token increases" in pay and rank. In its testimony, the American Medical Association recommended that (1) the initial increase in special pay be made available after two years of service, (2) an increase be made in the amount of additional special pay provided in the bill, and (3) sufficient latitude be given to permit the payment of the increased special pay to those physicians whose professional qualifications were such that their initial appointment would be in the grade of major or lieutenant colonel, notwithstanding the fact that such officers would not have served the requisite number of years to qualify for the increase otherwise. The career incentive legislation was enacted as Public Law 497, 84th Congress, April 30, 1956. As finally approved, it did include the American Medical Association recommendation for an increase in pay at the end of two years rather than after three years as recommended and passed by the House. In addition to the $100 per month equalization pay, medical officers, under the law, receive an additional increase in pay of $50 at the end of two years service, another $50 at the end of six years service, and another $50 at the completion of ten years service. Other features of the law provide for longevity pay credit for the four postgraduate years spent in medical schools and for the one year spent in medical internship, as well as upgrading of officers now on the active list to reflect the one year increase of constructive service credit. The Council is pleased to report that in the past few months the military services have commissioned more physicians than have resigned. This reversal in loss of medical officers is primarily the result of the enactment of this legislation.

Extension of Doctor Draft Act, Public Law 118.—Following a review of the activities of the Association with respect to its position of opposition to an extension of the Doctor Draft Act, the Council advised the Board in November, 1955, of the excellent and capable presentations made by Dr. Reuben B. Chrisman Jr. and the statements of Dr. Walter B. Martin in testimony furnished the Senate and House Armed Services Committees during the consideration of an extension of the Act. The Board was further advised of the sustained interest and efforts of Dr. Harold S. Diehl during the time this legislation was actively under consideration and debate in the Congress. The Council commended Dr. Diehl for writing Congressman Walter B. Judd of his concern about the misleading statements, distortions of fact and tactics employed to force passage of the bill. A copy of this letter, which was printed in the Congressional Record, was forwarded to the Board of Trustees.

On April 5, 1956, Dr. Harold S. Diehl and Dr. Richard L. Meiling represented the Council and the Association at a meeting called by the Assistant Secretary of Defense (Health and Medical) to discuss the planning for legislative action to succeed the Doctor Draft Act which expires in July, 1957. Amendments to the basic draft act to eliminate all priorities of call-up of physicians and the possibility of requiring medical students to obtain "reserve commissions" were two of several alternatives discussed and considered. Following a report on that meeting by Drs. Diehl and Meiling, the Council advised the Board of Trustees that it felt additional information was needed before action could be recommended on this matter. Further, the Council was not in possession of any additional information to warrant a change in the position of the Association calling for opposition to this type of discriminatory legislation. The Council is continuing its study of the subject and will report thereon at a later date.

Additional Military Medical Activities.—On April 8, 1956, the Council recommended to the Board of Trustees that the Association support H. R. 9429, the bill to provide medical care for dependents of military personnel, except that active opposition was recommended to Section 201 (c) of the bill as the Council felt this would violate the principle of free choice of physician and would tend to perpetuate the personnel problems of the armed forces and the doctor draft; that the Association continue to oppose vigorously H. R. 483, a bill to authorize the appointment of osteopaths as military medical officers; that the Board support immediate construction of adequate facilities for a National Medical Library administratively and geographically attached to a federal medical agency.

Reports were also made by the Council in this reporting period on (1) its survey of civilian medical resources available for military medical requirements, (2) the deferment of medical students who elect to interrupt medical education to assume teaching positions in preclinical departments, (3) health and medical care of six-month trainees under the military reserve program, (4) relaxation of federal dual compensation laws to permit employment of retired military physicians, (5) establishment by the Office of Defense Mobilization of a Reserve Executive Corps, and (6) status report and continued support for expansion of MEND programs.

Survey of Discharged Medical Personnel.—The Council has continued its program of contacting physicians being released from active military service by requesting them to complete a questionnaire to provide information on the utilization of physicians and medical staffing conditions in the Armed Forces. From June, 1952, to July, 1956, the Council sent out 16,583 questionnaires of which 11,434 were completed and returned. Periodic summary reports of these surveys are compiled, analyzed, and published. During the calendar year 1955, 3,651 questionnaire forms were mailed and 2,197 returned. A summary report for this period is currently being tabulated and the results will be published in THE JOURNAL, as well as copies being sent to interested individuals and agencies.

Liaison with Physicians on Active Military Duty.—The Council has continued to prepare monthly articles, since January, 1954, for publication in the *United States Armed Forces Medical Journal.* Articles published during the last six months of 1955 covered (a) a special committee report of the British Medical Association to make military medical careers an attractive alternative to civil practice, (b) a report on the extension of the Doctor Draft Act, (c) summaries of an opinion survey among physicians released from active duty, and (d) a review of the military medical laws enacted during the first session of the 84th Congress.

The Council approved the preparation of a series of articles for publication during 1956 devoted to the American Medical Association, its organization, function, history, and purpose. The first six articles dealt with the history and organization of the Association, the responsibilities and activities of the Council on National Defense, Council on Medical Education and Hospitals, Council on Medical Service, the Law Department, and the Bureau of Investigation of the American Medical Association. This series of articles is being continued during the last half of 1956.

Placement Assistance Program.—The Council has also continued its program to assist physicians being released from active military service by providing information concerning available civilian medical opportunities. In July, 1952, the Council began the practice of writing to each physician being discharged from military service to welcome him back to civilian practice and to assist, if desired, in locating appropriate civilian openings. Each year, the Council receives an increased number of requests for such assistance. As of July, 1956, the Council has sent letters to some 13,119 physicians, 2,488 of whom requested and were given placement assistance. From July 1, 1955, to June 30, 1956, letters were mailed to 2,293 physicians, and of this number 428 requested further information and assistance.

MEDICAL CIVIL DEFENSE ACTIVITIES

In a recent letter to the Administrator of the Federal Civil Defense Administration, President Eisenhower pointed out that an effective civil defense is an important deterrent against attack on our country and thus helps preserve peace. In the event of an attack upon us, the President said that civil defense at once becomes one of our immediate reactions imperatively required for our nation's survival. He observed that our whole civil defense effort needs both strengthening and modernizing, and that it is now evident that the exigencies of the present threat require vesting in the federal government a larger responsibility in our national plan for civil defense. The Council believes this reflects the growing sentiment and realization of the medical profession, as well as a large segment of the civilian population.

Today, civil defense is one of the key elements in efforts to prevent the outbreak of war. Survival will initially rest mainly with the individual and the local community in the event of enemy attack. Physicians and other professionals at the local level will be expected to provide the necessary medical care to prevent human suffering and loss of life. At its last annual meeting, in June, 1956, the American Medical Association expressed its belief that an efficient and practical medical defense system should be developed by the best minds in our nation as such a program is necessary to national survival. The medical profession is convinced that any enemy attack employing weapons of modern war could kill or injure millions of our citizens, and to manage and care for such mass casualties requires new procedures and medical skills using every physician and all ancillary personnel in the country. The medical profession has the solemn responsibility of providing bold leadership, knowledge, and its full participation in the formulation of mobilization plans for emergency medical services.

The Council is encouraged by the increased interest and activities to medical civil defense preparedness, in spite of the fact that much more remains to be done. The Committee on Civil Defense has continued to maintain and promote friendly and cooperative working arrangements within the medical profession and among allied health and medical organizations. At its two regular meetings within this reporting period, invited guests included representatives of the American Dental Association, American Hospital Association, American Nurses' Association, American Veterinary Medical Association, Committee on Trauma of the American College of Surgeons, Committee on Public Relations of the Section on Ophthalmology, Education and Training Division of the Office of the Surgeon General of the Army, Health Office of the Federal Civil Defense Administration, and National League for Nursing. These groups have made substantial progress in civil defense affairs. For example, the American Dental Association has undertaken the development of appropriate definitive programs and has encouraged participation by their local societies. They are exploring the possibility of establishing DEND programs comparable to the current MEND programs. The American Veterinary Medical Association recently sponsored six regional meetings in conjunction with the Department of Agriculture on how to cope with biological warfare. The American Hospital Association prepared and published two manuals entitled "Principles of Disaster Planning for Hospitals" and "Readings in Disaster Planning for Hospitals" which have been distributed to hospitals and other interested groups. The American Nurses' Association is concentrating its activities to a long-range program in disaster nursing, and the National League for Nursing has sponsored several conferences pertaining to recruitment, supervision, and training of nurses and ancillary personnel for civil defense responsibilities. The Education and Training Division, Office of the Surgeon General, Department of the Army, has in operation an eight-point program devoted to emergency medical service training. The ophthalmologists are alerting their members to duties and functions in time of emergency and are working on a program to train lay personnel to protect and prevent ocular injuries. The Committee on Trauma of the American College of Surgeons has held five symposia on mass casualties including a number of programs sponsored throughout the country highlighting mass casualty care. These are but a few of the numerous activities which are being accomplished by mutual efforts and cooperation between medical and health organizations.

The meetings of the Council's Committee on Civil Defense in October, 1955, and April, 1956, produced several important actions. The committee approved a resolution, adopted by the Council and referred to the Board of Trustees, endorsing the use of the 200-bed emergency civil defense hospital unit and urging as rapidly as possible the procurement of these units by the Federal Civil Defense Administration. At the same time, a second resolution, similarly adopted and referred, endorsed a field testing, critical analysis and operational review of the hospital unit. Following favorable action by the Board, these resolutions were endorsed by the House of Delegates in December, 1955. In addition the House, upon recommendation of its Reference Committee on Medical Military Affairs, urged all assistance be provided by the Federal Civil Defense Administration to local communities in target areas so that early distribution of the hospital units be made for training purposes.

Recently, there has been under consideration the need for a change in the concept of the role of military reserve units in the event populated civilian centers are subjected to enemy attack. The committee and Council recommended that the Army, Navy and Air Force be requested to permit instruction in the use of emergency civil defense hospital units and that this be made a part of the training programs of reserve units for which annual unit training and armory drill pay is permitted. The Board of Trustees approved the recommendation and appropriate letters were sent to the military departments.

In May, 1956, the committee and Council recommended to the Board endorsement and support of H. R. 7277, a bill to authorize the transfer of federal surplus property for use in educational purposes, public health purposes, including research, or civil defense purposes. This matter was referred to the Committee on Legislation for appropriate action.

Field Test of FCDA Hospital Unit.—The chairman of the Committee on Civil Defense and the secretary of the Council served on a joint committee composed of representatives of national medical and health organizations to initiate a program to conduct a critical analysis and field test of the 200-bed emergency civil defense hospital unit. It was evident there was an urgent need for the development of manuals, training guides, and other material on how to set up, staff and operate these hospital units, particularly since a number of the units would be scheduled for distribution to state and local civil defense organizations in 1956. The joint committee met in September, 1955, at Battle Creek, Mich., and in November, 1955, in New York City. Detailed plans prepared by the Joint Committee suggested that the U. S. Army conduct the testing operations with observers from seventeen national medical and health organizations to participate as members of "analysis teams." Working closely with the numerous agencies involved, the joint committee submitted its proposed testing program to the Administrator of the Federal Civil Defense Administration, who, in turn, requested and received approval of the Secretary of Defense.

The field testing program was conducted by the Army Medical Service at Fort Meade, Md., on April 10 and 12, 1956. Approximately 100 observers, representing 22 national organizations, viewed the operational exercise. The hospital unit, packaged in some thirty crates, was transported on military vehicles to a prearranged housing site. It was uncrated, set up, and readied for operation. It was staffed by medical corps personnel and simulated casualties were received, processed, and treated. This was the first time the hospital had been evaluated as a complete unit. A number of changes and other recommendations were made by the analysis teams and it was apparent that a second test, incorporating the changes, would be necessary before final revisions and recommendations could be made. Accordingly, a second large-scale testing program was conducted by the Brooke Army Medical Center at Fort Sam Houston, Texas, on June 18-22, 1956. The results of these tests have been compiled. The various recommended changes are being reviewed and analyzed preparatory to development and issuance of appropriate instructional material on how the hospital units should be set up, staffed, and operated.

Special Training of Allied Medical and Health Groups.—In April, 1956, the Council appointed a special committee, composed of Drs. Stafford L. Warren, Roscoe L. Sensenich, and Max L. Lichter, to define and integrate the special medical training of dentists, veterinarians, nurses, and other groups. Following its study and report, the Council will advise the Board of Trustees of its recommendations on the subject.

Liaison with Specialty Groups on Proper Handling of Mass Casualties.—Recognizing the need for greater participation by the various specialty groups and their advice concerning the preparation of manuals and other instructional material for the management and care of mass casualties, the Council approved a recommendation of the committee for the appointment of a special committee to study and make a report on the subject. Drs. Sensenich and Lichter were named to the special committee to obtain information on the emergency care of casualties from the specialty groups and to further assist in defining their role in medical civil defense affairs.

National Medical Civil Defense Conference.—On June 9, 1956, the Council sponsored in Chicago its fourth National Medical Civil Defense Conference. The Conference was attended by 230 individuals from 41 states, Hawaii and Canada. It was the largest and most enthusiastic group to attend one of these conferences. In spite of a long day session, most of the conferees attended an evening session to view selected films on medical techniques under disaster conditions. At the morning session, the President of the American Medical Association, Dr. Dwight H. Murray, welcomed the assembly in behalf of the Association. Congressman Chet Holifield, Chairman of the Military Operations Subcommittee of the House Committee on Government Operations, described the developments of the extensive hearings on civil defense being conducted by the subcommittee. Several medical civil defense topics were covered by outstanding speakers, and Federal Civil Defense officials discussed basic plans concerning the allocation, distribution, and utilization of emergency civil defense hospital units.

County Medical Societies Civil Defense Conference.—The Council sponsored the sixth County Medical Societies Civil Defense Conference in Chicago on Nov. 12 and 13, 1955. These conferences are designed to acquaint physicians at the local level on the practical aspects of community preparation and planning. They provide an excellent opportunity for the exchange of valuable information and material. Workshop sessions were scheduled for a part of the first day and for the entire second day of the conference. One of the highlights was a panel discussion on defenses and effects of nuclear radiation, a subject which unfortunately has not been given the attention it merits. An entertaining feature of the program was the presentation of a civil defense play by the Woman's Auxiliary to the Chicago Medical Society on Saturday evening in the American Medical Association auditorium.

Congressional Hearings on Civil Defense.—Of great interest to the Council are the recent hearings conducted by the Military Operations Subcommittee of the House Committee on Government Operations in the field of civil defense for national survival. On June 19, 1956, Drs. Harold S. Diehl and Harold C. Lueth, as members of the Council and on behalf of the Association, presented testimony to the subcommittee on the medical aspects of civil defense preparedness and outlined the interest and activities of the Association in this field. The hearings are the most extensive investigation of civil defense undertaken by a committee of the Congress. Six months of staff study were followed by public hearings from January through June, 1956. As a result of these hearings, some 13 recommendations were made by the subcommittee which were approved and adopted by the full committee and a copy transmitted to the Speaker of the House. Recommendations included the creation of a permanent Department of Civil Defense, the dedrafting of federal legislation to vest the basic responsibility for civil defense in the federal government with supporting roles for state and local governments, formulation of a master plan for nationwide civil defense, increased financial participation by the federal government including greater utilization of available federal resources and facilities, a study and definition of the role of military forces in civil defense, and several other matters designed to strengthen and promote an adequate nationwide civil defense program. The Council's Committee on Civil Defense will study the several recommendations of the subcommittee, and a report will be made at a later date to the Board of Trustees.

Other Civil Defense Activities.—Members and the secretary of the Council have attended and participated in a number of civil defense meetings designed to facilitate and expedite medical preparedness at national and local levels. The Council has continued to maintain effective liaison with federal and state governmental agencies and with allied health organizations.

APPRECIATION

The Council wishes to express its appreciation for the cooperation and assistance it has received from the Board of Trustees and officers of the Association, from allied professional organizations, and from agencies of the federal government with which it has worked during the period covered by this report.

Report of the Council on Scientific Assembly

The report of the Council on Scientific Assembly includes the following items: Council meetings; the Boston Clinical Meeting; the Chicago Annual Meeting; motion pictures and medical television. This is the first time that motion pictures and medical television have appeared in the report of the Council. Formerly they were included in the report of the Bureau of Exhibits.

COUNCIL MEETINGS

The Council on Scientific Assembly held four meetings during the year in preparation for the Clinical Meeting in Boston and the Annual Meeting in Chicago. Numerous subjects were discussed among which the following items are noted:

Requests for New Sections.—Requests were received by the Council for new sections on public health, history of medicine, and allergy, all of which received careful consideration. Since the public health group is already represented in the Section on Preventive and Industrial Medicine and Public Health (the name of the Section has since been changed to the Section on Preventive Medicine), the Council voted that the public health group should confer with the officers of the above section and come back with a unified request. The Council recommended that a Section on the History of Medicine be not established at the present time because of apparent lack of interest. The subject would not be excluded from the program, however, but would be carried in the Section on Miscellaneous Topics whenever desired. The Council received a delegation of allergists at the June meeting and has under consideration the request for a Section on Allergy.

Requests for Special Features.—The Council considered a request for a Session on Asphyxial Deaths together with a group of ten exhibits representing various phases of the subject. The matter was referred to the section secretaries for further consideration. The proposal of Dr. George E. Burch, New Orleans, Secretary of the Section on Internal Medicine, for special demonstrations on cardiovascular diseases in the Scientific Exhibit was approved.

Science Fairs.—The Council received a proposal from the Public Relations Department concerning recognition of the best medical exhibits from high school students at the National Science Fair. Accordingly a committee of the Council attended the National Science Fair in Oklahoma City and selected four exhibits for special mention. Two of these exhibits were shown at the June meeting and were attended by the students who prepared them.

Traffic Accidents.—The Exhibit Symposium on Traffic Accidents at the Chicago meeting together with round tables, lectures, and talks on "The Medical Aspects of Crash Injuries" created much interest. As a result a motion picture, entitled "On Impact" based on the exhibits was produced with the assistance of the Ford Motor Company.

Evening Meetings During Convention.—Arrangements were made for three scientific evening meetings during the Chicago meeting. One was under the auspices of the Section on Ophthalmology, and two under the auspices of the Council, when motion pictures were shown. This is a trend which the Council is watching with interest.

Survey of Attendance.—The Council recommended to the Board of Trustees that a survey be made of attendance at medical meetings, both national and local.

Motion Pictures and Medical Television.—The Committee on Motion Pictures and Medical Television was disbanded and the work transferred to the Council on Scientific Assembly.

Committee Appointments.—The Chairman of the Council appointed various committees to expedite the work of the Council.

Conference of Section Secretaries and Representatives.—The Council voted to ask the Trustees for an appropriation so that the Section Representatives could meet with Section Secretaries, because of the great importance of coordinating the activities of both groups.

Changing Aspect of Medical Meetings.—The Council has noted with interest the changing aspects of medical meetings and is alert to the problem of the desires and needs of the physician of today.

Goldberger Lecture.—The Council received a memorandum from the Board of Trustees concerning the presentation of the Goldberger Lecture at the Annual Meeting. Arrangements are under consideration for the presentation of this Lecture with the understanding that whatever costs are involved will be defrayed by the Nutrition Foundation.

Editorials for Publication.—The Council discussed the situation where the Section on Ophthalmology sponsored editorials concerning problems other than strictly scientific information.

"Two Year Rule" for Sections.—One of the sections requested that the Council establish a rule that no physician was to present a paper before a section two years in succession. The Council voted that, since each section makes its own rules, it was up to the section to make such a ruling rather than the Council.

Suggestions for Section Officers.—At the request of various section officers, the Council instructed the secretary to compile "Suggestions for Section Officers," a preliminary copy of which has been sent to the section officers for their comments.

Scientific Exhibits 1956.—The 1955 publication of this volume was so satisfactory that Grune & Stratton continued the venture with a 1956 publication. A new departure was the inclusion of a few pictures from the Technical Exposition on an experimental basis. These were carried in the same manner that advertising is carried in a medical journal.

Fracture Committee.—Dr. Charles V. Heck, Chicago, was appointed a member of the Special Exhibit Committee on Fractures in place of Dr. Herbert W. Virgin, Miami, Fla., who resigned.

Gross Pathology.—Acknowledgment was made to E. R. Squibb and Sons for a contribution of $2,000 to the Section on Pathology and Physiology for help in presenting the special exhibit on gross pathology.

Duplication of Subjects on the Program.—The Council noted the occasional occurrence of the same subject being discussed in two different sections at the same time. Measures to solve this problem are under consideration.

Closer Affiliation with Sections.—The Council on Scientific Assembly has continued to use every opportunity to affiliate itself as closely as possible with the various sections. The Council was host to the section secretaries at an all day meeting in October, 1955, and was host to the section representatives to the Scientific Exhibit at a dinner during the Annual Meeting in Chicago. Members of the Council were guests of the section delegates at breakfast at both the Boston Clinical Meeting and the Chicago Annual Meeting. The Council has under consideration plans for a combined meeting of the section secretaries and the section representatives in the near future.

BOSTON CLINICAL MEETING

The Clinical Meeting held in Boston in the historic Mechanics Hall was unique for its compactness and enthusiasm. There was a complete scientific program of lectures, color television, motion pictures, and scientific exhibits. The Local Committee on Arrangements, of which Dr. Frank P. Foster of Boston was Chairman, did a magnificent job in arranging the program in all its details.

The lecture program, presented in three halls simultaneously from Tuesday morning to Friday noon, covered a wide variety of subjects of interest to the physician in general practice. Seventy-four papers were presented, including one on diabetes by Dr. Elliott P. Joslin, Boston, and one on cardiovascular diseases by Dr. Paul Dudley White, Boston. In addition there were 11 clinicopathological conferences, round tables, and panels that attracted much attention. The program was so arranged in periods of thirty minutes that physicians were able to go from one hall to another without losing what they wanted to hear. Dr. Theodore L. Badger was Chairman of the Program Committee.

Color television originated in Deaconess Hospital and was shown in Mechanics' Hall. Surgery was on the program in the morning each day with medical subjects in the afternoon. Among other features was a clinic on poliomyelitis and a symposium on the management of anesthetic emergencies, with a total of 22 different subjects during the meeting. Dr. Alexander Marble, Boston, was chairman of the television committee and the program was presented in cooperation with the Smith, Kline and French Laboratories of Philadelphia.

The motion picture program, prepared with the cooperation of Dr. Norman Lenson, Boston, was shown on a definite schedule each morning and afternoon. There were 48 films and in some instances the authors were present to discuss their findings. Among other features was a panel discussion on carcinoma of the breast. In addition to the daytime program there was a special film program in the Statler Hotel on Wednesday evening with the authors introducing their films and answering questions. Myasthenia gravis was shown by Dr. Henry R. Viets, Boston, and hepatic lobectomy by Dr. George T. Pack, New York.

The Scientific Exhibit was located in close proximity to the meeting rooms and proved exceedingly popular. There were 88 exhibits presented by leading teachers and investigators of the United States, with one exhibit from Canada. The subjects covered a wide range of topics selected for their general interest to the physician in general practice. Special features included fractures under a committee of which Dr. Ralph G. Carothers, Cincinnati, was chairman, and manikin demonstrations on problems of delivery, with a program arranged by Dr. Robert H. Barker, Boston. The diabetes exhibits were supplemented by question and answer conferences on diabetes under the chairmanship of Dr. Howard F. Root, Boston, with daily programs from 11 a. m. until 2 p. m.

Chicago Annual Meeting

The program for the Chicago Annual Meeting was excellent, with more than 2,000 physicians and scientists participating in lectures, color television, motion pictures, and scientific exhibits.

General lectures were given on Monday which included a symposium on poliomyelitis; and on Friday morning, consisting of a symposium on traffic accidents. The 21 sections met Tuesday, Wednesday, and Thursday, with a combined meeting Friday morning between the Sections on General Practice and Diseases of the Chest on arteriosclerotic heart disease. This drew a large audience.

The sections presented 244 papers in addition to which there were 30 panel discussions, symposiums and round tables. Attendance at section meetings varied from a high of 523 to a low of 35. Most of the sections held combined meetings with other sections at least once during the week. Meeting rooms were of necessity scattered over a considerable area, and in spite of the best efforts of all concerned some were not too desirable.

Color television and motion pictures were located on Navy Pier and presented complete programs throughout the week. Color television originated at the University of Illinois Research Hospital, where the demonstrations took place while a coordinator assisted with a discussion for the audience. The motion picture program during the day was supplemented by one evening program with a symposium on Diseases of the Gallbladder and Common Duct. Dr. Warren H. Cole, Chicago, served as moderator while the authors introduced their films and answered questions from the audience. A group of Russian films were shown another evening.

The Scientific Exhibit on Navy Pier was spectacular for the beautiful exhibits displayed. There were 320 exhibits in all, arranged in groups dealing with the respective specialties. Several of the sections presented special features, chief among which were cardiovascular demonstrations by the Section on Internal Medicine, pulmonary function testing by the Section on Diseases of the Chest, gross pathology by the Section on Pathology and Physiology, and physical examinations for physicians conducted by the Section on General Practice. Results of 1,000 examinations indicated that 85% of the physicians examined were normal, while 15% showed some pathology. The Section on Urology held a formal discussion of all urology exhibits each morning at 10 o'clock. Other features of the Scientific Exhibit included the special exhibit on fractures, under the chairmanship of Dr. Ralph G. Carothers, Cincinnati; the exhibit symposium on traffic accidents arranged by Dr. Fletcher D. Woodward, Charlottesville, Va.; and the exhibit symposium on arthritis and rheumatism arranged by Dr. John W. Sigler, Detroit. There were two question and answer conferences in connection with the exhibits—one on diabetes from 10 a. m. to 2 p. m. daily under the chairmanship of Dr. Howard F. Root, Boston, and one on cardiovascular diseases presented by an outstanding group of cardiologists under the leadership of Dr. George E. Burch, New Orleans.

Medal awards were presented to six exhibits, while section awards consisted of 22 certificates of merit, 27 honorable mentions, and two certificates of appreciation. The Committee on Awards, under the chairmanship of Dr. Frank Konzelmann, Washington, D. C., worked faithfully and conscientiously to bring in a good report. Assistance was given by section officers, who made recommendations to the Committee on Awards. In addition to the above awards, the Section on Ophthalmology presented a prize of $250 to the best exhibit in that section and the Section on Urology presented two John Morrissey Awards.

Admission to the Scientific Exhibit, as well as to color television and motion pictures, was restricted to physicians only on two mornings. This reduced the attendance to some degree, but a greater factor was the extreme heat and long distances to walk. Busses that circulated continuously the length of Navy Pier were very popular. The Council is deeply concerned about the inadequacies of lecture rooms and exhibit facilities which reflect upon the success of the meeting as a factor in graduate medical education.

Motion Pictures and Medical Television

During the past year, the Board of Trustees transferred the work of the Committee on Motion Pictures and Medical Television from the Bureau of Exhibits to the Council on Scientific Assembly. The committee was disbanded, but members were retained as consultants to the Council, and the title of the secretary of the committee was changed to Director of Motion Pictures and Medical Television. Mr. Daryl Miller, formerly production manager for a medical film producer, joined the staff in December, 1955, as an assistant to the Director.

Film Library.—Nineteen new films were added to the motion picture film library making a total of 852 prints of 147 subjects. During the year 3,504 films were lent to medical societies, medical schools, hospital staff groups, individual physicians, and television stations. This represents an increase of approximately 500 film shipments in comparison with the previous year. The income from service charges was approximately $8,050.

In addition to the above films, 80 prints were placed in the library for distribution by the Public Relations Department and the Bureau of Health Education, representing approximately 15% of the total number of prints in the regular film library. There is a definite need for additional space to store and handle the increased volume.

Film Reviews.—In cooperation with specialists in various fields of medicine, surgery, and health education, 76 reviews of medical and health films were published in The Journal. Fifteen reviews were prepared for publication in *Today's Health*. Based on letters received following each publication, this new feature in *Today's Health* has proved to be extremely popular.

Conferences and Meetings.—Special mention should be made of the continued interest and popularity of evening film sessions which started a few years ago at the annual meetings. An evening film symposium on "Diseases of the Gallbladder" was very well attended at the Annual Meeting this year. During the year, the Director addressed several national organizations including the New England Health Education Association, the New York and Midwest Pharmaceutical Advertising Clubs, the Society of Motion Picture and Television Engineers, and the Calvin Motion Picture Workshop. At the request of the Los Angeles County Medical Association, the Director assisted in the organization of the film program for the Cavalcade of Health cards at the source where the information is verified will improve the decks of punchcards and should be useful to other departments. The transition from the old system which has been under the direction of the Director for the past 10 years took place during August, 1956, through the establishment of a coordinator. The Director believes that the new system can improve the use of IBM machines and staff at headquarters. Hence, this is the last report of the present Director dealing with the IBM section of the Bureau which has performed extensive services during the past 10 years not only for the Bureau's research program but for many departments, committees, and councils at headquarters.

Report of the Directory-Biographical Department

During the period of this report, from July 1, 1955, to June 30, 1956, the publication of the 19th edition of the American Medical Directory was completed, and copies of the book were shipped to subscribers.

On the basis of schedules furnished by the printer in Minneapolis about the middle of 1955, it had been expected that printing of the book would be completed in 30 consecutive working days beginning Nov. 1. The printer, however, required more than five months to print this edition, completing the last form during the fourth week of April, 1956. There was a further delay of several weeks when it became necessary to rerun some forms of which a sufficient number had not been printed, so that binding of a total of 17,258 copies of the 1956 edition was not completed until the end of August, 1956.

The new Directory, the first since 1950, contains 3,122 pages, with biographical information on 240,638 physicians in the United States, its dependencies, and Canada, and on American graduates temporarily located in foreign counties. Since the 1950 Directory, more than 250,000 changes of address have been recorded in the files of the Directory-Biographical Department, 46,348 names of physicians have been added, 24,225 deleted because of death, and an additional 1,172 deleted for other reasons.

In the body of the Directory, which is arranged by state (or province), city, and name of physician, the biographical data show, whenever available, the year of birth, medical school and year of graduation, year licensed in state in which located, type of membership held in the American Medical Association, other national medical society affiliations, specialty practiced, certification by a specialty board, professorships, and residence and office addresses. This section also contains a list of physicians whose addresses are unknown, and a list of the physicians whose names were entered in the files of the Directory-Biographical Department after publication of the 18th Edition in 1950 and who have since died.

To gain space so that the Directory could include in a single volume information on more physicians, it was necessary to make some editorial changes. The list of members of special societies, which formerly appeared in the front section of the Directory was deleted, but symbols to indicate memberships in national medical organizations appear in the biographical data of the physicians. A special committee of the Board of Trustees revised the criteria for the listing of membership in national medical organizations, and the societies whose members are eligible for listing in the physicians' data are given in the key to abbreviations and symbols, which is reprinted in several locations in the book.

In the 1956 Directory, the total number of physicians listed in the United States is 218,061, a gain of 16,784 over the number in the 1950 edition, or an average yearly gain for the past six years of 2,797. For Canada, the 1956 Directory lists 17,906 physicians, a gain of 3,310 over the 1950 total, or an average yearly gain of 551. The Pacific states show the largest increase in physicians for 1956, with a gain of 23% over the 1950 figures; the South Atlantic and the Mountain states show gains of about 16%; and the Central, Middle Atlantic, and New England states show small gains. California leads the other states in the number gained, with 20,763 physicians in the 1956 Directory as compared with 16,668 in the 1950 edition, a gain of 24.6%. Florida, showing a gain of 49.8%, lists 4,530 physicians as compared with [illegible],025 in 1950. Texas shows a gain of 1,026 physicians; Ohio, [illegible]; Michigan, 963; and New York, 934. Among the smaller states showing a substantial increase in the number of physicians are Arizona, New Mexico, Oregon, and Utah. Slight losses in the number of physicians are indicated in the 1956 Directory for Arkansas, Illinois, Iowa, Missouri, Vermont, and West Virginia.

Five tables of statistical information on the medical profession and hospitals appear in the front section of the 1956 Directory. The table showing the distribution of physicians by specialty in the United States and Canada has been expanded to give a breakdown of those who claim to be interested in a specialty, those who claim to limit their practice to a specialty, and those who have been certified as specialists by an examining board in a medical specialty.

In another of the tables of statistical information, showing the number of physicians by states, classified as to type of practice, it is indicated that 30% of the physicians in the United States are in general practice; 31% limit their practice to a specialty; 10% give special attention to a specialty but do not limit their practice to it; 11% are serving internships or residencies; an additional 6% are in other full-time hospital services; 5% are retired or not in practice; 4% are not in private practice; and 3% are temporarily in military service or serving in various government agencies.

Other tables of statistics compare the number of physicians and hospitals in the current edition with the numbers in the 1950 edition; the number of physicians listed by state in each edition of the Directory beginning with Volume 1, in 1906, and similar figures by state showing the number of hospitals in each edition since 1906.

The 1956 edition, for the first time, gives recognition to the work of the Woman's Auxiliary to the American Medical Association by listing its various officers for the current year. Also new in the 1956 Directory are the list of Honorary members of the American Medical Association and the list of Affiliate members who are not otherwise listed in the Directory.

In itself, the publishing of the Directory is a tremendous undertaking, requiring an experienced, well-trained, and adequate staff to compile, edit, and record the vast amount of information received from the medical profession, various official bodies, medical schools, medical societies, alumni associations, and governmental agencies. The Directory-Biographical Department carries on not only the work of compiling and editing the Directory but also the equally important task of maintaining biographical records for the convenience and information of other departments, councils, and bureaus of the Association, outside organizations, the medical profession, and the general public. The Department serves as a clearing house of information on the medical profession, as its geographical files, which contain information on professional affiliations, faculty appointments, changes in type of practice, and local addresses provide a continuing biographical history of each physician. The physician's history, which can be readily ascertained from the manual cards, has proved to be of considerable value in the work of the Association, especially in view of the fact that under the various electronic methods commonly employed for statistical or addressing purposes, the historical continuity of the physician's biography is either lost or becomes, for practical purposes, unavailable. From July 1, 1955, to June 30, 1956, the Department has supplied information on the medical profession in answer to an average of 125 telephone calls a day and more than 5,000 mail inquiries during the 12-month period. It is estimated that, during the same period, 15,000 membership applications have been checked for the Secretary's Office; 2,000 applications have been verified for four examining boards in a medical specialty and a national medical organization; 6,000 license applications had already been processed for the Council on Medical Education and Hospitals until the procedure was recently placed under the jurisdiction of the Directory-Biographical Department.

The Department also furnishes, through its semimonthly Directory Report Service, the basic information for the I. B. M. files. A new section added to the Service during the early months of 1956 reports changes in type of practice, specialty, and appointments.

The files of the Department are also routinely used by personnel of the Membership-Circulation Department to identify the remitters of membership dues, to ascertain current addresses and to verify eligibility to exemption from the payment of dues on the basis of postgraduate training, temporary military service retirement, or attainment of age 70. The Directory-Biographical Department regularly checks, for various headquarters units, information on authors, participants in meetings and conferences, prospective advertisers, and other correspondents. Every effort is made to perform the services requested by alumni associations, medical societies, and allied organizations in supplying information concerning members of the medical profession.

With the distribution of the 1956 edition of the Directory, there has been some lessening of inquiries, as use is made of copies available for reference. To date, more than 16,000 copies of the 1956 Directory have been shipped, and it is expected that the entire issue will be exhausted before the next edition is published. The House of Delegates in June, 1955, recommended that the Directory be issued at intervals of two years. At that time approval was also given to the proposal that there be omitted from the next edition the Medical Practice Acts and the residence addresses of physicians, which changes should make it possible to continue to issue the Directory in a single volume for at least another edition.

An analysis of the subscriptions received for the Directory indicates that the book fulfills a professional, rather than a commercial, need. To the end of July, 1956, copies were distributed as follows:

Type of Subscriber	*Percentage of Total Orders*
Physicians, for individual use	44.1
Hospitals and clinics	21.2
Libraries	3.3
Health Departments	1.4
Federal agencies	3.2
Medical societies	2.9
Medical schools	3.2
Insurance companies	5.1
Commercial firms, miscellaneous	15.6
	100.0

In addition to income received from the sale of the Directory, which has a list price of $30, and of advertising space in the book, revenue to cover the cost of compilation is received from subscribers to the Directory Report Service. This supplementary service is furnished on a subscription and service-fee basis to large mailers of circular material, and to authorized addressing companies. However, because of the cost of printing the 1956 edition will be in excess of $310,000, the cost of binding about $37,000, paper stock about $33,000, packing and shipping costs over $22,000, in addition to editorial costs of about $1,155,000 during the five-year period, it is expected that income on the current edition will not greatly exceed expenses.

Investigations carried on in the Department during 1955 and 1956 point to the fact that printing costs on future editions of the Directory can be materially reduced through the use of a combination of panel-index cards and offset printing, instead of the current use of letterpress printing. Economies have already been effected in the Department by a reduction of office personnel from a previous ceiling of 125 employees to a current staff of 85 persons, and it is expected that the establishment of a regular biennial schedule of publication will make it possible to work out longer-range plans that should bring about further economies in the cost of compilation without restricting the extent and value of services rendered by the Directory-Biographical Department to other units of the Association and to the medical profession at large.

Respectfully submitted,

Gunnar Gundersen, Chairman.
F. J. L. Blasingame, Vice Chairman.
Edwin S. Hamilton, Secretary.
James R. Reuling.
James R. McVay.
Hugh H. Hussey.
Leonard W. Larson.
Thomas P. Murdock.
Julian P. Price.
Dwight H. Murray.
David B. Allman.
F. S. Crockett.
Josiah J. Moore.
E. Vincent Askey.
Louis M. Orr.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

During the course of the past year the Judicial Council has held its usual number of meetings and has considered in the neighborhood of 1200 inquiries concerning interpretations and applications of the Principles of Medical Ethics of the American Medical Association. The majority of the inquiries pertained to the following subjects: associations between physicians and osteopaths; associations between physicians and optometrists; ownership of drugstores or pharmacies either by individual physicians or by groups of physicians; advertising by physicians; solicitation of patients; and remuneration of physicians for rendering medical services to another physician or his dependents. All of these subjects have been commented on in past annual reports of the Council.

The Council heard two appeals during the year. After careful review of the records and arguments in each case, the Council came to the conclusion that the county societies and state associations concerned had observed and properly followed the provisions of their constitutions and bylaws. In each instance the Judicial Council sustained the action of the state association affirming the decision of the county society.

The appeal proceedings before the Judicial Council were conducted under the Rules of the Judicial Council adopted Oct. 1, 1954. In each appeal the appellant-physician and the medical societies were represented by legal counsel. The Council is impressed with the effort legal counsel made to bring all facts and arguments of value to its attention. The Council believes that members of the legal profession like members of the medical profession, have respect for ethical principles, and that the practice of permitting parties to hearings to be represented by attorneys has proved successful. The Council has made full use of the services of the Law Department of the Association and is indebted to it for much valuable assistance.

The Council recommends to county societies and state associations that they seek the advice of their attorneys, particularly when it may be anticipated that appeal or legal proceedings will result from some action contemplated or taken by the medical organization. This recommendation is offered as one means of preventing error which may lead to costly litigation.

Discipline by Resolution

The Council would repeat comments previously made in its reports to this House concerning short cuts to discipline. Attempts are being made by some societies to regulate undesirable conduct or situations by hastily considered and adopted amendments to bylaws, by the adoption of resolutions or the establishment of rules of conduct directed to a specific, undesirable practice existing at the moment. Sometimes small regard is paid to the provisions of established constitutions and bylaws and short cuts to disciplinary action are sought, usually by making loss of membership automatic on violation of the newly adopted bylaw, resolution, or rule of conduct.

Such procedures are undesirable for several reasons. They, in effect, represent power politics and government by minority. They usually stem from passion and prejudice rather than from reason. They fail to correct basic errors of judgment predicated on false premises. Most importantly they may occasion loss of membership in a county society, with consequent loss of membership in the constituent association and in the American Medical Association, for an action which although disapproved of locally may be considered neither unethical or improper in other communities. Such procedure creates the impression that there is no uniformity of principles within medicine. The Principles of Medical Ethics are broad and are adequate to cover situations where loss of medical society membership may be indicated.

Local Construction and Interpretation of Principles

Altogether too infrequently the Judicial Council receives notice of interpretations or discussions of medical ethics by councils or boards of censors of medical associations and societies, or by editors of medical and related journals. This is unfortunate. These interpretations and expressions are of interest to the Council and the profession generally and should receive wider distribution. It is the earnest wish of the Council that it be furnished copies of these expressions or interpretations, or that it be given notice of them. As the Council continues to publish its opinions in THE JOURNAL it can accept and publish, for the benefit of the profession, significant opinions of these councils, boards of censors, and editors. At present, the profession at large has but little advantage of the constructive thinking of these informed groups.

The application of the Principles of Medical Ethics locally is inevitable and necessary. Interpretations at that level are less frequently necessary. In either situation, however, it is only with full knowledge of all the facts involved, including the intent of the one charged with violating ethical principles, that just and proper results can be achieved. Except in isolated instances the local society alone is in a position to obtain and analyze all the facts and properly apply the Principles of Medical Ethics.

How ethical principles have been applied in a given factual situation constitutes precedent which should become available as a guide to the solution of subsequent problems of other physicians and medical societies. The Judicial Council has the staff and facilities to receive reports of applications of the Principles, to index and annotate them, and to publish such of them as are of practical importance. Such precedents may be all that is needed to prevent an unintentional infringement of ethical principles or to halt a practice, just beginning, which inevitably will lead to unethical conduct.

Charges of Unethical Conduct

The Judicial Council is of the opinion that the preparing of formal charges of unethical conduct and the holding of hearings thereon should be reserved for situations in which investigation has established a prima facie case of unethical conduct. Physicians are presumed to be ethical. Only reasonable grounds for believing unethical conduct occurred warrants the bringing of charges and the scheduling of a hearing. When the conduct of men of high ideals is questioned, caution should be exercised. The accuser has the burden of establishing that there is reasonable ground for believing that an unethical act has been committed. The accused should never be required to prove first that he is innocent of an alleged or suspected violation of ethical principles.

When the ethical conduct of a physician is questioned it is not only *his* reputation and career that is at stake, but the dignity of the profession is also challenged. The serious nature of a charge of unethical conduct demands judicious management in order to protect the reputation of the individual physician and to maintain the dignity and honor of the profession. Mature, objective, discreet, preliminary investigation would seem to be imperative. While medical organizations have an obligation to consider complaints, this obligation does not require blind, defensive, or precipitous action. A preliminary investigation is necessary. Often it may disclose the existence of a simple misunderstanding; it may reflect unfamiliarity with local custom and practice; it may result in corrective action being taken voluntarily without adverse reflection on physician or profession. When and if the existence of a serious situation is disclosed and when it is established that there is reasonable ground for believing that ethical principles have been violated, charges should then be prosecuted.

Admittedly heavy responsibility rests with the officers and members of component and constituent medical societies for the maintenance of high ethical standards. That this responsibility is discharged well is proved by the caliber of the medical profession in the individual community. To the countless number of physician members of this Association, who, in their local societies furnish leadership, counsel, advice, and example in the observance of ethical standards the Judicial Council says "well done."

Proposed Principles of Medical Ethics

As directed by the House of Delegates, the Judicial Council met jointly with the Council on Constitution and Bylaws during this past year to consider a proposed revision of the Principles of Medical Ethics submitted to the House for its consideration at its Boston, 1955, session. As a result of this joint meeting, a subsequent draft of the Principles of Medical Ethics was prepared and submitted to the House of Delegates at its Chicago, 1956, session. This second proposed revision consists of a preamble and 10 sections which, in the opinion of the members of the two Councils, embrace the ethical concepts set forth at length in the present version of the Principles of Medical Ethics.

The Judicial Council is pleased to know that there has been a rather wide publication of these "proposed Principles," because if adopted they will represent *the* Principles of Medical Ethics of the American Medical Association. Thorough discussion of them by the members of the Association is necessary if they are to be the correct and accurate expressions of those fundamental concepts which guide the physician to ethical conduct.

The Judicial Council has endorsed these proposed principles but it would be remiss if it did not insist that they be thoroughly considered and understood before being put to a vote and adopted. Every effort should be made to insure that any revision accepted by this House of Delegates will reflect credit to the Association and become a permanent document for the guidance of all physicians in the ethical practice of their profession.

Respectfully submitted,

HOMER L. PEARSON, JR., Chairman.
LOUIS A. BUIE.
J. MORRISON HUTCHESON.
ROBERTSON WARD.
GEORGE A. WOODHOUSE.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

The Council on Medical Education and Hospitals submits the following report covering the period from July 1, 1955, to June 30, 1956.

During this period the Council has concerned itself with the various matters referred to it by the House of Delegates, and in the conduct of its numerous established functions. The latter include the survey and evaluation of medical schools, survey and evaluation of graduate medical education offered through internships, residencies, and fellowships, the collection of data on and listing of postgraduate opportunities in medical education, and the evaluation of certain technical school programs. In the conduct of these functions the Council and its staff have endeavored to contribute to and stimulate continuous study and progress in medical education at all levels. Such activities have necessitated consultations, conferences, collaboration, liaison, and intercommunication with an ever increasing number of individuals and groups representing medical schools, hospitals, agencies, organizations, and institutions interested in and concerned with medical education in some or all of its aspects. Accreditation of undergraduate and graduate programs in medical education, together with the collection, compilation, and dissemination of statistical and other information concerning medical schools, internships, residencies, postgraduate courses, medical licensure, and related matters have all proceeded in line with established custom.

In cooperation with representatives of other agencies (the Association of American Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards of the United States), the Council aided in completion of the basic studies associated with the organization of the Evaluation Service for Foreign Medical Graduates. It has also continued the study of postgraduate medical education and is currently engaged in developing "basic guides" for programs in this field. Pursuit of other established functions has necessitated further studies in relation to internship, the establishment of an advisory committee on physical therapy education, cooperation in planning Medical Education Week, cooperation in association with other councils and committees in the studies made on the Joint Commission on Accreditation of Hospitals and the private practice activities of full-time faculty personnel. The Council has also engaged in the review of the proceedings of the first World Conference on Medical Education and is cooperating in the initial planning of the second World Conference on Medical Education scheduled for 1959 in Chicago. In February, 1956, the Council carried the major responsibility for the program of the 52nd Annual Congress on Medical Education and Licensure which brought together the largest group of medical educators and practitioners ever to attend such a program.

it be given notice of them. As the Council continues to publish its opinions in The Journal it can accept and publish, for the benefit of the profession, significant opinions of these councils, boards of censors, and editors. At present, the profession at large has but little advantage of the constructive thinking of these informed groups.

The application of the Principles of Medical Ethics locally is inevitable and necessary. Interpretations at that level are less frequently necessary. In either situation, however, it is only with full knowledge of all the facts involved, including the intent of the one charged with violating ethical principles, that just and proper results can be achieved. Except in isolated instances the local society alone is in a position to obtain and analyze all the facts and properly apply the Principles of Medical Ethics.

How ethical principles have been applied in a given factual situation constitutes precedent which should become available as a guide to the solution of subsequent problems of other physicians and medical societies. The Judicial Council has the staff and facilities to receive reports of applications of the Principles, to index and annotate them, and to publish such of them as are of practical importance. Such precedents may be all that is needed to prevent an unintentional infringement of ethical principles or to halt a practice, just beginning, which inevitably will lead to unethical conduct.

Charges of Unethical Conduct

The Judicial Council is of the opinion that the preparing of formal charges of unethical conduct and the holding of hearings thereon should be reserved for situations in which investigation has established a prima facie case of unethical conduct. Physicians are presumed to be ethical. Only reasonable grounds for believing unethical conduct occurred warrants the bringing of charges and the scheduling of a hearing. When the conduct of men of high ideals is questioned, caution should be exercised. The accuser has the burden of establishing that there is reasonable ground for believing that an unethical act has been committed. The accused should never be required to prove first that he is innocent of an alleged or suspected violation of ethical principles.

When the ethical conduct of a physician is questioned it is not only *his* reputation and career that is at stake, but the dignity of the profession is also challenged. The serious nature of a charge of unethical conduct demands judicious management in order to protect the reputation of the individual physician and to maintain the dignity and honor of the profession. Mature, objective, discreet, preliminary investigation would seem to be imperative. While medical organizations have an obligation to consider complaints, this obligation does not require blind, defensive, or precipitous action. A preliminary investigation is necessary. Often it may disclose the existence of a simple misunderstanding; it may reflect unfamiliarity with local custom and practice; it may result in corrective action being taken voluntarily without adverse reflection on physician or profession. When and if the existence of a serious situation is disclosed and when it is established that there is reasonable ground for believing that ethical principles have been violated, charges should then be prosecuted.

Admittedly heavy responsibility rests with the officers and members of component and constituent medical societies for the maintenance of high ethical standards. That this responsibility is discharged well is proved by the caliber of the medical profession in the individual community. To the countless number of physician members of this Association, who, in their local societies furnish leadership, counsel, advice, and example in the observance of ethical standards the Judicial Council says "well done."

Proposed Principles of Medical Ethics

As directed by the House of Delegates, the Judicial Council met jointly with the Council on Constitution and Bylaws during this past year to consider a proposed revision of the Principles of Medical Ethics submitted to the House for its consideration at its Boston, 1955, session. As a result of this joint meeting, a subsequent draft of the Principles of Medical Ethics was prepared and submitted to the House of Delegates at its Chicago, 1956, session. This second proposed revision consists of a preamble and 10 sections which, in the opinion of the members of the two Councils, embrace the ethical concepts set forth at length in the present version of the Principles of Medical Ethics.

The Judicial Council is pleased to know that there has been a rather wide publication of these "proposed Principles," because if adopted they will represent *the* Principles of Medical Ethics *of* the American Medical Association. Thorough discussion of them by the members of the Association is necessary if they are to be the correct and accurate expressions of those fundamental concepts which guide the physician to ethical conduct.

The Judicial Council has endorsed these proposed principles but it would be remiss if it did not insist that they be thoroughly considered and understood before being put to a vote and adopted. Every effort should be made to insure that any revision accepted by this House of Delegates will reflect credit to the Association and become a permanent document for the guidance of all physicians in the ethical practice of their profession.

Respectfully submitted,

Homer L. Pearson, Jr., Chairman.
Louis A. Buie.
J. Morrison Hutcheson.
Robertson Ward.
George A. Woodhouse.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

The Council on Medical Education and Hospitals submits the following report covering the period from July 1, 1955, to June 30, 1956.

During this period the Council has concerned itself with the various matters referred to it by the House of Delegates, and in the conduct of its numerous established functions. The latter include the survey and evaluation of medical schools, survey and evaluation of graduate medical education offered through internships, residencies, and fellowships, the collection of data on and listing of postgraduate opportunities in medical education, and the evaluation of certain technical school programs. In the conduct of these functions the Council and its staff have endeavored to contribute to and stimulate continuous study and progress in medical education at all levels. Such activities have necessitated consultations, conferences, collaboration, liaison, and intercommunication with an ever increasing number of individuals and groups representing medical schools, hospitals, agencies, organizations, and institutions interested in and concerned with medical education in some or all of its aspects. Accreditation of undergraduate and graduate programs in medical education, together with the collection, compilation, and dissemination of statistical and other information concerning medical schools, internships, residencies, postgraduate courses, medical licensure, and related matters have all proceeded in line with established custom.

In cooperation with representatives of other agencies (the Association of American Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards of the United States), the Council aided in completion of the basic studies associated with the organization of the Evaluation Service for Foreign Medical Graduates. It has also continued the study of postgraduate medical education and is currently engaged in developing "basic guides" for programs in this field. Pursuit of other established functions has necessitated further studies in relation to internship, the establishment of an advisory committee on physical therapy education, cooperation in planning Medical Education Week, cooperation in association with other councils and committees in the studies made on the Joint Commission on Accreditation of Hospitals and the private practice activities of full-time faculty personnel. The Council has also engaged in the review of the proceedings of the first World Conference on Medical Education and is cooperating in the initial planning of the second World Conference on Medical Education scheduled for 1959 in Chicago. In February, 1956, the Council carried the major responsibility for the program of the 52nd Annual Congress on Medical Education and Licensure which brought together the largest group of medical educators and practitioners ever to attend such a program.

Matters Referred to the Council by the House of Delegates

At the December, 1955, meeting the Reference Committee on Insurance and General Practice reviewed Resolution No. 28 on General Practice introduced by Dr. Kenneth C. Sawyer of Colorado. This resolution directed the Council on Medical Education and Hospitals to stimulate the formation of general practice departments in medical schools, to develop and utilize means to implement, improve, and extend the two-year general practice internship-residency program and that the Council also be instructed to implement the policy approving staff rules of hospitals permitting generalist staff privileges in the departments of medicine, pediatrics, obstetrics, and surgery in accordance with demonstrated professional competence and experience. This resolution with three others, Nos. 11, 12, and 20, dealing with the same subject were presented in the form of a substitute resolution which set up a Continuing Committee on Medical Practice to conduct studies in this over-all area. The Council on Medical Education and Hospitals has cooperated with the Council on Medical Service in furnishing background material for this committee and staff members have also met with the committee at its request and will assist in further studies as indicated.

Resolution No. 33 introduced in December, 1955, by Dr. J. M. Kolb of Arkansas requested that the American Medical Association through its Council on Medical Education and Hospitals encourage hospital staff rules which permit the general practitioner staff member privileges in the specialty departments in keeping with his merit and demonstrated ability. The reference committee indicated its agreement with the intent of the resolution and its adoption. The Council on Medical Education and Hospitals has long been in agreement with the intent of the resolution. It recognizes, however, that staff appointments are the concern of the medical staff, administration, and board of trustees of the individual hospitals and that, although it can advise, the final determination of policies falls within the jurisdiction of the hospital administrative mechanism. The Council wishes to point out that it endeavors even in its "Essentials of Approved Residencies and Fellowships" to indicate that "the particular specialties in which residents are being trained should be represented in the staff by *well qualified, experienced and proficient physicians, whether or not they hold membership in special societies and colleges or are certified in their specialty.*"

At the June meeting in 1956 resolutions No. 11 and 38 were considered together by the Reference Committee on Medical Education and Hospitals because they both dealt with the type of internship which may provide the best background for medical practice. The reference committee indicated its belief that there is a growing body of opinion within the profession in favor of the rotating internship, but also recognized the educational merits of the 10% of all internships classified as "straight" services. The House of Delegates adopted the substitute resolution that the Council on Medical Education and Hospitals increase its efforts to encourage rotating internships rather than straight internships in all of the hospitals approved for the latter, and that a report of these efforts be submitted annually. The Council wishes to indicate that in its "Essentials of an Approved Internship" it is stated that "It is the opinion of the Council that the best general, basic education is provided by a well organized and conducted rotating internship." Furthermore the Council indicates that many states require a rotating internship as a prerequisite for licensure. In another section of this annual report the Council presents an analysis of the internship situation over the past six years. It will be noted that the total number of all internships has increased over this period, and that the relationship of straight and rotating internships has remained essentially the same with approximately 10% of the former and 88 to 89% of the latter.

The Council wishes to indicate that it recognizes the importance of "flexibility and judgment in the application of any set of standards to a particular local situation," as was recommended by the reference committee in reporting on Resolution No. 32 at the June, 1956, meeting, and that it endeavors to conduct its survey and evaluation activities in keeping with such philosophy.

Resolution No. 12 concerning schools of inhalation therapy and the development of essentials for such schools was referred to the Council on Medical Education and Hospitals in June, 1956. Currently the staff of the Council is engaged in the collection of background information. A report on this will be made at a later date.

Resolution No. 34 pertaining to lectures on medical ethics and related matters was brought to the attention of the Council at the June, 1956, meeting. The Council wishes to indicate that in its 55th Annual Report on Medical Education in the United States and Canada (1955) it presented the findings of a questionnaire inquiry on the teaching in medical schools of legal medicine, medical ethics, medical economics, medical public relations, and medical history. All but six of the four-year schools were reported to be conducting lectures on medical ethics and related matters. Through editorials, conferences, and communications with the schools the Council has endeavored to stress the importance of basic instruction in medical ethics, and it will continue to do so. It will also encourage medical schools to seek the cooperation of the county and state medical societies in basic indoctrination in medical ethics for medical students and recent medical graduates.

Following adoption by the House of Delegates in December, 1955, of the recommendation for revision of the "Essentials of An Approved Internship," the publication of the revised material has been authorized and distribution made.

In cooperation with the Council on Medical Service, the Council on Medical Education and Hospitals presented a preliminary report on the study of the private practice activities of full-time faculty personnel at the meeting of the Congress on Medical Education and Licensure in February, 1956. Subsequently when the House of Delegates adopted the final report of the Council on Medical Service and its recommendations at the June, 1956, meeting the Council on Medical Education and Hospitals has undertaken to present this material in full to medical schools through the medium of the 56th Annual Report on Medical Education in the United States and Canada scheduled for publication on Aug. 25, 1956.

In 1954 several resolutions dealing with problems presented by graduates of foreign medical schools were presented to the House of Delegates and it also received a report of a special committee of the Board of Trustees on the same subject. The problem of further study in this area was referred to the Council on Medical Education and Hospitals. Over the succeeding two-year period the Council spearheaded the organization of the Cooperating Committee on Graduates of Foreign Medical Schools with interval reports to the Board of Trustees. This study culminated in the recommendation for the establishment of an "Evaluation Service for Foreign Medical Graduates," a resumé of which was reported to the House of Delegates for action in June, 1956. The House of Delegates at that time approved the principle of establishing a separate organization to evaluate the medical qualifications of foreign-trained physicians seeking further training in United States hospitals. The Association of American Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards of the United States also approved this principle. Subsequent to the action of the House the "Evaluation Service for Foreign Medical Graduates was organized under the Not-for-Profit Act of the State of Illinois. Each of the parent organizations named two representatives to serve as the board of trustees of the new evaluation sevice. The organization is now under way, and it is anticipated that it may be in operation by the latter half of 1957.

Medical School Accreditation

During the academic year 1955-1956, medical schools at the following institutions were surveyed by representatives of the Council on Medical Education and Hospitals and the Association of American Medical Colleges:

State University of New York, Syracuse
University of Miami
University of South Dakota
University of Maryland
Tulane University
Jefferson Medical College
University of Nebraska
Cornell University
Dartmouth Medical College
McGill University
University of Missouri
University of Vermont
Queen's University
University of Alberta
University of Mississippi

The educational programs in all instances were approved by the Council on Medical Education and Hospitals and the institutions granted membership in the Association of American Medical Colleges. Approval of the School of Medicine of the University of Miami increased the number of approved medical schools with full four-year programs to 76, since at the time of the survey, the School of Medicine at Miami had its four-year program in effect for the first time.

During the academic year 1956-57 liaison visits have been provisionally scheduled for the following medical schools:

Hahnemann, Philadelphia
University of Pittsburgh
University of Buffalo
Albert Einstein College of Medicine
Seton Hall University
Temple University
University of Mississippi
Medical College of Georgia
University of Miami
Albany Medical College
University of Florida
University of Missouri
St. Louis University
Laval University
University of Saskatchewan
Johns Hopkins University

Such provisional scheduling is subject to revision if circumstances so warrant.

The medical schools at the University of Mississippi and the University of Missouri during this year will have four-year programs in effect and if approved will increase the number of approved four-year medical schools in the United States to 78. Both of these institutions have expanded from two-year schools of basic medical sciences. The visits to Seton Hall College of Medicine and the College of Medicine at the University of Florida will be coincident with the implementation of the first-year course of instruction in these newly developing schools.

For a detailed report on the status of medical education in the United States and Canada, delegates of the House are respectfully referred to the Annual Report on Medical Education of the Council on Medical Education and Hospitals in the Aug. 25, 1956, issue of THE JOURNAL.

At the Boston meeting of the Liaison Committee on Medical Education it was voted that a policy be established of making liaison visits to newly developing medical schools annually so as to be in a position to express opinion to the school authorities and to the two Councils as to the merits of the program being formulated. At the previous meeting the Liaison Committee on Medical Education had concurred in recommendations of the two Councils for provisional approval of the first two years of a newly developing medical school program if findings warrant such action.

Congress on Medical Education and Licensure

The 52nd Annual Congress on Medical Education and Licensure held Feb. 11 to 14, 1956, at the Palmer House in Chicago was attended by nearly 1,000 registrants, making it by a considerable margin the largest group ever to attend such a session. The first day of the Congress was devoted to a Conference on Graduate Medical Education co-sponsored with the Advisory Board for Medical Specialties. This program dealing with the current problems in residency training, organization and administration, and basic science content elicited an interesting and lively audience participation. The second day was devoted to special meetings of the Advisory Board for Medical Specialties and the Federation of State Medical Boards of the United States. One-half day of the regular Council program in the third day was devoted to a report on "Trends in Specializations" and to the problems related to clinical faculty appointments and the private practice of medicine. At this session, which was co-sponsored by the Council on Medical Service, the preliminary findings of the survey and study being made on this problem were presented. Spokesmen for medical schools and for the medical profession subsequently presented their respective viewpoints, and discussion from the floor ensued. The Congress also heard presentations on the search for better ways in medical education and reports on a number of experimental approaches being made in medical schools. The final day of the Congress was devoted to the activities of the Federation of State Medical Boards.

Standing and Special Committees

The Council has numerous standing and special committees assigned to specific functions engaged individually or in cooperation with organizations concerned with certain areas of its activity. Each committee includes both Council and staff personnel and makes studies, reports, and recommendations to the Council for appropriate action.

STANDING COMMITTEES

Liaison Committee on Medical Education, which cooperates closely with the Executive Council of the Association of American Medical Colleges.

Liaison Committee with the Advisory Board for Medical Specialties, which concerns itself with matters of mutual interest to the Council and the various specialty boards.

Committee on Essentials, which is responsible for review, revision, and recommendations regarding the essentials underlying the numerous programs involving approval or accreditation in which the Council is engaged.

Liaison Committee with the American Hospital Association's Council on Professional Practices in areas concerned with specialists in allied fields (technical, etc.).

SPECIAL COMMITTEES

Ad Hoc Advisory Committee on Postgraduate Medical Education, which is studying the basis for development of "guides" to institutions and organizations developing programs in this area.

Committee on Foreign Medical Credentials, which cooperated in the development of the Cooperating Committee on Graduates of Foreign Medical Schools and in the establishment of the Evaluation Service for Foreign Medical Graduates.

Committee on Licensure, which cooperates with the Federation of State Medical Boards, and the Association of American Medical Colleges in problems of licensure as related to medical education.

Joint Committee on Medical Education in Time of National Emergency, composed of representatives of the Council and the Association of American Medical Colleges in cooperation with the Armed Forces Medical Services, Selective Service System, United States Public Health Service, and other government agencies in matters involving undergraduate and graduate medical education.

Internship Review Committee, which studies and evaluates internship programs and recommends action regarding approval to the Council.

Residency Review Committees and Conference Committees. These have been developed for the cooperative evaluation of residency training programs with representatives in each instance from the Council, the individual specialty board concerned, and certain specialty colleges such as the American College of Surgeons and the American College of Physicians. Currently there are 16 active committees of this nature meeting from one to three times annually. Up to the present time there are still no such committees for anesthesiology, obstetrics and gynecology, pathology, or thoracic surgery.

The Council also actively participates with other organizations in areas closely related with or impinging on the field of medical education, such as:

Joint Commission on Accreditation of Hospitals
National Internship Matching Program
American Medical Education Foundation
National Fund for Medical Education (Advisory Council)
National Board of Medical Examiners
Federation of State Medical Boards of the United States
Selective Service System
Education and Training Division, Surgeon General's Office, Department of the Army

The Council and its staff members collaborate with many other organizations and agencies with interest in one or more phases of medical education. Cooperation and effective intercommunication between the Council and these other groups directed toward mutual understanding and collaboration is one of the most demanding functions of the Council in terms of time, energy, and basic significance.

Graduate Medical Education

Several years ago the Council on Medical Education and Hospitals developed the basis for cooperation with specialty groups and organizations in this increasingly important field of medical education. Acting through committees set up in cooperation with these other groups the Council, in line with policies determined by it and the House of Delegates of the American Medical Association, is responsible for establishing standards of training in internship and residencies. It conducts a year-round hospital inspection program related to the educational activities of the hospital in these graduate areas. The Council subsequently develops the listing of hospitals in which internship and residency programs meeting the criteria established through the cooperative mechanism indicated are being conducted.

The staff of the Council, through conferences and correspondence, endeavors to provide consultative services to the medical staff and administrators of hospitals developing new programs or reorganizing previously established ones. In order to conduct this program in the area of graduate medical education the Council maintains liaison with all of the American Boards in the medical specialties and with the Advisory Board for Medical Specialties. In addition there is close liaison with the American Academy of General Practice, the American College of Physicians, the American College of Surgeons, the National Intern Matching Program, and many other agencies concerned with medical education at the graduate level. One of the important aspects of the Council's work in this area is the preparation of the Annual Report on Internships and Residencies for presentation in one of the fall issues of THE JOURNAL and the Residency Information Bulletin which appears at intervals of four months. The Council staff also revises and prepares for publication the various "Essentials" of programs in internship and residency education and training as approved and authorized by the Council and House of Delegates.

Internships

The Internship Section is responsible for the compilation of data regarding approved intern training programs which are presented in the Internship and Residency number of THE JOURNAL of the American Medical Association as the Annual Report on Internships and Residencies. It includes statistical data and other specific information on all hospitals approved by the Council for the training of interns. All other activities regarding the intern training programs for which the Council is responsible are handled in this section. The assistant secretary in charge acts as secretary of the Internship Review Committee.

The section works closely with the National Intern Matching Program, collaborating with the Program in the correlation of its activities with those of the internship programs of the Council.

The revised Essentials of an Approved Internship, in which were incorporated the recommendations made by the *Ad Hoc* Committee on Internships, were presented to the House of Delegates by the Council in December, 1955, and were adopted. The major changes included in the revision were:

1. The "one-fourth rule"
2. Reinstatement of the straight internship in pathology
3. The emphasizing of the educational aspects as being the primary aim of the internship

A copy of the revised Essentials was sent to each hospital administrator and intern committee chairman in all hospitals approved for the training of interns early in January, 1956. The covering letter called attention to the "one-fourth rule." Since a number of inquiries were received by the Council regarding this rule, in May, 1956, a letter concerning its interpretation and application was sent to the administrator and the intern committee chairman in all hospitals approved for internships.

Two resolutions, Nos. 11 and 38, were introduced into the House of Delegates at the June, 1956, Annual Meeting favoring the rotating internship. The Reference Committee on Medical Education and Hospitals considered these resolutions and reported as follows:

"Your reference committee believes that there is a growing body of opinion within the profession in favor of a rotating internship. It also recognizes the difficulties involved and the dangers to some established educational programs were action taken precipitously to disapprove straight internships, which are about 10% of the total number now approved. It recommends the following substitute resolution for resolutions 11 and 39:

Resolved, (1) That the Council on Medical Education and Hospitals be requested to increase its efforts to encourage rotating internships rather than straight internships in all hospitals approved for the latter; and (2) that a report of the results of this effort be submitted annually."

This portion of the reference committee's report was adopted by the House of Delegates.

At this time, straight internships are approved in medicine, surgery, pediatrics, pathology, and obsetrics-gynecology. In December, 1952, the House adopted the revised Essentials of an Approved Internship, which limited approval of straight internships to medicine, surgery, and pediatrics. Approval for straight internships in pathology was reinstated by the House in December. 1955. The effective date of discontinuation of straight internships in obstetrics-gynecology is June 30, 1957.

A recapitulation of statistical data for the past five years regarding internships by type of service and also straight internships appears in the accompanying table. These data are self-explanatory. It should be noted that during the past three years, 1953-1954-1955, while the number of internships of the rotating and straight types have both increased, the relative proportion between rotating and straight internships has remained constant—for this period, 89% of the total internships have been rotating, 10% straight.

Resume of Approved Internships, 1951-1955

	Internships														
	Rotating				Mixed				Straight				Totals	
Year	Approved Programs	No. of Internships	Percent of Internships	Occupancy Rate, %	Approved Programs	No. of Internships	Percent of Internships	Occupancy Rate, %	Approved Programs	No. of Internships	Percent of Internships	Occupancy Rate, %	Approved Programs	No. of Internships
1951	820*	9,581*	87	72	17	173	2	68	253	1,223	11	71	1,090	10,977
1952	860	9,497	90	72	21	130	1	75	167	921	9	79	1,048	10,548
1953	831	9,371	89	79	24	147	1	65	180	1,024	10	78	1,035	10,542
1954	834	9,807	89	82	25	132	1	82	203	1,109	10	85	1,062	11,048
1955	842	10,218	89	83	25	135	1	84	213	1,263	10	83	1,080	11,616

* Includes 9 unclassified programs approved for 159 internships.

Straight Internships

	Medicine			Surgery			Pediatrics			Obstetrics-Gynecology			Pathology			Totals	
Year	Approved Programs	No. of Internships	Occupancy Rate, %	Approved Programs	No. of Internships	Occupancy Rate, %	Approved Programs	No. of Internships	Occupancy Rate, %	Approved Programs	No. of Internships	Occupancy Rate, %	Approved Programs	No. of Internships	Occupancy Rate, %	Approved Programs	No. of Internships
1951	78	534	78	70	391	60	42	150	80	31	89	80	32	59	47	253	1,223
1952	72	433	84	58	342	73	37	146	80	..*	..	..	..*	..	..	167	921
1953	71	484	79	58	338	75	36	166	78	..†	..	..	15	36	81	180	1,024
1954	71	549	90	58	362	83	42	129	85	8	25	40	24	44	57	203	1,109
1955	73	625	90	64	396	80	44	157	82	8	35	60	24	50	64	213	1,263

* Data not available. † Programs not approved.

Internship Review Committee

The Internship Review Committee was organized in 1954 and is composed of representatives of organizations actively concerned with and interested in intern training programs. In addition to the representatives of the Council, there is a representative from the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards of the United States, and the American Academy of General Practice. The Committee acts in an advisory capacity to the Council in recommending approval or disapproval of new and currently approved intern training programs. It is responsible for evaluating the adequacy of internship programs on the basis of the reports of the Council's field representatives and the data submitted by the hospitals. The Committee also acts in a recommendatory capacity on matters of intern training requirements and associated policy.

In its brief period of operation, the Committee has become increasingly aware of the necesity for reasonable flexity in the interpretation of the requirements for internship approval, and of the advisability of giving a hospital an opportunity to improve its deficient program before approval is withdrawn. When a hospital does not measure up to the requirements, it is warned that its approvad status is in jeopardy and advised regarding the specific deficiencies noted at the time of inspection. Sufficient time for correction of these deficiencies is permitted before approval is actually withdrawn. This policy serves to emphasize the consultant attitude of the Committee and of the Council in regard to training programs.

The Committee is functioning effectively and is filling a real need in its work. It is continually working toward the objective of maintaining and elevating the standards of intern education.

National Intern Matching Program

The National Intern Matching Program has completed five years of successful operation as the agency through which medical school graduates receive appointments as interns in hospitals approved for such training by the Council on Medical Education and Hospitals. The primary function of the Program is to serve as a central clearing agency for medical students and hospitals; its aim is to provide an orderly method for giving effect to students' preferences regarding hospitals and hospitals' choice of students in the appointment of interns. This mechanical plan of matching interns and hospitals has proved more efficient than any other plan previously used, and gives complete freedom of choice to both students and hospitals.

The policies under which the program operates are determined by organizations interested in internships. In addition to the Council on Medical Education and Hospitals, these organizations are the American Hospital Association, the Association of American Medical Colleges, the American Protestant Hospital Association, the Catholic Hospital Association, and the Student American Medical Association. The policy-making body of the National Intern Matching Program is composed of representatives from these groups, liaison representatives from the federal services and a student representative.

Hospitals eligible to participate in the program must be approved by the Council on Medical Education and Hospitals. Students eligible to join the program are those seeking first year internships in these hospitals. Each student is provided with a Directory of Participating Hospitals, each hospital receives a Directory of Participating Students. Students apply where they wish, to as many hospitals as they desire. Hospitals are free to interview any participating student and use their own interview and evaluation techniques. Upon completion of interviews, each student submits to the Program office a ranking list showing the hospitals to which he has applied in order of preference. Hospitals also submit ranking lists of students who have applied to them. These lists, together with the intern quotas for each hospital, form the basis of the matching operation. Hospitals are matched with those students ranked highest on their list to the limit of their quota, unless those students prefer another hospital which also has given them a high ranking. Thus each student receives the highest choice hospital on his list that has a place for him. It is the individual responsibility of student and hospital to determine what will be acceptable to them prior to submitting ranking lists. The Program covers internships beginning between April 1 and Dec. 31. Lists are received by the National Intern Matching Program in January; the actual matching begins in February; and results are announced the middle of March.

Participation in the fifth program, completed in March, 1956, included 98% of all hospitals approved by the Council, and 97% of all United States medical school seniors. Of the 6,821 students in the program, 6,588 (97%) were matched. Of the 233 unmatched students, more than 100 applied to only one or two hospitals, thereby reducing their chances of being matched. Of the students matched, 74% received their first choice, 15% their second choice, 6% their third choice, and 5% their fourth choice, or lower. A total of 11,459 positions were offered by the 821 participating hospitals. Seventeen per cent of these hospitals completely filled their quotas, 53% partially filled, and 30% had no interns matched to them. During the past year, hospital and student participation was at the highest level in the history of the program. Indications are that participation in the Program for 1957-1958 will equal and probably surpass previous years.

Residency Review Committees

Since last year's report, no new residency review committees have been established. The Residency Review Committee for Plastic Surgery has been added to the group with tripartite representation, and members representing the American College of Surgeons have been appointed. The other committees in which the American College of Surgeons is represented are the Conference Committee on Graduate Training in Surgery, and the Residency Review Committee for Otolaryngology. The American College of Physicians is represented on the Residency Review Committee for Internal Medicine. The work of the 16 committees has continued successfully for the past year, with the complete support of the Council.

Increasingly in recent years, attention and thought have been given to full training requirements by physicians who develop and direct residency programs in hospitals, and the examining boards in medical specialties, colleges, and Council which participate in residency approvals. The Council and the organizations with which it cooperates in approval of graduate training programs have been particularly concerned with the question of how a resident, upon entering a training period of several years' duration, can be assured of continuity in supervision and increasing, graded responsibility. As a result of these considerations, residency review committees in several specialties have adopted policies intended to encourage educational continuity. The same principle is applicable in all of these policies, namely, that hospitals to qualify for continued approval are required to provide "full training" in the specialty, either independently or in collaboration with other hospitals through integration of their programs. Approval for residency training in anesthesiology, general surgery, otolaryngology, plastic surgery, as well as medical subspecialties (allergy, cardiovascular diseases, gastroenterology, and pulmonary diseases) has for some time been limited to hospitals offering full training, either independently or in collaboration with other hospitals. Announcement of adoption of this policy relating to residency programs in pediatrics appeared in the April 10, 1954, issue of The Journal. Similar statements relating to residency programs in orthopedic surgery, radiology, and urology were published in The Journal issue of Sept. 24, 1955. In the issue of Sept. 20, 1956, there is an announcement on the future policy relative to approval of residency training in ophthalmology.

These policies have been adopted to preclude the possibility of a resident taking his training in two or three isolated programs with no assurance of continuity of supervised experience or progression of responsibility. As in the past, hospitals that offer residencies in these specialties afford residents a training period which varies in length. However, these hospitals provide this period of training as a part of a coordinated and integrated educational experience. The Council supports the principle of educational continuity in full training programs as eminently sound.

Hospitals and Technical Schools

A summarization of inspections of hospitals and technical schools made by the Council during the period July 1, 1955, through June 30, 1956, is as follows:

Accreditation only (Joint Commission)	93
Intern training	67
Residency training	386
Intern and residency training	263
Technical schools	4
Total	813
Intern programs reviewed	330
Residency training programs reviewed	2,291
Joint Commission surveys	451
Total	3,072

The figures quoted below indicate the number of hospitals approved for intern and resident training, the number of approved programs, and the number of approved technical schools on July 1, 1955 and June 30, 1956:

	Approved July 1, 1955	Approved June 30, 1956
Hospitals offering intern training programs	865	862
Hospitals offering residency training programs	1,194	1,211
Programs of intern training	1,080	1,085
Programs of residency training	4,912	5,186
Technical Schools		
Medical Record Librarian	25	29
Medical Record Technician	7	8
Medical Technology	595	618
Occupational Therapy	29	30
Physical Therapy	35	37
X-Ray Technology	422	456

Joint Commission on Accreditation of Hospitals

Since the establishment of the Joint Commission on Accreditation of Hospitals, members of the field staff of the Council have served in a dual capacity in their visits to hospitals. As Council representatives they surveyed and reported on graduate educational programs, and as Joint Commission representatives they surveyed and reported on the hospitals for purposes of accreditation. This dual responsibility has at times given rise to some difficulties which have tended to decrease with the passage of time and increased experience of surveyors. In its report to the House of Delegates the Stover Committee, which studied the Joint Commission, has recommended that in the future the Joint Commission have its own staff of surveyors and that Council field staff restrict their activities to survey and evaluation of graduate educational programs. The House of Delegates has accepted the Stover Committee report, and the problem of implementing changes in field staff functions will be determined on arrangements made by the Board of Trustees in financing certain field staff personnel for the Joint Commission. It is anticipated that discontinuance of the dual responsibility of Council field staff will make it possible to cover survey activities in graduate education with about two-thirds of the personnel now engaged in Council field work.

Hospital Survey Program

The Council had nine full-time positions for physicians as field representatives at the close of the fiscal year. These field representatives are carefully selected on the basis of their interest in this field of education; their knowledge and experience; and their ability to represent the Council with firmness, tact, and diplomacy in problem situations. They are not a policing body in any sense of the word, but act in the capacity of consultants to hospital staffs in understanding and analyzing their problems, and in assisting them to elevate the standards of graduate medical training. The responsibility for reviewing programs of intern and resident training requires an intelligent and constructive approach; the approval program of the Council depends to a large extent on the efficiency and effectiveness with which its representatives carry out their obligations.

Eight of the nine positions were filled on June 30, 1956. During the year July 1, 1955, through June 30, 1956, 809 hospitals were visited, an average of 7.7 hospitals per man per month. Last year the figure was 7.5 hospitals per man per month. The field representative frequently acts in a dual capacity, evaluating the internship and residency programs for the Council and completing a survey for the Joint Commission on Accreditation of Hospitals. The Joint Commission is concerned primarily with the organizational and administrative aspects of the hospital, and with the professional activities of the medical staff. When the field representative surveys a hospital for the Joint Commission, approximately one-half of his time is spent in making this survey. Each field representative is assigned a definite territory, which includes about 150 hospitals approved for graduate training, and is responsible for the evaluation of these training programs at least once every two or three years. During the current reporting period, July 1, 1955, through June 30, 1956, 451 surveys were conducted for the Joint Commission; 330 internship programs and 2,291 residency programs were surveyed.

The Council sincerely appreciates the untiring efforts of this group of physicians to elevate the standards of medical education, and acknowledges the invaluable contribution in making the program successful.

TECHNICAL SCHOOLS

The Council collaborates with a number of organizations in the development of standards for and approval of technical schools for the following personnel: medical record librarians, medical record technicians, medical technologists, occupational therapists, physical therapists, and x-ray technicians. During the past year, the House adopted revisions for the standards in the fields of physical therapy and x-ray technology. The Council has revised and implemented resurvey precedures in order to assure more thorough periodic evaluation of schools in all areas and the Advisory Committee on Physical Therapy Education approved by the House in December, 1955, has been activated. Resurveys of approved schools of medical technology and x-ray technology are currently being carried out by pathologists and radiologists appointed by the Council's advisory groups in these two areas. Joint physician-therapist team surveys are being projected for the other areas. An assistant secretary coordinates the Council's activities on technical schools. He is also responsible for the staff work on any matters referred to the Council relating to personnel in the paramedical fields whose services at the professional and technical level contribute to the care of the patient.

REVISION OF ESSENTIALS

In cooperation with other interested organizations, the Council has prepared a revision of three sections of the Essentials of Approved Residencies and Fellowships, and suggests that the House of Delegates consider their adoption. These revised Essentials are presented in Appendix A to this report. The specialties involved are preventive medicine and radiology. The American Board of Preventive Medicine now certifies in three fields—aviation medicine, occupational medicine, and public health. The proposed revision incorporates requirements for residency training in these fields. The essentials for training in radiology have been broadened to include the use of radioactive substances and isotopes, and the quantitative requirements with respect to radium treatments have been reduced from 100 to 25, exclusive of intrauterine applications. The essentials now recommend that clinical training in radiotherapy be at least one year, whereas previously six months was indicated for radiotherapy training.

The essentials in preventive medicine and radiology are presented in their entirety.

CHANGES IN ORGANIZATION AND STAFF

In November, 1955, Dr. Glen R. Shepherd, who had been assistant to the dean at the University of Kansas School of Medicine, joined the staff as assistant secretary with a specific assignment in the area of postgraduate medical education. Dr. David Robinson and Dr. John Lund resigned from the field staff during the course of the year. On July 1, 1956, Dr. Edward H. Leveroos, Director of the Division of Hospitals and Graduate Education, who had served the Council on Medical Education and Hospitals over eight years, resigned to become Director of the Ochsner Foundation Hospital. The resignation of Dr. Leveroos has necessitated some reorganization of the Council staff so as to coordinate more closely the various areas of medical education with which it deals. Dr. Walter S. Wiggins, as associate secretary of the Council, has been delegated direct supervision of activities in relation to undergraduate medical education. The Council secretary is assuming more direct supervision of graduate medical education. Dr. Arthur N. Springall as assistant secretary has direct responsibility for the internship activities and the detail programming of the field staff activities. Dr. John Hinman as assistant secretary is directly in charge of paramedical activities. Drs. Springall, Hinman, Thompson, and Freese have each been assigned part-time activities in relation with Residency Review and Conference Committee functions of the Council. Dr. Walter B. Seelye, formerly professor of pediatrics at the University of Washington School of Medicine, will join the field staff in October, 1956. His experience in private practice and in teaching and administration give him an unusual background for this activity. Further staff reorganization will be undertaken as the relations of the Council's staff to the Joint Commission are adjusted.

Council Publications

The Council has been responsible for preparation of material of major importance for several issues of THE JOURNAL on the following subjects:

Medical Licensure Statistics (1955)	May 26, 1956
Postgraduate Courses for Physicians (September 1, 1956 to August 31, 1957)	July 28, 1956
Medical Education in the United States and Canada	Aug. 25, 1956
Directory and Annual Report of Approved Internships and Residencies	Sept. 22, 1956

In addition, members of the Council staff have prepared special articles and editorials for THE JOURNAL. It will be noted that the Council prepared a single comprehensive listing of postgraduate courses for physicians for the entire year in place of the semi-annual listings presented in the past. The transfer of printing from headquarters in Chicago to Dayton, Ohio, after the schedule for special numbers had been completed early in the year placed the Council staff under great pressure to meet the new prepublication deadlines. Readjustment of publication dates of the listing of postgraduate courses and the annual report on medical education will be requested for next year so as to facilitate cooperation with those furnishing data and to allow the staff to prepare their reports under less pressure.

The Council also prepares a number of other publications all of which have a wide distribution, and which necessitate regular revision. These include the following pamphlets:

Colleges of Arts and Sciences Approved by Regional Accrediting Agencies
Choice of a Medical School
Licensure of Foreign Medical Graduates
Foreign Medical Schools
Essentials of an Acceptable Medical School
Essentials of Approved Examining Boards in Specialties
Essentials of an Approved Internship
Report of the Advisory Committee on Internships
Essentials of Approved Residencies and Fellowships
Essentials for the Training of Medical Record Technicians
Essentials of an Acceptable School for X-Ray Technicians
Approved Schools of Physical Therapy
Essentials of an Acceptable School for Medical Technologists
Essentials of an Acceptable School of Occupational Therapy
Hospital Medical Library Suggestions
A History of the Council
Relation of Physicians and Hospitals
Residency Information Bulletin

The task of *maintaining* adequate revision of these various publications is an important part of the work of the Council staff. The staff is also responsible for the weekly listing in The Journal of scheduled examinations and reciprocity meetings of state licensing boards, basic science boards, examining boards in the medical specialties, etc. When indicated, statements are also prepared concerning current Council action for publication in The Journal.

Development and Needs

From the date of initial organization of the Council on Medical Education and Hospitals the secretary has actively participated in the survey of medical schools. This has necessitated long periods of absence from the headquarters office in the conduct of such surveys. During recent years the activities and responsibilities of the Council have materially increased in all areas of medical education and particularly in the field of postgraduate medical education. In order to coordinate more effectively the work of the Council in the over-all field of medical education, it is desirable that the secretary give essentially full time to administration and supervision of its activities at headquarters and markedly reduce or eliminate participation in medical school surveys. In planning the program of the Council for the next year efforts will be made to readjust schedules so that the above objectives may eventually be attained. It will necessitate the appointment of at least one additional staff member who will primarily be assigned to the undergraduate educational program evaluation.

The studies now underway directed toward the development of "guides" in the field of postgraduate medical education will necessitate adequate financing for the costs involved in meetings of the *Ad Hoc* Advisory Committee appointed to accomplish this purpose.

In the reorganization of the field staff subsequent to implementation of the report of the Stover Committee on the Joint Commission for Accreditation of Hospitals there will be a reduction of the number of personnel evaluating internships and residencies for the Council. It is understood that the equivalent of the costs of maintaining at least three field staff personnel will be transferred by the American Medical Association to the Joint Commission on Accreditation of Hospitals with Council budget reduced accordingly. Rising costs in maintenance of field staff personnel and the need for augmented salaries to attract fully qualified individuals into this type of work necessitated re-evaluation and augmentation of budget factors in support of this work for the field staff retained by the Council and in estimation of the sum to be transferred from the American Medical Association to the Joint Commission on Accreditation of Hospitals in the support of such personnel.

Appreciation

The Council on Medical Education and Hospitals wishes to express its sincere appreciation to Dr. Edward H. Leveroos for his contribution to the field of graduate medical education during his period of over eight years as a staff member. The current development of the program of internship and residency training evaluation and the cooperative mechanism set up between the Council and the various specialty groups was achieved largely through the efforts of Dr. Leveroos. The Council also expresses appreciation to those members of the field staff who left the Council's service for the efforts and contribution made during their period of employment.

The Council, furthermore, wishes to express sincere appreciation of the support, encouragement, and cooperation it has received from the officers, Board of Trustees, members of the House of Delegates, and other councils and bureaus of the American Medical Association, and the collaboration of the various organizations and agencies with which it has worked during the past year.

Respectfully submitted,

H. G. Weiskotten, Chairman.
Victor Johnson, Vice-Chairman.
W. Andrew Bunten.
Guy A. Caldwell.
John W. Cline.
Harlan English
James M. Faulkner.
Leland S. McKittrick.
Franklin D. Murphy.
Charles T. Stone.
Edward L. Turner, Secretary.

Appendix A

Essentials of Approved Residencies and Fellowships

(Current edition revised to December, 1955; originally published in The Journal, March 24, 1928, page 922. Proposed revision recommended for approval by action of the Council on Medical Education and Hospitals, Feb. 9 and June 9, 1956.)

1. Preventive Medicine

This revision is made necessary by the following facts: At the time of the last revision of the Essentials of Approved Residencies and Fellowships, requirements for residencies in Preventive Medicine and Public Health, and in Occupational Medicine were set out. Since then, the title of the American Board of Preventive Medicine and Public Health has been changed to the American Board of Preventive Medicine and the Board certifies in three fields—Aviation Medicine, Occupational Medicine, and Public Health. Accordingly, new Essentials have been prepared for Aviation Medicine; the Essentials for Occupational Medicine have been modified slightly, and new paragraphs as to eligibility of applicants and board requirements have been added since at the time of the revision of the Essentials currently in effect there was no board certification in this field; the Essentials for Preventive Medicine and Public Health remain unchanged for the most part except that they are now for Public Health only, and the form has been changed slightly so that it will be similar to that of Aviation Medicine and Occupational Medicine.

It is proposed that the following section be included in the next revision of the Essentials of Approved Residencies and Fellowships:

PREVENTIVE MEDICINE

Residencies in Preventive Medicine are approved by the Council on Medical Education and Hospitals and the American Board of Preventive Medicine in three fields: Aviation Medicine, Occupational Medicine and Public Health. Residency programs in these fields ordinarily include an academic phase such as that offered in a school of public health or of occupational medicine, and an additional year or two of practical training. While the provisions of the section on "General Requirements" (pages 6-17 of the current essentials) are not directly pertinent to residencies in Preventive Medicine, relating as they do more specifically to the clinical specialties, the principles underlying them do apply to programs in all three fields of Preventive Medicine.

AVIATION MEDICINE

A residency in Aviation Medicine should be of one or more years' duration and should include training and experience in the following areas: Selection and care of flying personnel, flying safety including accident prevention and investigation, human engineering as related to aircraft and aircraft equipment design, the principles of aero transportation of the sick including contraindications, necessary precautions and essential equipment for such transportation, and the maintenance of an efficient system of records, and industrial or occupational aspects of Preventive Medicine, such as toxicological and mechanical hazards and other related areas.

The agency responsible for residency training may be either a governmental or a civilian organization or institution. It should be responsible for the maintenance of the health of a sufficiently large number of flying and ground maintenance personnel to provide the residents with the broad experience in the various phases of the specialty. There should be a sufficient amount and variety of aeronautical equipment available to enable the resident to familiarize himself with its use. A well staffed hospital to which Aviation Medicine clinical problems are referred should be available. If not, such training should be provided through affiliation. Experience in the examination, care and management of ambulatory patients should be provided through the facilities of an adequately staffed and well equipped outpatient department. The agency should have access to an adequately equipped laboratory in which studies on problems relating to aircraft accidents and hazards of flight can be carried out.

Residency training in the specialty should be under the direction of a qualified physician trained in Aviation Medicine. His professional qualifications should meet the standards required of the staff of institutions approved for residency training in other specialties (General Requirements, paragraph 1, Section 1, page 6 of current essentials). His staff should include a sufficient number of personnel trained not only in Aviation Medicine but also in related medical fields to offer a comprehensive training in the specialty.

The training program should include instruction and experience in the preventive and clinical aspects of Aviation Medicine and closely related fields. The program should provide experience in the planning, administration and supervision of health programs for both flying and ground maintenance personnel. An opportunity should be given the resident to participate in the investigation of aircraft accidents and to conduct studies on problems relating to the proficiency of flying personnel. The resident's hospital and outpatient experience should afford him an opportunity to study and treat conditions which are common in flying and ground crew personnel. Emphasis should be placed on the resident's responsibility for the care and treatment of inpatients having conditions peculiar to flight. Adequate opportunities must be provided for the residents to engage in flying activities with the flying personnel for whose medical care they are responsible.

Eligibility of Applicants. In addition to the qualifications required for applicants in the other specialties (General Requirements, paragraph 6, Section 1, page 10 of current essentials), the applicant for an appointment to an approved residency in Aviation Medicine should have completed at least two academic years of graduate study in Preventive Medicine and Aviation Medicine; or training and study deemed by the American Board of Preventive Medicine to be substantially equivalent to such graduate study.

Board Requirements. Candidates for examination in Aviation Medicine must meet the general requirements of the American Board of Preventive Medicine, in that they complete a year of internship in an approved hospital and at least six additional years of training and experience in aviation medicine.

One of these years must have been devoted to graduate study leading to a degree of Master of Public Health or its equivalent in an approved school of Public Health (or other similar training and study satisfactory to the Board). Another year must have been spent in graduate education in Aviation Medicine or in a closely related field acceptable to the Board.

At least one of the remaining four years must have been in an approved Aviation Medicine residency program. The remaining years must have been limited to the practice of Aviation Medicine preferably under the supervision of a well qualified specialist in that field.

OCCUPATIONAL MEDICINE

Residencies in Occupational Medicine, as a specialized branch of Preventive Medicine, should include training in the principal divisions of Preventive Medicine and Public Health, such as administration, health education, epidemiology (control of communicable and degenerative diseases), accident prevention and sanitation. The training should not neglect the broad problems of community health, but should emphasize their relation to the industrial population as an important part of the general population and to occupational hazards and disease.

The training period comprises a period of specialized training of two to three years' duration, not less than one year of which is carried out in supervised practice in an industrial medical organization. Ordinarily these programs should be conducted under the sponsorship of an educational institution. They may be organized in a school of medicine, a school of public health or an associated graduate school, in which the facilities of a university as a whole are available for intramural instruction. Extramural training should be provided by an organization affiliated with the educational institution, and having a satisfactory medical service. The intramural and extramural phases may be carried on simultaneously or as separate periods.

I. *Content of Intramural Training Program*

A. *Basic disciplines.* The basic disciplines may vary in their content to some degree (and in their emphasis on matters of general importance in the field of preventive medicine and of special significance to the industrial physician) in accordance with the availability of facilities for instruction in various institutions of learning. Courses should be offered to include the following:

1. Preventive Medicine as it relates to community health generally, rather than to industrial health specifically, includes microbiology, control of communicable diseases and their transmission, and various aspects of administrative medicine.

2. Industrial health practice which concerns itself with the medical problems and practices of industry, as well as other activities of the industrial physician in his professional, advisory, and administrative relationships to industrial employees in all categories, to his immediate and more general professional associates, to the hygienic authorities, and to management.

3. Industrial hygiene, under which term is included all measures for the determination of the significant and extent of occupational stresses and hazards, and for the development and application of means of controlling such stresses and hazards, so as to promote and maintain industrial health.

4. Pysiology and other basic sciences with particular reference to the manner in which the occupation and environment affect man.

5. Epidemiology and biostatistics and their application to the health problems of the industrial population.

B. *Related Fields.*

1. Special fields of medicine such as mental health, rehabilitation and gerontology.
2. Legal and insurance aspects of industrial medical practice.
3. History, structure, and functions of industry.
4. Social studies (human relations) including such subjects as personnel relations, industrial relations, labor relations and public relations.

C. *Clinical Training.*

Clinical training requires well developed clinical facilities in a medical center in which a well-staffed outpatient dispensary, ample and well-staffed inpatient services, and a variety and a reasonable volume of patients and problems from industry are available for study. Organized and well-staffed clinics in industrial establishments, as well as many other organized medical services in the community may be utilized. Clinical training should provide experience in at least the following areas:

1. Medical appraisal of abilities and disabilities in relation to the requirements of job; job placement and adjustment of worker to job.

2. Management of occupational injury and diseases to include etiology, pathology, diagnosis, prognosis, therapy, rehabilitation and prevention.

3. Medical appraisal of the individual with particular reference to quantitative standards and compensation for disability

Adequate training in rehabilitation can best be provided in an institution in which there is a properly staffed department of rehabilitation. Well developed services in medicine, surgery, and the medical and surgical specialties should be available. The efforts of these services and the department of rehabilitation should be coordinated in achieving the objective of the rehabilitative process, the return of the industrial casualty to a suitable and useful occupation.

D. *Research.*

Investigation of the industrial environment and the response to individuals to it, studies of new materials and new sources of energy and training in the significance of research are an essential part of professional instruction. The resident (or fellow) may be required to prepare a thesis worthy of publication based on his own study.

II. *Type and Content of Training in Industry.*

A. General type and duration of residency in industry.

The resident (or fellow) must serve for a year, preferably in continuous service, in one or more industrial medical organizations approved for scope and quality of service.

B. Professional and Facilities.

1. Personnel.

An industrial medical organization which participates in the training of residents in occupational medicine should be under the direction of a competent physician having position and authority in the organization commensurate with his responsibilities, including that of assuming a high level of ethical conduct and practice within the medical department. All of the activities of the industry relating to the health of employees, industrial hygiene and sanitation, and the hygienic problems of the community as derived from the industry, should be clearly within the authority or area of consultation of the physician in charge.

The staff of the medical department, including nurses and technical assistants, should be adequate in numbers and competent to perform the work which is required of them, and should have such relationship to the chief of the medical staff, and such functions in the performance of the work of the medical department, as are in keeping with sound professional standards.

The local professional relationships of the medical staff shall be such as to insure appropriate liaison with private physicians of the employees. The services of fully qualified consultants in specialized fields of medical and surgical practice should be utilized as necessary.

2. Facilities.

The quarters and facilities of the medical department should be adequate in location, arrangement and equipment to provide freedom from noise, to insure comfort, cleanliness and orderliness in the conduct of the medical work, and especially to yield complete privacy for interviews and medical examinations, and for the maintenance of wholly confidential medical records.

Laboratories, equipment for the conduct of clinical and environmental observations and investigations, and appropriate reference books and periodicals shall be available within the medical or other plant facilities, or in such proximity elsewhere as adequately to meet the needs of the practice of medicine and industrial hygiene.

3. Industrial Medical Practice.

The type of medical practice conducted by the industrial medical department shall be of a high professional quality, and shall extend into all of the fields of medical activity that are appropriate to the needs of the industry concerned.

The medical examinations and the medical records should be such as to reveal the hygienic status of the population of the plant or industry in a reasonably effective manner, with respect to injury, illness, and disease of nonoccupational, as well as of occupational origin. They should also be adequate in respect to the medical problems of the individual employee.

The information on the respective occupations, and on the hygienic problems and hazards associated with specific occupations and operations within the plant or industry, should be comprehensive and up to date, and the means by which such information is kept current, through reports, trips of inspection, analytical and other environmental data, should be part of the regular mechanisms of the medical operations and relationships within the industrial organization.

4. Adaption and Utilization of Personnel and Facilities for Medical Instruction.

In addition to the general adequacy of the medical personnel and facilities for the performance of their necessary duties, the conditions within the medical department and the industrial organization which it serves must be such as to provide time for the training of medical residents. The competence of the preceptors within industry and the affiliation of the personnel of the medical department with the institution responsible for professional instruction must be such as to insure the fulfillment of an educational function, rather than to provide a means of delegating the less exacting and less responsible work of the medical department to a subordinate in training.

Eligibility of Applicants. In addition to the qualifications required for applicants in the other specialties (General Requirements, paragraph 6, Section 1, page 10 of current essentials), the applicants for an appointment to an approved residency in Occupational Medicine should have completed one academic year in an accredited school of public health leading to a degree or Master of Public Health or have had equivalent training. In some cases, residency training may precede the year of formal academic training.

The provisions of the section on General Requirements (pages 6-17 of current essentials) must also be met for approval

Board Requirements. Candidates for examination in Occupational Medicine must meet the general requirements of the American Board of Preventive Medicine, in that they complete a year of internship in an approved hospital and at least six additional years of training and experience in Occupational Medicine. One of these years must have been devoted to graduate study leading to a degree of Master of Public Health in an approved School of Public Health (or other similar training and study satisfactory to the Board.) Another year must have been spent in graduate study in Occupational Medicine or in a closely related field acceptable to the Board. (Sec. I).

At least one of the remaining four years must have been spent in an approved Occupational Medicine program in one or more industrial medical organizations approved for scope and quality of service. (Sec. II).

PUBLIC HEALTH

Residencies in this field should include training in the principal divisions of public health, such as administration, health education, epidemiology (control of infectious and degenerative disease), maternal health, infant and child health, accident prevention and sanitation. Approval for residency training in the specialty is ordinarily extended to training areas organized under a state plan, although recognition may be given to a local health department offering acceptable training in one or more of the major branches. An acceptable program should be for a period of one or more years' duration. If the training is limited to a single field of public health, the length of the training should be at least two years, one of which may be spent in residency training in an appropriate clinical specialty.

The health department in which training is given should be well established and should serve an area large enough to offer comprehensive experience in the several aspects of community health. A program of sufficient scope and diversity is not likely to be provided in communities of less than 50,000 population.*

The department should be efficiently organized on a basis which will assure the provision of public health services of a superior quality as well as proper supervision of the resident's training. It should cooperate actively with other agencies, official and nonofficial, in the development and conduct of a community-wide health program.

The facilities of the health department, including office and laboratory space, should be adequate for the efficient functioning of the public health service. When the work of the resident involves considerable travel, adequate transportation should be provided. The department should maintain a basic collection of reference texts and periodicals in public health and associated fields, whether or not more complete library facilities are available outside the department.

---

*For a method of evaluating the scope and quality of a public health program see "Health Practice Indices," 1950 edition, and the "Evaluation Schedule," November, 1947, published by the American Public Health Association, 1790 Broadway, New York 19.

An efficient system of records must be maintained. Since much of the resident's later responsibility is likely to be administrative in nature, it is essential that he has a thorough indoctrination in the preparation and maintenance of reports, registers, and other required records.

Residency training, at the state and local level, should be under the direction of a qualified physician, trained in public health, who has demonstrated his ability to administer a comprehensive public health program. His professional qualifications should meet the standards required of the staff of hospitals approved for residency training in other specialties (General Requirements, paragraph 1, Section 1, page 7 of current essentials). His staff should include a sufficient number of well trained personnel to provide adequate health service to the community and assistance in the training program. A state department of health responsible for the organization and conduct of a training plan should make available consultative service in the several basic and special public health fields.

The residency training should include planned observation of and active participation in the various public health programs operating within the community. It should include experience in the collection of vital statistics, control of communicable disease, promotion of child and adult health, regulation of the environmental and education of the public with respect to personal and community health. Training in these several fields should be such as to provide familiarity with the planning development and methods of operation of public health programs, and the duties and techniques used by the members of the staffs of the responsible public health agencies.

Eligibility of Applicants. In addition to the qualifications required for applicants in the other specialties (General Requirements, paragraph 6, Section 1, page 10 of current essentials), the applicant for appointment to an approved residency in Public Health should have completed one academic year in an accredited school of public health, leading to a degree of Master of Public Health or have had equivalent advanced training. In some cases, the year of residency may precede the year of formal academic training.

The provisions of the section General Requirements (pages 6-17 of current essentials) must also be met for approval.

Board Requirements. Candidates for examination in Public Health must meet the general requirements of the American Board of Preventive Medicine in that they complete a year of internship in an approved hospital and at least six additional years of training and experience in Public Health.

One of these years shall have been devoted to graduate study leading to a degree of Master of Public Health or its equivalent in an approved college or university (or equivalent training and study satisfactory to the Board) and at least two years of supervised field experience in public health practice in an approved residency. The remaining three years must have been limited to the practice of Public Health, preferably under the supervision of a well qualified specialist in that field.

It is recognized that an individual may obtain suitable training in programs other than those of an official health department; among such are the federal services, industry and certain voluntary agencies. The training of such persons will be adjudged on an individual basis.

2. Radiology

The following revision of the current essentials of an approved residency in Radiology is proposed:

Residencies and fellowships of three years' duration should provide training in all divisions of the specialty—diagnostic roentgenology, therapeutic radiology, including the use of radioactive substances (intracavitary and interstitial), and isotopes. Without attempting to define a detailed plan of instruction, it can be suggested that the first year be devoted principally to pathology, roentgenologic technic and general orientation in the radiologic field. In the second and third years the clinical applications of radiology should be emphasized with at least one year or the equivalent assigned exclusively to radiotherapy. In view of importance of pathology as a basis for radiologic diagnosis and therapy, it is recommended that a minimum of six months be devoted to pathologic anatomy, particularly the study of gross pathology and tumors. Instruction in radiation physics and radiobiology may well run concurrently with the training in radiioactive substances and isotopes, therapy and therapeutic roentgenology.

Residencies in a restricted field of radiology can likewise be modeled on this plan. The training should be systematic and progressive in character with gradual assignment of responsibility in both diagnosis and therapy. It should also include an active participation in radiologic conferences, staff meetings, and joint conferences with other departments. An adequate amount of clinical material must be available in the divisions of radiology in which residency or fellowship training is offered.

The relationship of the radiology department to residencies and fellowships in other fields is stated in Sections 1 and 2 (current essentials).

Quantitative Requirements. The quantitative requirements in this field depend upon the field of radiology in which training is undertaken. In residencies covering the entire field of Radiology, it is desirable that there be a minimum of approximately 3,500 roentgenographic examinations per year (which include a satisfactory spread of examinations in various systems); 1,500 roentgen therapeutic procedures (which include at least superficial and deep therapy); and approximately 25 radium treatments, exclusive of intrauterine applications (the radium treatments should at least include treatments with moulds and implantation with needles and radon). The caliber of the training program in a fairly wide field is of more importance than the number of examinations and therapeutic procedures.

Applied Basic Science Instruction. In the applied basic sciences, emphasis should be placed on instruction in pathologic anatomy, radiation physics and radiobiology. Such work should be closely related with clinical experience. See Section 1-9 (current essentials) for a discussion of applied basic medical science instruction.

The provisions of the section General Requirements (pages 6-17 of current essentials) must also be met for approval.

Board Requirements. The American Board of Radiology certifies physicians in a) the entire field of radiology, b) diagnostic roentgenology, and c) therapeutic radiology. An applicant for the certification examination must have completed a period of study after the internship of at least three years in an institution approved for radiologic training. This period of specialized training should include an active experience in clinical radiology of not less than thirty months and residency instruction in pathologic anatomy, radiation physics and radiobiology.

REPORT OF THE COUNCIL ON MEDICAL SERVICE

To the Members of the House of Delegates of the American Medical Association:

The Council on Medical Service continues to keep abreast of developments in the over-all field of medical care and reports these to the medical profession and the public. As plans and programs relating to the provision of physicians' services have multiplied, the Council's work has, of necessity, undergone a parallel expansion. To cover the field adequately and to be assured of expert advice in all areas of its work, eight committees assist the Council in making studies, developing facts and data, and preparing reports. The 56 physicians and one layman on these committees provide the American Medical Association with a geographical variety of viewpoint as well as expert opinion in the fields represented by each.

It is not possible, even in the annual report, to present in detail all of the activities of the Council, its committees, and staff. However, the following pages do contain a review of some of the work carried on from July 1, 1955, to June 30, 1956. Before going into details, here are some observations that may be of interest to the House:

Increase of Council Membership.—To facilitate the work of the Council, its elected membership was increased at the Annual Meeting in June, 1956, from six to nine members.

Voluntary Health Insurance.—More people were covered by voluntary health insurance by the end of 1955 than ever before—over 107 million hospital, nearly 92 million surgical, and over 55 million medical. Catastrophic coverage has more than doubled during the past year, from 2,235,000 to over 5 million. By midyear 1956 it was estimated that all of the aforementioned figures had increased substantially. The midyear estimates by category were: Hospital, 110 million; surgical, 94 million; medical, 58 million; and 7 million for catastrophic or major hospital and medical expense.

Medical School Study.—The report on private practice arrangements of medical school faculty members was made to and approved by the House in June, 1956. It is obvious, however, that making a report in itself is not the solution to problems. Since breakdown of liaison between physicians in private practice and medical schools was a primary factor in most areas where conflicts occur, it is urged that members of the House take active part locally in developing proper communication. The Committee itself will continue to follow developments in the problem areas and will review its conclusions and recommendations relative to such developments.

Group Medical Practice.—The study of group medical practice shows 735 groups in operation of which 640 have three or more physicians and 95 have only two physicians. However, there is still considerable confusion regarding terminology used in this field, and an effort will be made to develop acceptable definitions to describe this method of practice which has been the subject of much discussion in recent years.

Hill-Burton.—The study of the first 10 years under the Hill-Burton Hospital Construction Act now under way is showing evidence of change in emphasis from rural facilities to replacement of existing old or obsolete hospital facilities and increased emphasis on chronic disease facilities and other special categories such as diagnostic and treatment centers, rehabilitation centers, and nursing homes.

Physicians Placement Service.—Many communities that have long been without a doctor now have the services of their own physician through the efforts of the Council's Placement Service and the placement services of state medical associations which have aided more than 3,713 physicians and communities.

Federal Medical Services.—Publication of the Federal Medical Services Newsletter has been resumed and is being sent to members of the House of Delegates as well as state committees dealing with these problems. The Newsletter now refers to all medical programs coming within the purview of the Federal government.

Mine Workers Program.—This spring some 50 physicians participated in a field trip sponsored by the Council on Medical Service and Council on Industrial Health through the West Virginia coal mining areas prior to the Fourth Conference on Medical Care in the Bituminous Coal Mine Area. Over 500 local physicians attended meetings in Beckley and Bluefield, W. Va., to discuss their problems with this field group.

Chronic Illness Newsletter.—The Chronic Illness Newsletter, which the Council started publishing in February, has been well received by the many and varied groups and individuals included in the mailing list of 12,000.

Committee on Aging.—The Committee on Aging has its program well under way and is conducting a panel on this subject during the Clinical Meeting. It is hoped that state medical associations and most of the larger county medical societies will see fit to create similar committees so that the medical profession will assume its proper leadership in the field of aging.

Lay Sponsored Health Plans.—The Committee on Relations with Lay Sponsored Voluntary Health Plans has continued its active interest in those programs sponsored by nonmedical groups designed either to provide health care or finance its costs.

Maternal Death Studies.—A "Guide" to assist committees in carrying on maternal death studies has been completed and is being submitted at this time to the House of Delegates for consideration and approval.

Finally, the Council wishes to call the attention of the House of Delegates to the loss during the year of Dr. Arthur C. Scott Jr., who served as a member from December, 1954, to the time of his death, Feb. 21, 1956, and of Dr. Thomas A. McGoldrick, who served as a member from 1944 to 1952. Although Dr. Scott had served only a short time on the Council, he had become a key member, serving on the Council's Committee on Medical Care for Industrial Workers and as the Council designee on the Committee on Relations with Lay Sponsored Voluntary Health Plans. He took an active part in developing the principles for union and management sponsored health centers, and served as chairman of the Special Committee on General Practice Prior to Specialization of the House of Delegates. Dr. McGoldrick served as Vice President of the American Medical Association in addition to being a member of the Council during its formative period. He played a leading part in the development of the first "Platform of the American Medical Association," and to him as much as anyone should go the credit for establishing many of the principles under which the Council works at the present time.

Committee on Medical and Related Facilities

The membership of this Committee has had one personnel change during the past year. Dr. Raymond M. McKeown, Coos Bay, Ore., was named to replace Dr. Ralph A. Johnson, Detroit. Dr. Willard A. Wright was appointed chairman of the Committee. Other members are Drs. Robert L. Novy, Detroit; Walter E. Vest, Huntington, W. Va.,; E. Dwight Barnett, New York; David Henry Poer, Atlanta, Ga.; and Cleon A. Nafe, Indianapolis.

The Committee has met on four occasions in Chicago during the year: Sept. 17-18, 1955; Nov. 5-6, 1955; Feb. 12-14, 1956; and April 27-29, 1956.

MEDICAL SCHOOL STUDY

The primary task of this Committee during the past year has been the study of problems relating to the private practice arrangements of medical school faculty members. Since the study was completed this spring, a report was made to the Council and to the House of Delegates at the June session rather than waiting until the usual reporting time. In this report the Committee submitted its conclusions and recommendations, which were approved by the Council and adopted by the House.

It would serve no purpose to review the report at this time. However, the Committee would urge that the members of the House discuss the recommendations with their state associations, particularly those having to do with the development of proper liaison between the physicians in private practice and the medical schools. The breakdown of such liaison, in the opinion of this Committee, has been a primary factor in most of the areas where conflicts have occurred.

GROUP PRACTICE STUDY

The field study concerning the organization and operation of medical group practice units has been completed. A progress report on the first 48 groups was published in the Aug. 4, 1956, issue of THE JOURNAL. An additional 50 groups were visited this summer and the complete report covering over 100 groups in 23 of the 48 states will be published in booklet form. In addition to the field study, the Committee has continued to develop a roster or list of group practice units by states. So much has been said about the trend toward group practice and so little data on the number and characteristics has been available, this project was undertaken to supplement the field study. At this stage, a total of 735 groups has been listed. Of this number, 640 are groups with 3 or more physicians and 95 are 2-doctor group practice units. The listing is not complete and will probably never be complete at any given time because of the lag between the organization of new groups, the dissolution of existing groups, and reports of these to the American Medical Association.

One facet of this area of medical service that is still unclear and leads to confusion is the terminology. The terms—group, group practice, medical group, group clinic, clinic, etc.—seem to be used to suit convenience with little relationship to the characteristics of the physical or organizational units to which they apply. Several state medical associations have concerned themselves with this problem and this Committee believes it to be of sufficient importance to warrant study by the Association. Therefore, a review will be made of existing literature, and medical societies and other interested groups will be contacted for the purpose of developing suggestions relative to terminology and definitions.

HILL-BURTON HOSPITAL CONSTRUCTION ACT

The Board of Trustees has requested the Council to re-evaluate the need for and effectiveness of the Hill-Burton Construction Program. The Board stated that "continued endorsement by the Association should be based on the facts as they exist today and not as they existed ten years ago."

The study is now underway and will be reported on when completed. As a first step, the Council, with the assistance of the Law Department, prepared a questionnaire to be mailed to all state associations. It is hoped from this that the Council will learn what progress has been made in each state since the inception of the Act and also the policies and reactions of the associations concerning the program. The second step includes a review of available data on the program and the progress made in relation to purpose and need. As a third step, conferences have been held with staff members of the Public Health Service, with members of various state agencies, medical societies, and possibly hospital administrators to gather further information. Future activity on this study will depend upon the results of these three steps.

The Council reports each year on Hill-Burton hospital construction. The following table shows the data taken from the Public Health Service report for the fiscal year 1956 (June 30). This table shows an increase over the last report of 533 projects approved and 145 projects completed and in operation.

Hill-Burton Construction Status

Projects	*June 30, 1955*	*June 30, 1956*
In Operation	1,905	2,050
Under Construction	503	806
Initially Approved	106	191
Total	2,514	3,047

The following table shows the categories of hospital beds and shows the breakdown of projects other than hospitals and nursing homes as to type and status of construction from the inception of the program through June 30, 1956. The total cost for the projects has been estimated at $2,467,333,207 of which the federal share will amount to $781,421,267, approximately one-third.

Hill-Burton Construction Status of Hospital Beds and Health Unit Projects Other than Hospitals and Nursing Homes

Project	*Approved*	*In Operation*	*Under Construction*	*Initially Approved*
Beds:				
General Hospital	130,978	95,149	28,636	7,193
Chronic Disease	2,261	–	2,022	239
Nursing Homes	2,259	–	2,189	70
Total	135,498	95,149	32,847	7,502
Health Units (Projects):				
Health Centers	628	433	147	48
Rehabilitation Facilities	43	–	42	1
Diagnostic or Treatment Centers	77	1	66	10
Total	748	434	255	59

PHYSICIANS PLACEMENT SERVICE

During the year from July, 1955, to July, 1956, the Physicians Placement Service has given assistance to 3,713 physicians locating or relocating, communities seeking physicians, medical groups seeking additional specialists, and physicians seeking associates. This is almost identical with the services rendered the previous year. In many cases the Council has been the starting point for the above services; in every case the request has been referred to the state medical associations.

Physicians Requests.—The number of inquiries from physicians for information as to locations continues to decrease from the peak reached two years ago.

Requests from physicians	July, 1955 - July, 1956–	938
" " "	July, 1954 - July, 1955–	1,332
" " "	July, 1953 - July, 1954–	1,382
" " "	July, 1952 - July, 1953–	622

These figures reflect the influence of the gradual increase in state placement activities since 1953 and of the Committee's efforts to limit American Medical Association placement activities in favor of the state programs.

In addition to the 938 requests, the Committee continues to send questionnaires to all physicians being released from military service who indicate to the Council on National Defense that placement assistance is desired.

Approximately 1,900 data sheets on physicians seeking a location were forwarded to state medical associations. Statistically this would mean that each doctor inquired about locations in two states; actually many ask about several states and many ask only about one state. The most popular states are California, Illinois, New York, Oregon, and Washington.

Community Requests.—The fact that a copy of state lists of communities seeking a physician are now supplied to the Physicians Placement Service by 42 state placement services as compared with 39 lists last year and 19 in 1952, is further evidence of increasing state activity. Some are still bare lists of towns and not much more; however, the number offering such limited information is decreasing. Perhaps there is a greater realization that it takes more than the name of a town to create enough interest for a physician to contact the state medical association for further information.

The number of openings now listed for general practitioners is 1,565. This figure has not varied appreciably during the past several years, but the breakdown by population of the towns listed has changed noticeably. According to the composite map maintained in the Council office on which these locations are spotted, there is an increase in the number of requests from communities with a population (1) up to 1,000, and (2) over 5,000, and a decrease in the number of requests in the range of 1,000 to 5,000 population. Listings from cities of 5,000 or more are almost without exception from physicians seeking an associate. Communities listed between 1,000 and 5,000 population have an increasing number of listings in this same category, that is, physicians seeking an associate. In other words, the greatest number of individual general practice openings now listed are for communities of less than 1,000 people. This does not mean that there is not an opportunity for general practitioners, but it does mean that in cities of over 5,000, the general practitioner who wishes to practice alone must do some research on his own. There seems to be little organized effort to find additional physicians for the larger cities that have medical personnel; most of the effort here and in the states is directed toward communities not having a doctor.

This year has seen an increase in the turnover in the openings for specialists. As of July, 1956, the files contained 403 opportunities in the specialty fields as compared with 247 a year ago. A breakdown of this figure shows a ratio among the various specialties much the same as last year. Again the greatest discrepancy between requests from physicians and openings occurs in pediatrics, psychiatry, and otorhinolaryngology and ophthalmology with the number of inquiring physicians being far less than the number of openings. At the same time, the number of inquiring surgeons continues to be greater than the number of requests for specialists in this field, unless the surgeon will also do general practice.

Listings of salaried positions include college health, foreign, industrial, institutions, Public Health, locum tenens, U. S. Government, and Veterans Administration. As of July 1, 1956, the total number of such openings was 256. In this category the number of requests received from physicians seeking a foreign location is greater than the number of foreign openings. Contacts with U. S. companies having operations abroad indicate that local situations make it advisable to use native physicians in most cases.

Specialists' Assistance.—In order to be of assistance to the increasing number of specialists who have requested information regarding opportunities for practice, a copy of the booklet, "Physicians Placement Services—1955", was sent with a letter to the members of the National Association of Clinic Managers. The booklet presented a brief explanation of the services available and the letter offered the services to group practices seeking additional physicians. As a direct result, 68 opportunities in 11 different specialty fields were listed. The number of opportunities from this group has continued to increase.

A letter of inquiry with a copy of the placement service booklet was also sent to 82 specialty groups. The purpose of the letter was to determine which organizations do not maintain a placement service and request their assistance in calling to the attention of their members the services offered by the state medical associations and by the American Medical Association.

The replies showed that most national specialty groups do not maintain placement services. However, a number of these groups do, including the following:

American Academy of Occupational Medicine
American Academy of Pediatrics
American Academy of Neurology
American College of Chest Physicians
American College of Obstetrics and Gynecology
American College of Radiologists
American Society of Anesthesiologists, Inc.
American Society for Experimental Pathology
College of American Pathologists
Industrial Medical Association
American Urological Association

Most of the other specialty organizations indicated that the placement activities of the state medical associations and of the American Medical Association would be called to the attention of the membership through their meetings, newsletters, and other publications. In the past few months many letters from physicians seeking an associate as well as those seeking a location for practice have mentioned that the Physicians Placement Service was called to their attention through a publication serving their specialty group.

Booklets, Articles, Exhibits.—The format for the Sears-Roebuck Plan of Assistance booklet was changed during the past year and was sent by the Council to the state medical associations, the larger county medical societies, the teaching hospitals, and medical schools. Another booklet entitled "Planning Guide for Establishing Medical Practice Units" has also been mailed on request to several thousand physicians, either on a loan basis, or to be turned over to the local medical society.

The Placement Service exhibit at the Student A.M.A. meeting in Chicago was well attended both by students and interns. Although these people will not in most cases be available for practice for several years it is not too early for them to consider some of the factors in seeking a location for practice. As several pointed out, their current vacations can be spent in seeing first-hand the areas where they have thought of locating.

Community Rating Schedule.—In September, 1953, the Community Rating Schedule was presented to the state medical groups. This schedule was designed to offer communities a means of self-inventory as to how much they really needed more medical care, what attractions they had to offer, and the extent to which they could support a physician.

A survey on the distribution of physicians has been completed by the Texas Medical Association. This survey has made use of a form of the Schedule which was adapted to the particular needs of the state. A copy of the study covering one district has been sent to each state medical association. A final report was presented to the Texas Committee on Doctor Distribution at the time of its annual session this year. Plans are under way to collect all pertinent data in a Doctor Distribution Survey Handbook.—The Nevada State Medical Association has been working with a number of other interested groups in the state conducting a Health and Medical Services Survey. Detailed questionnaires have been prepared for use by committees in both counties and communities. The purpose of this survey is to determine areas needing assistance in securing better health and medical services and how the need may best be met.

Other states indicating use of the Schedule are Indiana, Iowa, North Carolina, Oklahoma, and Virginia.

Committee on Indigent Care

The members of this Committee are. Drs. H. B. Mulholland, Chairman, Charlottesville, Va., A. J. Bowles, Seattle, E. P. Coleman, Canton, Ill., J. L. Lattimore, Topeka, Kans., I. Jay Brightman, Albany, N. Y., E. A. Ockuly, Toledo, Ohio, Dean W. Roberts, Chicago; and R. M. Hilliard, Chicago, consultant.

CHRONIC ILLNESS NEWSLETTER

In Jan. 1956, publication of the Newsletter of the Commission on Chronic Illness was turned over to the Council on Medical Service. Although chronic illness does not in itself fit into the functions of this Committee, the contacts and files developed through indigent care activities lent themselves to the editing of such a publication. To assist in this task a special editorial committee was selected, composed of Dr. Mulholland, Dr. Dean Roberts, former Director of the Commission, Dr. Edward L. Bortz, member of the Council's Committee on Aging, and Mrs. Lucille Smith, former member of the Commission.

The Committee is pleased to report that many expressions of appreciation and congratulations have been received on the issues published to date. This has been especially pleasant, since most of the persons on the mailing list are not physicians and represent allied groups in the nursing, public health, hospital, and institutional fields. In addition, through the Newsletter we are reaching the governors of the states, the public welfare directors, and the directors of many national and state voluntary health organizations. On the other hand, since the announcement of this was published in THE JOURNAL many physicians have written for copies and asked to be placed on the mailing list.

At present, the Newsletter is published bi-monthly and sent to over 12,000 persons and organizations. If additions and deletions continue at the present rate the total net addition to this list will range somewhere between 300 and 500, all on personal request. As to frequency of publication, it seems that the subject is of sufficient interest and variety to warrant eight issues yearly, omitting the months of June, July, August, and December. Aside from the Newsletter, the announcement that the American Medical Association had assumed this responsibility has brought many requests for material and advice relating to various aspects of chronic illness. As a result the staff has started to develop information and sources of information to assist in replying to such requests. Chronic illness, like aging, is a subject many people "talk" about but seldom "do" much about. The Committee hopes to be of some help in remedying this situation

SURVEYS

One of the projects underway is a survey of what are generally termed "home care programs". Questionaires have been sent to all organizations that have been noted in literature on this subject as having such programs. These organizations were queried in detail as to the origin and purposes of the program, the types of patients served, administrative mechanics of the program, sources of financing, number and type of services offered to the patient at home and the advantages and problems encountered in the operation of the program. Replies to date (from a total of 68 questionaires mailed, 46 have presently been returned) indicate that these programs are meeting a definite need in caring for those indigent and/or chronically ill patients whose medical, nursing, social, and rehabilitative needs can be met in their own homes. Some of the advantages of a home care program cited by the organizations replying include a more coordinated spectrum of medical and related services to the patient, the psychological advantage to the patient of being in his own home, reduced cost to the patient or assistance agency, a more efficient use of hospital beds, and an improved teaching experience for medical students participating in the program. Many of the programs are administered by a hospital, some by visiting nurse associations, welfare councils, and other agencies. All are regarded by the sponsoring organizations not as a substitute for hospital care but as an extension of hospital care into the homes of selected patients, with additional nursing, social and rehabilitative services as needed. A complete report on these programs will be submitted for JOURNAL publication as soon as all questionaires have been returned.

A second project is a survey of Central Services for the Chronically Ill. This is a central referral service, having information on all local service and facilities programs that might be of assistance to chronically ill patients and to which physicians, nurses, health and welfare agencies, industry, etc. may turn when they have patients needing such services or facilities Information as to the organization and operation of these "central services" will be compiled in report form and made available on request. Letters have been sent to six such service centers that have been noted in literature on the subject. in Chicago, Milwaukee, Cleveland, San Francisco, Newark (N. J.), and Philadelphia. The material sent in reply is being organized into a loan kit on the subject.

A third project which will have to be undertaken in the near future is a review of the operation of the amendment to the Social Security Act which provides for federal funds to be used on a matching basis for medical care for the categorical groups within the welfare program. This amendment will undoubtedly stimulate the creation of so-called pooled funds and the ear-marking of state funds for medical care so as to obtain federal money. Every state medical association should be aware of this amendment and any medical programs that may be developed as a result.

Committee on Maternal and Child Care

The members of this Committee are Drs. W. L. Crawford, chairman, Rockford, Ill.; R. B. Chrisman Jr., Coral Gables, Fla.; Philip S. Barba, Philadelphia; Harold S. Morgan, Lincoln, Neb.; J. L. Reichert, Chicago; Garland D. Murphy, El Dorado, Ark.; and Howard A. Nelson, Greenwood, Miss.

REGIONAL MEETINGS

Since the last annual report, the Committee has had three meetings, and as part of each meeting it has sponsored joint conferences with other groups. The purpose of these conferences with representatives of the medical societies and health departments is to acquaint the Committee with the various problems encountered relative to maternal and child health and to provide guidance and assistance to the states in initiating or improving programs in this general field of medical service.

The first of these was held at Virginia Beach, Va., on Oct. 22-23, 1955, one day of which was devoted to a meeting with representatives of state medical society committees concerned with maternal and child health. Following this meeting, a staff member made a field survey of the various maternal and child health programs functioning in the state of North Carolina. This survey included a review of the state medical society's Maternal Welfare Committee activities and programs aimed at reducing perinatal mortality.

The second regional meeting was held in Hot Springs, Ark., March 10-11, 1956. Sixteen medical society and health department representatives from six surrounding states attended this meeting. Prior to this meeting a staff member visited five of these states and prepared a summary of the various medical society and health department activities relative to maternal and child care and services in order to provide a preliminary appraisal by the Committee members of some of the special problems encountered in this section of the country. The third meeting, held in Chicago in June, 1956, was devoted to the subject of maternal death studies and is considered later in this report.

These meetings, and similar proposed meetings in other regions of the country, have served their purpose: to acquaint the various states with what the American Medical Association is doing in its efforts to be of assistance to state and local medical societies as well as to provide first-hand information to the Committee members. Actually the meetings are another step by the Committee in its program of assistance to medical societies, practicing physicians, and voluntary and government health agencies in their efforts to improve maternal and child health

MATERNAL MORTALITY STUDIES

The importance and urgency of the committee's effort to develop guides and techniques for the organization and operation of programs to improve maternal and child health became apparent in these regional meetings. All physicians attending these conferences were anxious to initiate and improve state and local programs but, in most instances, sought leadership and guidance. Therefore, preparations began immediately for a conference of national and regional groups interested in maternal mortality studies. The Committee had sponsored a preliminary meeting a year ago, March 10-11, 1955, in Chicago on this specific problem and had proposed such a joint conference to develop some type of guides for state committees. All appropriate groups were contacted and invited to send representatives to a conference in Chicago on June 15, 1956. Response was excellent and the following organizations sent representatives: American Committee on Maternal Welfare, American College of Obstetricians and Gynecologists, American Association of Obstetricians and Gynecologists, American Gynecological Society, Central Association of Obstetricians and Gynecologists, Association of State and Territorial Health Officers, Association of State Maternal and Child Health and Crippled Children Directors, and the Section on Obstetrics and Gynecology of the American Medical Association. In all, 14 physicians and two executive secretaries were present in addition to the committee and staff members. The American Academy of General Practice had appointed a physician to represent it but this individual was prevented from attending due to other meetings on the same day. Dr. Philip F. Williams from Philadelphia attended as special consultant to the Committee.

The purpose of this Conference was (1) to review and discuss principles and policies involving maternal mortality study committees, problems in their operation, and the results of surveys and studies on the subject, and (2) to agree on terminology, organizational methods, and operational procedures for such committees. The materials used were (1) recommended "Definitions" and "Classification of Deaths Related to Pregnancy" as developed by the Special Committee for the Study of Maternal Deaths of the Central Association of Obstetricians and Gynecologists: Drs. Harold A. Ott and Harold W. Longyear, co-chairmen; (2) the "Suggested Outline for Organization and Operating a Maternal Mortality Committee" as developed by the Coordinating Subcommittee for State and Local Mortality and Morbidity Committees of the American Committee on Maternal Welfare: Dr. Luella E. Nadelhoffer, chairman; and (3) an outline summary of nine maternal mortality study programs divided into five categories (terminology, organization, operation, legal status and complications encountered, and results) for comparison and study as developed by the Committee on Maternal and Child Care: Dr. W. L. Crawford, chairman.

It was the consensus of the assembled group at this June 15 meeting that the results should not be allowed to "get cold", but should be "firmed up" as soon as possible. Therefore, the Committee compiled the agreed upon definitions and classifications plus organizational methods and operation techniques into a "Guide for Maternal Death Studies" for further review by the Conference group. A follow-up meeting, consisting of one representative from each group, was held. The completed "Guide" is herewith submitted to the House of Delegates for its consideration and, if approved, the Committee plans to distribute this material to all state and county medical societies and state health departments.

GUIDE FOR MATERNAL DEATH STUDIES

This guide has been prepared with the full recognition that it may be altered to suit varying state and local situations. In general it represents the combined efforts of representatives from The American College of Obstetricians and Gynecologists, The American Association of Obstetricians and Gynecologists, the American Gynecological Society, The Central Association of Obstetricians and Gynecologists, The American Committee on Maternal Welfare, The Association of State and Territorial Health Officers, The Association of State Maternal and Child Health and Crippled Children Directors, The American Academy of General Practice, and the Section on Obstetrics and Gynecology and Committee on Maternal and Child Care of the American Medical Association. However, THIS GUIDE DOES NOT NECESSARILY CONSTITUTE A POLICY STATEMENT OF ANY OF THE ABOVE ORGANIZATIONS WHICH HAVE COOPERATED WITH THIS COMMITTEE.

The expressed purpose of this guide is to assist medical organizations interested in improving existing studies or in developing such studies by promoting uniformity in terminology, classification, organization, and operation. If it is to serve this purpose, it should be considered as a Set of suggestions and not rules and may be modified to suit the need. It is anticipated that this guide will be followed by a similar guide for perinatal mortality committees.

The Committee on Maternal and Child Care is indebted to the representatives of the above listed organizations for their assistance in this project and wishes to express special appreciation to Dr. Luella E. Nadelhoffer, Evanston, Illinois and Drs. Harold A. Ott and Harold W. Longyear, Royal Oak, Michigan for their contribution of much of the original material used as a basis for the preparation of this guide; and to Dr. Philip F. Williams of Philadelphia who has acted as consultant to the Committee on this and other occasions.

It is recognized that many variables, including the laws of the several states, may influence the operations or procedures followed by a committee organized within the framework of this guide. Committees should have no reluctance in seeking the advice of legal counsel whenever question arises concerning the applicability of state laws to this guide. They should feel free to call on the Council on Medical Service and the Law Department of the Association for advice when needed.

Terminology and Definitions in Maternal Death Studies

The collection and tabulation of information and data in an orderly manner is necessary in any study. Then to compare and analyze the results of the various studies require that such information and data be concerned with like things or characteristics. As a result the first step in preparing a "guide" is the development of terminology and definitions. The following are in no sense absolute, but they do represent an agreed upon compromise in the thinking of those who participated in this project. It is suggested that committees conducting such studies utilize these terms and definitions for a trial period of three years and report their experiences to the Council on Medical Service.

I. Maternal Death: The death of any woman dying of any cause whatsoever while pregnant or within 90 days of the termination of the pregnancy, irrespective of the duration of the pregnancy at the time of the termination or the method by which it was terminated.

(NOTE: The term "maternal death," as here defined to be used by maternal mortality study committees indicating the scope of their studies, should not be confused with the official state and national "maternal mortality" statistics which include only those deaths with International Classification Causes numbering 640-689.)

A. Direct Obstetric Cause of Death: A death resulting from complications of the pregnancy itself, from intervention elected or required by the pregnancy, or resulting from the chain of events initiated by the complication or the intervention. These deaths include those causes listed in Chapter XI of the International Statistical Classification of Diseases, Injuries, and Causes of Death, Sixth Revision, Code Nos. 640-689, and other causes consistent with this definition. (See section on "Classification of Maternal Deaths")

B. Indirect Obstetric Cause of Death: A death resulting from disease before or developing during pregnancy (not a direct effect of the pregnancy) which was obviously aggravated by the physiological effects of the pregnancy and caused the death. (See section on "Classification of Maternal Deaths")

C. Non-Related Cause of Death: A death occurring during pregnancy or within 90 days of its termination from causes not related to the pregnancy, nor to its complications or management. (See section on "Classification of Maternal Deaths")

II. Obstetric (Commonly referred to as Maternal) Death Rate: The number of maternal deaths due to direct obstetric causes (including only those referred to in I.-A) per ten thousand live births over the usual period of 12 months. (If in doubt about classification of a particular diagnosis, consult the National Office of Vital Statistics).

III. Factors of Preventability (Avoidability): Preventability should be judged in an ideal academic sense. This concept involves three assumptions. First, the physician possessed all the knowledge currently available relating to the factors involved in the death. Second, by experience, he had reached a high level of technical ability. Third, he had available to him all the facilities present in a well organized and properly equipped hospital. Because of the austerity of these criteria it is more desirable to *determine avoidable factors* involved in the death, rather than to label the death as preventable. This allows more specific discussion resulting in better maternal care and reduction of obstetric causes of death.

IV. Factors of Responsibility: Responsibility should be determined whenever possible and assigned as appropriate to the attending physician, consultant, midwife, hospital, patient, or any combination. (See Appendix for cases exemplifying the various factors as defined in the following five categories).

A. Professional Factors: These are concerned with cases where there appear to be shortcomings in diagnosis, judgment, management, and technique, and include failure to recognize the complication or evaluate it properly. They also include instances of injudicious haste, delay or timing of operative intervention, and failure to utilize currently acceptable methods of treatment. Finally, they would include services which were technically inept, and those failures which could have been averted by proper and timely consultation.

B. Hospital Factors: These are concerned with facilities, equipment or personnel which are inadequate. In terms of modern obstetrics the hazards of delivery cannot be met successfully unless the hospital provides, among other things, (1) a separate, well directed maternity section, (2) a blood bank, (3) competent 24 hour anesthesia service, (4) suitable x-ray facilities and (5) adequate 24 hour laboratory facilities

C. Patient Factors: These should be recognized, but never as an excuse for professional inadequacy. They are concerned with death resulting from a complication for which there is generally successful treatment but which the patient denied herself by delaying her initial visit to the physician, by delaying obtaining medical care after the symptoms were obvious at a layman's level, or finally, by not following the advice and instructions of her physician.

D. Undetermined Factors: If because of inadequate evidence a clear-cut decision cannot be made, yet shortcomings in care are apparent, it would be preferable to indicate that responsible factors are undetermined. An attempt should be made to determine preventability and to locate the responsible factors

E. Any Combination of Factors in the Above Categories

Classification of Maternal Deaths

I. Direct Obstetric Causes. Included are those listed in Chapter XI, "Deliveries and Complications of Pregnancy, Childbirth, and the Puerperium", Code Numbers 640-689, of the International Statistical Classification of Diseases, Injuries, and Causes of Death, Sixth Revision, plus other causes not listed in Chapter XI but belonging in this Classification. The following main headings are recommended: (See Appendix for list of three-digit Categories, and see the Manual, Sixth Revision, for four-digit subcategories.)

A. Hemorrhage
B. Toxemia
C. Infection
D. Vascular Accidents (such as Air Embolism, Amniotic Fluid Embolism)
E. Anesthesia
F. Other (such as Molar Pregnancy and Transfusion Hemolysis)
G. Undetermined (A necessary category which should be reduced as much as possible, especially through the use of adequate records and autopsies)

II. Indirect Obstetric Causes

A. Cardiac Disease
B. Vascular Disease (such as Hypertensive Vascular Disease and Vascular Embolism)
C. Reproductive Tract Disease (such as Uterine and Adnexal Tumors)
D. Urinary Tract Disease
E. Hepatic Disease
F. Pulmonary Disease
G. Metabolic Disease (such as Diabetes)
H. Other (such as Appendicitis and Peritonitis of non-puerperal origin)
I. Undetermined (A necessary category which should be reduced as much as possible, especially through the use of adequate records and autopsies)

III. Non-Related Causes

A. Communicable and Infectious Disease
B. Blood Dyscrasias
C. Malignancy
D. Suicide
E. Murder
F. Accidental
G. Other
H. Undetermined (A necessary category which should be reduced as much as possible, especially through the use of adequate records and autopsies)

Organization and Operation of a Committee to Study Maternal Mortality

I. Purpose and Function:

A. The purpose of a Maternal Mortality Study Committee is to determine, by scientific and confidential analysis, all factors involved in maternal deaths in order that (1) avoidable factors in maternal deaths may be reduced or eliminated, and (2) better maternal care may be assured through improvement in teaching and practice.

B. The functions of the Committee include, among others (1) full scientific analysis and frank discussion of the causes of all maternal deaths in its jurisdiction with rigid adherence to ethical and legal principles insuring *anonymity* of all parties involved; (2) determination of existence and nature of avoidable factors, if any; (3) objective and impersonal report and dissemination of knowledge gained; and (4) education of all medical and non-medical personnel connected with obstetrics as well as the lay public in order to accomplish the purposes of the Committee.

II. Organization:

A. Location: any community, county, state or territory.

B. Sponsoring Groups: (1) Medical Society; (2) Any interested group of physicians having approval of local medical society; (3) Medical specialty groups; (4) Health department; or (5) Any combination of above.

C. Membership:

(ROTATING WITH SPECIFIED TENURE–TERMS LONG ENOUGH TO ASSURE CONTINUITY IN INTEREST AND ACTIVITY)

1. Members of the medical profession who might include representatives from the following groups: (a) Local or state medical society; (b) Obstetrics and gynecology; (c) Pediatrics; (d) Public Health; (e) Medical school—department of obstetrics and gynecology; (f) General practice; (g) Anesthesiology; (h) Pathology.

2. Consultants to the Committee, such as: (a) Representative from medical examiner's or coroner's office; (b) Hospital personnel, including administrator, nurses, medical record librarians, and nutritionists; (c) Others, including specialty groups (e. g. cardiologist).

D. Chairman: Appointed by the sponsoring group or elected by membership. An obstetrician is desirable as the chairman.

E. Secretary: Appointed by sponsoring agency or elected by membership of the Committee. Consideration should be given to TENURE OF OFFICE.

F. Meetings: At least quarterly or more frequently as required.

G. Financing: Costs arising from expenses of staff personnel and supplies, and travel costs of members of the committee may be met from the resources of the medical society or the health department or shared by both or from other sources deemed acceptable by the medical society.

III. Operation:

A. Case Finding:

1. Desirable to have specific health department regulation whereby all physicians and hospitals report maternal deaths to the State Maternal and Child Health (or similar) section within a specified period of time after death occurs (e. g. 3 days).

2. Death Certificates screened by Statistics and Records Section of health department and copies of deaths associated with pregnancy sent to Maternal and Child Health (or similar) Section and/or committee secretary.

3. Cross matching, by the Statistics and Records Section, of all female deaths of child bearing age with all birth and fetal death certificates within the preceeding 90 days.

4. Other.

B. Collection of Data

1. Development of questionnaire and other forms and form letters to be used in the study. (See Appendix for examples of forms used in several studies now in progress.)

2. Combined "questionnaire-personal visit" method by a physician or physicians chosen by the committee, or the health department's obstetric consultant if approved by committee.

a. Interviews attending physician and consultant (or physician signing death certificate and midwife or other as the case may be.)

b. Visits hospital and obtains pertinent information from records (or health department clinic if patient attended same and patient delivered at home).

c. Other sources as deemed necessary by the visiting obstetrician (such as the family at the discretion of the attending physician).

3. An alternate method (if visiting obstetrician impractical in certain areas) would be the use of the questionnaire only.

a. Sent directly to attending physician by committee secretary; or

b. Delivered personally to attending physician by committee's hospital representative, who would be responsible for seeing that it was adequately filled out; or

c. Filled out by hospital representative or committee member in the area as the circumstances warrant relative to availability of informants and records.

C. Processing of Data

1. Data summarized by visiting obstetrician (or secretary and/or chairman when questionnaire method only is used) on a standard protocol sheet as approved by the committee.

2. Anonymity preserved by no identifying data relative to the physician, the hospital, or the patient appearing on summary sheet. All original data also made anonymous by code number assignment (by visiting obstetrician or secretary.

3. The Secretary receives all the data collected on a case plus the summary, and, with the chairman, reviews each case protocol.

4. Copies of each case protocol are sent to each member of the committee prior to a meeting.

5. Completed questionnaire and all other data on a case are the confidential property of the committee and proper arrangements should be made for their safekeeping.

D. Committee Meetings

1. Notification to (each committee will have its own ideas as to who should attend meetings but the following are suggestions as to possible invitees): (a) Members. (b) Attending physicians whose cases will be discussed. (c) Hospital obstetrical staff where death occurred. (d) MCH director or other suitable representative of the health department. (e) Medical examiner's or coroner's office representative. (f) Other hospital obstetrical staffs. (g) Other interested physicians as approved by the committee and sponsoring agency.

2. Procedure: (a) Chairman, or a member designated by him, presents the case. (b) A discussant, prepared in advance with complete knowledge on the various aspects of the particular complication in question, is assigned to open discussion on the case. (c) The attending physician and others are encouraged to participate. (d) If a medical examiner's (coroner's) case, a representative from that office should be in attendance to present the findings. (e) Each case is classified by the committee according to the outline "Classification of Maternal Deaths." (f) each case is further classified as to its preventability (avoidability) factors or non-preventable nature according to the "Terminology and Definitions in Maternal Death Studies". (g) The responsibility factors are determined by the committee according to the five categories under "Factors of Responsibility" of the "Terminology and Definitions in Maternal Death Studies".

E. Follow-up and Utilization of Committee Findings

1. The findings should not be in the form of criticism, but rather an analysis pointing out possible avoidable factors.

2. A copy of the committee's findings and comments concerning preventable or avoidable factors may, at the discretion of the committee and with the approval from the sponsoring medical society, be presented to: (a) The attending physician and consultant. (b). Head of obstetrical staff in hospital where death occurred. (c) Hospital administrator. (d) Department of Health in the community. The presentation of these findings

may be made orally, personally delivered, or delivered by registered mail to "Addressee Only" (See Appendix for examples of techniques used.)

3. The committee's findings relative to the cause of a maternal death should be submitted to the statistics and records section of the state for correction, if necessary, of official maternal death statistics.
4. Annual report to sponsoring medical society.
5. Additional reports and articles on the study—and various phases of the study—to be published in the local and/or state medical journal for the benefit of all physicians in the community and/or state (as approved by the sponsoring medical society).
6. Committee material to be available for both under graduate and post graduate teaching.
   a. In medical schools of the state.
   b. By physician lecture teams bringing the unidentified but intimate details of the committee findings to the hospitals of the state and to county medical societies. (See Appendix for examples of techniques used.)
7. Findings to be used by proper agency or organization to promote the improvement of services and facilities in hospitals found to be deficient.
   a. Constant attention should be given to adequacy of records.
   b. Constant attention should be given to correctness of diagnosis; therefore, importance of autopsies should be emphasized.
8. The Committee should accept responsibility for the promotion of lay education in order to reduce avoidable factors concerned with patient responsibility.

F. Future Expansion or Activity

1. Maternal morbidity studies.
2. Cooperate in perinatal mortality studies.

APPENDIX

An appendix to this guide is considered essential for those committees desiring more detail on various specific phases of maternal death studies. The following items have been proposed as contents for that appendix:

1. Detailed descriptive data of selected maternal mortality studies.
2. Examples of "Factors of Responsibility".
3. List of Three-Digit categories from Chapter XI, Deliveries and Complications of Pregnancy, Childbirth, and the Puerperium, Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, Sixth Revision.
4. Forms used in maternal death studies.
5. Examples of techniques used to communicate findings of committee on individual cases to those most directly concerned.
6. Examples of techniques regarding use of committee findings for professional educational purposes.
7. Examples of laws presently in operation designed to protect participants in scientific studies such as these. Reference will be made to a study being conducted by the Law Department with anticipated results of possible value to state medical associations desiring assistance in proposing such statutes for their states.

COMMITTEE LIAISON ACTIVITIES

In addition to the liaison which the Committee has had with the above-named national and state groups, some of its members have directly and indirectly represented the Council and the American Medical Association in other meetings during the past year. Dr. Barba was in on the planning phase of a Children's Bureau's project, in cooperation with the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists, concerning a three-year statistical study of maternity and newborn services. He also represented the Committee at a Children's Bureau Conference on homemaker services. Dr. Reichert represented the American Academy of Pediatrics and Dr. Crawford and Dr. W. W. Bauer represented the Association on an advisory committee to the National Congress of Parents and Teachers. This committee met on Jan. 21, 1956, to recommend ways and means appropriate for the Congress in their efforts to promote periodic health appraisals for well infants and children.

PUBLICATIONS

A number of articles have appeared in THE JOURNAL this past year. Section B of Part III of the series, "Studies of Maternal and Child Care in the United States", involving the communities of Lincoln and Omaha, Nebr., was in the Oct. 22, 1955, issue. This was later reprinted in combination with Section A, Part IV, Section A, of this same series, involving the state of Michigan, appeared in the March 24, 1956, JOURNAL.

The first (Part I) of a new series of articles on "A Study of Maternal Mortality Committees" was published on Dec. 31, 1955, and was concerned with the Minnesota experience. The second article (Part II) of this series, involving Franklin County, Ohio, appeared in the Jan. 28, 1956, issue. The third article (Part III) appeared May 5, 1956, and described the experiences of the pioneer Philadelphia committee and its maternal mortality studies. This medical society committee, whose first chairman was Dr. Philip F. Williams, is now in its twenty-fifth year of continuous operation. Part IV, concerned with the downstate Illinois study of maternal mortality and ways of improving maternity care was published in August. The Michigan and Wayne County (Detroit) experience and the North Carolina study are scheduled to appear in subsequent issues of THE JOURNAL. These articles will be reproduced in whole or in part in the appendix of the brochure mentioned earlier in this report concerned with the "Guide for Maternal Death Studies." Reprints of the articles in the first series, with subsequent articles to be published, have been reprinted three times to meet the demand for copies.

FUTURE ACTIVITIES

Having completed the "Guide for Maternal Death Studies", the Committee's next task is to prepare guides for the organization and operation of maternal and child care committees for use by state and local medical socities. Concurrent with this project, a special subcommittee will review problems concerned with perinatal death studies to learn what may be done in this area.

Committee on Medical Care for Industrial Workers

The members of this Committee, which is a joint committee of the Council on Medical Service and Council on Industrial Health, are Drs. W. A. Sawyer, Chairman, Rochester, N. Y.; M. N. Newquist, New York; Warren F. Draper, Washington, D. C.; Edwin P. Jordan, Charlottesville, Va.; Frank J. Holroyd, Princeton, W. Va.; Clark Bailey, Harlan, Ky.; and Frederick W. Slobe, Chicago. At present the Council on Medical Service has no designee on this Committee because of the death of Dr. Arthur C. Scott Jr., who served in that capacity.

Three meetings were held by the Committee during the past year. They were primarily concerned with two major activities—the United Mine Workers Welfare and Retirement Fund, and Work Absence Due to Non-Occupational Disability.

UNITED MINE WORKERS WELFARE AND RETIREMENT FUND

A unique feature of the fourth Conference on Medical Care in the Bituminous Coal Mine Area, which was held in Charleston, W. Va., on May 6, 1956, was an extensive two-day field trip to the Beckley and Bluefield coal mine areas by a group of fifty doctors. Physicians from various state medical societies and the United Mine Workers Welfare and Retirement Fund, and the Committee members had an opportunity of securing on-the-scene information about working and housing conditions and medical care provided to miners and their families from hospital administrators and other medical personnel. Two meetings with local medical societies provided for a further exchange of information. All this background aided materially in the success of the conference, attended by over 100 physicians, at which a full and frank discussion of progress and pending problems was presented. One of the highlights of the Conference was the description of the events leading up to the agreement entered into between the United Mine Workers of America and the Medical Society of the State of Pennsylvania which may serve to establish a pattern for other states to follow. The importance of the agreement lies in the fact that it does present a method of resolving a problem in medical relationships which had threatened to undo much of the effort that had gone into bringing about better understanding between the Fund and the medical profession.

While the problem in one state was being successfully negotiated, two others—in the states of Colorado and Illinois—were called to the attention of the Committee. In both instances, the Commitee was called upon by he respective medical societies to assist in resolving local situations. The Executive Medical Officer of the Fund expressed satisfaction at the request of the state societies and offered full cooperation in making data available that might be useful to the Committee in its investigation. Negotiations carried on by the Committee between the Executive Medical Officer of the Fund and the officers of the Illinois State Medical Society resulted in a commitment by the fund and medical society representatives to attempt to resolve the conflict in Illinois in a manner similar to that which was followed in the state of Pennsylvania. There appears to be sufficient reason to believe that the problems can be resolved to the satisfaction of all parties concerned.

A more complex situation presented itself, however, with regard to the Colorado State Medical Society where several situations, some concerning the Area Medical Administrator of the Fund, and some involving a local medical society, arose simultaneously. The Committee accepted the invitation of the state society to conduct a personal study of the situation through field trips to Denver and Trinidad. (This was in accord with the resolution adopted by the House of Delegates in June, 1955. "That all other controversial matters arising between the U. M. W. A. Welfare and Retirement Fund and the participating physicians which cannot be reconciled at the local or state level shall be promptly referred to the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the American Medical Association.") The study, which took several days, culminated in a report containing recommendations to the state society as requested by it. The Executive Medical Officer of the Fund has likewise been advised of the report pertaining to its activities in Colorado. In both situations, involving Illinois and Colorado, the Committee stands prepared to render whatever additional assistance is requested of it.

Further conferences will depend upon the outcome of a canvass made of the medical societies in those states in which the Fund operates. The important lesson learned thus far is that the presence of actively functioning liaison committees composed of representatives of the miners' program and organized medicine can, in the main, deal with most problems as they arise. Where such liaison committees are not in existence or not active, it may be helpful for the Committee to provide the means of mediation and advantage of its counsel. Another essential ingredient for the local resolution of problems is an actively functioning staff organization in each hospital so that there is both awareness and supervision of the quality of care rendered.

WORK ABSENCE DUE TO NON-OCCUPATIONAL DISABILITY

The Committee realized one of its major goals on Jan. 23, 1956, when it held a one-day conference devoted to this problem area as a part of the Congress on Industrial Health in Detroit. Over 500 physicians, as well as management representatives, heard four distinguished panels discuss various aspects of this problem. To the Committee's knowledge, this was the first time that a project of this scope had ever been undertaken by the Association, dealing as it did with the broad ramifications of this problem. Over twenty speakers spoke on a wide range of topics dealing with job absence and answered scores of questions presented by the audience.

The meeting reflected the enormous amount of preparatory work that had gone into the planning of the program and the selection of topics and speakers for the occasion. Two publications were especially prepared for the Conference. One of these, "Company Medical Programs and Work Absence," a compilation of the description of programs in ten companies, was prepared by the staff of the Committee based upon personal visits and interviews with medical directors and management personnel. The other, "A Syllabus on Work Absence," was prepared by the members of the staff of the Occupational Health Program of the Public Health Service at the request of, and in cooperation with, the staff of the Committee. The proceedings of the conference, which are to be published in the near future, are expected to be a basic reference work on the subject, and will undoubtedly receive wide distribution in and outside of the medical profession.

In addition to the foregoing publications, the Committee on Medical Care for Industrial Workers has issued the following publications during the past year: Management Health Centers, Guiding Principles for Management and Union Health Centers, and Report of the Fourth Conference on Medical Care in the Bituminous Coal Mine Area.

GUIDING PRINCIPLES FOR EVALUATING MANAGEMENT AND UNION HEALTH CENTERS

The Colorado State Medical Society introduced a resolution (No. 24) at the Annual Meeting in Chicago during June, 1956, requesting the Councils on Medical Service and Industrial Health to reconsider the guiding principles and to revise them so that they would conform to the Principles of Medical Ethics. In discussing the resolution before the Reference Committee on Insurance and Medical Service, members of the Committee stated their belief that the guiding principles in no way conflicted with the Principles of Medical Ethics. They observed that the Principles of Medical Ethics were in the process of revision and, upon the approval of the revised Principles by the House of Delegates, a review would be made of the guiding principles. The resolution, which was approved by the reference committee and adopted by the House, will be given Committee consideration after the December, 1956, Clinical Meeting.

Committee on Federal Medical Services

The membership of this committee has had one change during the year. Dr. Oscar B. Hunter, Washington, D. C., was selected to replace Dr. Harvey B. Stone of Baltimore. Other members are Drs. Louis M. Orr, chairman, Orlando, Fla.; J. D. McCarthy, Omaha; J. Lafe Ludwig, Los Angeles; Richard L. Meiling, Columbus, Ohio; Vincent W. Archer, Charlottesville, Va.; and Russell B. Roth, Erie, Pa. Since the liaison committee of the Board of Trustees with the American Legion has completed its study and has been discharged, the Committee is now formulating plans to renew its informational program on the Veterans Administration and other Federal medical programs.

MEETINGS DURING YEAR

The Committee on Federal Medical Services met four times in the period from July, 1955, to July, 1956. Meetings were held at Chicago on Oct. 6, 1955, March 16, 1956, and June 9, 1956, the last meeting being held during the June session of the American Medical Association. A special meeting with Public Health Service officers was held Nov. 11, 1955, at Washington, D. C.

LIAISON WITH AMERICAN LEGION

The Board of Trustees at its Miami meeting in 1954 appointed a three-member committee, consisting of Drs. Elmer Hess, David B. Allman and Louis M. Orr, to cooperate with a similar committee from the American Legion. This liaison group and designated American Medical Association staff members held meetings with American Legion representatives throughout 1955 and in January, 1956. The liaison committee presented a report to the Board of Trustees and was discharged by the Board on Feb. 11, 1956. At that time the report of the two groups was referred to the Committee on Federal Medical Services for study.

This Committee studied and reviewed the proposed statement submitted by the liaison groups and concluded that no revision of the fundamental American Medical Association policy concerning Federal medical care for non-service-connected disabilities was required. The committee report was approved by the Board of Trustees and the House of Delegates at the June session in Chicago, with the additional recommendation that the Council on Medical Service, through the Committee on

Federal Medical Services, reconsider the temporary exceptions made for non-service-connected disabilities of neuropsychiatric or tuberculous origin "with a view to adjusting these exceptions in more realistic fashion to the needs of areas in this country where local facilities do not exist for the care of mental disease, tuberculosis, and other chronic disabilities as well." The Committee reported this recommendation to state and county medical societies in its August, 1956, Newsletter and requested comment from local groups as a first step in the recommended survey of current conditions.

FEDERAL MEDICAL SERVICES NEWSLETTER

During the period of activity of the Board of Trustees' liaison committee, the Committee on Federal Medical Services did not publish its Newsletter (April 1955 to May 1956). However, since the liaison committee is now discharged, publication has been resumed, and the Newsletter is now published on a monthly basis. In accordance with the directives of the House of Delegates, it is planned to include all federal medical pro- ns within the scope of the Newsletter rather than veterans' alone. This expansion had begun with the 1955 issues. cts discussed in issues this year thus far include Indian th problems and programs, the Public Health Service, the medical program of the Panama Canal Zone, and the new military dependents' medical care program. In order to reach all members of the profession who are concerned with these subjects, the mailing list for the Newsletter has been expanded. Instead of going only to state veterans' affairs committees, it is now being mailed to all physicians on the mailing list for the American Medical Association Secretary's Letter, and such additional names as are requested by state or local medical societies.

VETERANS MEDICAL CARE FACTBOOK AND SPEAKERS KIT

To assist physicians in preparing talks on the medical profession's policy concerning veterans' medical care the Committee published a Factbook and a Speaker's Kit, the latter designed to accompany a set of film strips or slides prepared for and distributed by the American Medical Association. These publications were based on the statistical material available in 1953 and, hence, some of the data date back to 1951 and 1952. The Committee has prepared a revised edition, combining the functions of both publications, bringing statistical material up to date. This new booklet will be made available to medical society committees and individual physicians.

VETERANS MEDICAL CARE EDUCATIONAL PROGRAM

In accordance with Resolution No. 64, approved by the House of Delegates in June, 1955, the Committee has resumed its educational program. In addition to publication of the Newsletter and the revised version of the Factbook and Speaker's Kit, the committee is considering a second series of meetings to acquaint new members of state medical association veterans' affairs committees with the medical profession's policy and recent developments in veterans' medical care and federal medical services generally. Such meetings, if decided upon, will probably begin in the fall of 1956.

OTHER VETERANS ADMINISTRATION PROGRAMS

The Committee is developing plans for a study of the value of residency training in Veterans Administration hospitals. This will probably be a long-term study, since it will require contacting local private physicians cooperating in the Veterans Administration medical program.

Resolution No. 2, approved in June, 1955, directed the Council and Committee to reexamine the policy in regard to the exemption for veterans suffering from tuberculous disorders of non-service-connected origin with regard to the recent changes in methods of treatment, need for hospitalization, and availability of non-federal beds. The purpose of this reexamination is to determine whether or not there still exists a shortage of adequate facilities for treating such cases sufficient to justify their continued care by the Veterans Administration. The Committee has conducted a study of statistical material concerning the utilization of hospital beds in the United States for tuberculous patients, which seems to indicate some decrease in usage. However, it feels that such a trend is not yet sufficiently definite to permit any specific recommendation and that the study should be continued for at least another year. (This study will now become part of the general study of exceptions to the American Medical Association policy on non-service-connected care recommended by the House of Delegates in its action on the report concerning liaison with the American Legion.)

LIAISON WITH OTHER ORGANIZATIONS

At its October, 1955, meeting the Committee agreed to provide the national office of the National Veterans' Society with the mailing list then in use for the Federal Medical Services Newsletter, comprising all members of state medical association veterans' affairs committees. A copy of this list was accordingly forwarded to the secretary of the National Medical Veterans' Society.

At its March, 1956, meeting the committee discussed liaison with the public relations counsel of the Disabled American Veterans organization. It is expected that further meetings will be held with representatives of this group to discuss matters of mutual interest, particularly rehabilitation programs.

FEDERAL REPORTS ON VETERANS CARE

During the past year, two federal reports have been issued concerning veterans' benefits. A report on "abuses" of the medical program, issued by the House Veterans Affairs Committee, is in two parts. The first discusses abuses of the home town medical care program by fee-basis physicians and dentists. The second part discusses abuses of the Veterans Administration medical care program by non-service-connected veterans: This consists of a General Accounting Office survey which investigated (1) the income and financial status of veterans who said they were "unable to pay", and (2) the actual financial status of veterans as compared with the financial status they reported on the statement appended to their application for admission to Veterans Administration hospitals.

The second report is the report of the Bradley Commission, appointed by the President to investigate nonmedical benefits for veterans and to chart a course for future legislation in this field.

The committee has made an analysis of the report on "VA abuses" issued by the House Veterans Affairs Committee published in its May, 1956, Newsletter. Close examination of the report showed only some 82 cases of abuses by physicians during a period of over a year. It also showed that many of these abuses were not willful, but were due to a misunderstanding of federal regulations or to clerical errors in the physicians' offices.

The Bradley Commission also issued its report, which the Committee has analyzed since this is the first federal commission which has studied the philosophy underlying federal benefits for veterans. The committee's Newsletter 6 is devoted in its entirety to this analysis, and lists not only those statements which apply directly to veterans' medical care but also all 70 recommendations made by the commission on the general subject of veterans' benefits. The Committee on Federal Medical Services is pleased to note that this distinguished commission's discussion of the philosophy underlying veterans' benefits at no point disagrees with the basic policy of the medical profession.

HOME TOWN MEDICAL CARE

Recent reports from various state associations indicate an attempt on the part of the Veterans Administration to curtail the home town medical care program and to abolish the administration of the program by medical societies. This is the program whic provides outpatient care for veterans with service-connected disabilities from physicians of their choice in their own communities. Both the curtailment and abolition of state societies from the administrative area have been justified as an economy measure, although several studies received by the committee indicate that home town care is less expensive than care at the Veterans Administration's own clinics, and that medical society administration is both economical and ably carried on. The committee is continuing its survey of the home town care program and will report on future developments in its Newsletter and annual reports.

INDIAN HEALTH

The Committee has kept a constant check on the progress of the health program for the American Indian. Responsibility for this program was transferred from the Bureau of Indian Affairs of the Department of the Interior to the Division of Indian Health (newly created to accept the responsibility) of the Public Health Service in July, 1955. As has been reported in the Committee Newsletter, the status of Indian health represents one of the great defects in the otherwise glowing picture of American health. The committee held a special meeting with Public Health Service representatives in November, 1955, at which the future plans of the Division of Indian Health were discussed. The Committee will keep informed of progress in this field, and will report on activities in the field of Indian health to the medical profession.

FUTURE ACTIVITIES

The Committee's primary directives from the House of Delegates at present are: (1) To continue the educational program for the physician concerning the medical profession's policy on federal care for veterans and, when feasible, to expand this educational program to include the general public; (2) to expand the educational program to include all federal non-military medical services, rather than veterans' care alone; and (3) to reexamine the American Medical Association policy excepting neuro-psychiatric and tuberculous cases from the restriction on federal care for non-service-connected cases in the light of current adequacy of hospital facilities in certain areas, and to include in this reexamination the needs of other chronically ill veterans.

To implement these directives, the Committee: (1) Has resumed publication of the Federal Medical Services Newsletter on a monthly basis, the contents to include discussion of all federal medical programs within the Committee's scope, including notice of studies concerning federal medical care which are made by other committees of the Council; (2) has revised material utilized by the medical profession in explaining its stand on veterans' medical care, (3) plans to resume regional and/or national meetings of representatives of state medical associations to discuss recent developments in this field; (4) will continue surveys of medical care provided through various federal departments and report to the profession on these programs; and (5) will study, in cooperation with other councils of the American Medical Association and with other professional organizations, the current need for hospital beds for the various chronic diseases and of the adequacy of present facilities.

Committee on Prepayment Medical and Hospital Service

The membership of this Committee remains the same as at the time of the annual report of last year. Committee members are: Drs. Percy E. Hopkins, Chicago, chairman; John Conway, Clovis, N. Mex.; Charles L. Farrell, Pawtucket, R. I.; Quentin Kintner, Port Angeles, Wash., O. B. Owens, Alexandria, La.; Carl F. Vohs, St. Louis; and Council member Carlton E. Wertz, Buffalo, N. Y.

Since the last annual report the Committee has had two called meetings. Both were held in Chicago and the dates were Feb. 11 and 12 and June 12, 1956. In addition, a subcommittee met immediately after the 1955 Clinical Meeting to refine and later approve the publication of "Summary of Physicians' Attitudes Toward Voluntary Health Insurance." This pamphlet, published by the Committee with the sanction of the Council, has received wide distribution and requests for copies are still being received.

VOLUNTARY HEALTH INSURANCE

The insurance mechanisms designed to assist in financing health care are continuing to be utilized by more and more Americans. By the end of 1955, over 107 million persons had some type of hospital expense protection. At that date nearly 92 million persons were insured against part or all of the expense incident to surgical operations, while over 55 million were entitled to benefits for regular medical (as distinguished from major hospital and medical) expenses not involving surgery. Those protected under major expense programs numbered an estimated 5,241,000.

Numerically the increase for 1955 for each category of protection was: Hospitalization 6,169,000; surgical expense, 6,037,000; regular medical, 8,258,000; and major hospital and medical expense, 3,006,000. Again, as during calendar year 1954, the increase in enrollment for all types of benefits was at a rate greater than the rate of increase in the total population. Against the increase in total population (estimated at about 1.9 percent) the number of persons carrying hospital expense benefit protection increased by 6.1 percent. The percentage rate of increase for each of the other categories was: Surgical expense, 7.0; regular medical, 17.5; and major hospital and medical, 134.5.

The above figures as well as those which appear in the following tables were derived from the Preliminary Report on the Annual Survey of The Extent of Voluntary Health Insurance in the United States as released by the Health Insurance Council.

Total Enrollment by Type of Benefit and Type of Insurer

Type of Insurer	*Number of Persons Protected Against:* *Hospital Expense*	*Surgical Expense*	*Regular Medical Expense*
Insurance Company			
Group	39,029,000	39,725,000	20,678,000
Individual	26,706,000	22,445,000	6,264,000
Total Insurance Co.	65,735,000	62,170,000	26,942,000
Duplication estimated[1]	6,081,000	5,525,000	1,911,000
Net Total (insurance)	59,654,000	56,645,000	25,031,000
Blue Cross-Blue Shield[2]	50,726,000	39,165,000	29,451,000
Independent Plans	4,530,000	4,340,000	4,639,000
Grand Total	114,910,000	100,150,000	59,121,000
Less Duplication[3]	7,248,000	8,223,000	3,615,000
Net Total	107,662,000	91,927,000	55,506,000

1—Number indicates those who may carry insurance with more than one company.

2—Includes some plans of those types which may not belong to either Commission.

3—Estimated number of persons who carry both insurance company and Blue Shield-Blue Cross or similar contracts.

Total Payments by Type of Benefit and Type of Insurer

Type of Insurer	*Type of Benefit* *Hospital*	*Surgical-Medical*	*Total*
Blue Shield-Blue Cross	$ 870,000,000	$340,000,000	$1,210,000,000
Insurance Companies	745,000,000	445,000,000	1,190,000,000
Independent Plans	75,000,000	55,000,000	130,000,000
Totals	$1,690,000,000	$840,000,000	$2,530,000,000

Each year the Council on Medical Service through its Committee on Prepayment Medical and Hospital Service contributes to the total survey along with the Blue Shield and Blue Cross Commissions and other interested organizations. These contributions are then collated with the figures reported by insurance companies through their respective trade associations. After all figures are compiled, the totals are reduced so as to eliminate duplication and reflect only the net number of persons protected.

In releasing the survey, it was estimated that by mid-year 110 million persons had hospital expense protection while 94 million had surgical expense benefits and 58 million were eligible for medical benefits other than surgery.

From the standpoint of dollar volumes, the total benefits paid under voluntary health insurance programs reached an all-time high and amounted to approximately 2.5 billion dollars during 1955. That total was for assisting in payment for hospital and medical care. Nearly 600 million dollars was the amount paid in disability benefits, some of which undoubtedly was used in payment for health care. Although the 3.1 billion dollar total involved has no valid relationship to total private expenditures for health care, it nevertheless represents a substantial amount.

MAJOR HOSPITAL AND MEDICAL EXPENSE BENEFITS

As indicated previously, this type of protection reflected the greatest percentage enrollment increase during 1955. It is also the newest type of coverage and, in many respects, still in the experimental stages. In many instances it is written supplemental to some type of basic benefit program. For the most part these efforts include a deductible feature (the amount which the sured pays before the insurer assumes any portion of the risk) combined with an element of co-insurance. Co-insurance is that percentage of the loss which the insured shares with the insurer. When written to supplement a basic plan, the benefits of the basic program may satisfy the deductible amount selected.

Mention was made previously of the combination of the deductible feature and the co-insurance principle. This is the more frequent approach and was adopted by the employees of a large industry recently without a concurrent basic plan. Another program introduced recently on an experimental basis by a Blue Shield plan contains no co-insurance feature with regard to payments for medical care when rendered by a participating physician. The co-insurance principle is applied for certain institutional benefit payments (hospital, etc.) and when treatment is rendered by non-participating physicians.

In preparing its report on this general subject for the 1954 Clinical Meeting, the Committee was aware of several instances wherein it appeared that some members of the profession felt justified in increasing their customary fees when insurance of this type was involved. At that time it was requested that such physicians resist any such tendency, as failure to do so would jeopardize the entire program. The number so insured then was an estimated 1,250,000, which increased by the end of 1955 to 5,241,000 and to a still greater number, approximately 7 million, as this report is being written, which makes it increasingly important that these experiments be permitted to continue without unnecessary complications.

In view of the growth of this type of protection, it is deemed appropriate to refer to that portion of the Council report[1] on this subject for the 1954 Clinical Meeting. It is suggested that that report be reread, but it is desired at this time to quote the concluding paragraph which states:

> Two elements are primarily responsible for determining premiums. One is the frequency (incidence) of occurrence of the contingency insured against. The other is the amount of the benefit. It follows then that normal premiums in this field are predicated in a large measure on normal amounts of benefits. If either claim frequency or claim cost increases, the net result is an increased premium. If both elements increase, it only hastens a higher premium to the insured. A higher premium is always apt to force some buyers out of the market, and for these people financing health care becomes an even greater problem. It should be remembered that insurance does not create any new wealth. It merely assists in conservation. Insurance may conserve the ability of an insured person to fulfill his normal financial obligations. It does not enhance his ability to discharge added responsibilities if they are in the form of increased fees. To use insurance as an excuse to revise professional fees upward is but to contribute to the defeat of its purpose. If these indisputable and self-evident facts are not embraced by the entire membership of the profession, then it will have dealt irreparable harm to the whole movement. Also, any such failure might give impetus to whatever demand now exists for forcing rigid benefit schedules on the profession.

In connection with the problems of unusual charges, the Committee has met and corresponded with the medical directors of some of the companies which have substantial risk exposures. These medical directors have displayed reasonable evidence that there are several instances wherein charges for professional services have not been rendered on the basis of the insured's circumstances independent of the insurance. As the foregoing quotation indicates, insurance, regardless of whether private or nonprofit, does not create new wealth. It merely acts to conserve on existing funds and to transfer normal risks from the individual to the insured group.

Although aware of the existence and availability of grievance committees in many areas, the medical directors responsible for reviewing claims involving the question of usual or customary charges have been hesitant to utilize such approaches. It is the feeling of some that there are other possible approaches which may have less tendency to interfere with traditional patient-physician relationships. The Committee is studying these and related problems with a view toward suggesting preventive as well as corrective programs wherever indicated. The staff continues to receive evidence of what appears to constitute improper practices and is also in the process of compiling data regarding the extent of these practices. When such studies have progressed sufficiently, specific recommendations may be indicated.

SIMPLIFIED CLAIMS FORMS

A considerable number of members of the profession are still interested in the matter of simplified claim forms. The six simplified claims forms developed by the industry and approved by the Council are being utilized increasingly by the insurance companies. One form, ID-1, which received qualified approval, has been amended in keeping with the recommendation of the Council and Committee. In some instances state associations and local societies have deemed it desirable to develop their own forms independently, but this appears to be the exception rather than the rule. It would seem that the Council and Committee have, in collaboration with the insurance industry, fulfilled the request outlined in the earlier resolutions of the House.

Subsequent to the development of these forms, a new problem has arisen. That is the request on the part of some claim administrators that physicians accomplish multiple copies of claim forms. This activity serves to defeat one of the purposes of the simplified blanks which was to reduce the paper work of the physicians. These practices have been called to the attention of the medical directors of the companies involved and the medical directors, in each instance, have indicated that such practices are not at their request. Instances of this practice should be reported to the Council and Committee with sufficient supporting information so that any necessary corrective measures may be taken.

The aforementioned forms are primarily for use in administering benefits involving hospital, surgical and medical expenses and to some extent, loss of income due to disability. Two other sources have since contacted the Committee with respect to claim forms requiring medical information and opinion. One is the life insurance industry in the realm of certifying total and permanent disability. The other is the Bureau of Old Age Assistance, Social Security Administration, regarding the total and permanent disability freeze which was enacted to protect the earning status of social security taxpayers for later benefits in event of such contingency.

With the enactment of H. R. 7225, it is possible that the attention of the Council and Committee will be further indicated since cash payments are anticipated for the totally and permanently disabled at age 50. This legislation will undoubtedly place a new burden upon the profession since eligibility presumably will be based on such disability which is medically determinable.

INSURANCE ABUSES

There are continued reports of insurance abuses under so-called basic plans and distinguished from those mentioned earlier under major hospital and medical expense programs. While some such abuses may be attributable to the profession, it is the belief of the Council and Committee that the insured persons must assume their appropriate share of the responsibility. The tendency of some insured persons to demand hospitalization in order to collect benefits may be due to both improper understanding of the primary purpose of such programs, improper selling, or both.

REVISED STANDARDS

The Committee has accomplished the second draft of suggested revisions of the standards concerning plans approved and/or sponsored by constituent associations or component societies. The complexities of such standards, coupled with the more immediate problems mentioned previously have combined to delay formalized suggestions to the Council. It is contemplated, however, that such suggestions will be forthcoming at a relatively early date.

MISCELLANEOUS

While not charged with any specific responsibility in the program, the Committee has maintained a watchful interest in the problems incident to medical care for dependents of military personnel as embodied in Public Law 569, 84th Congress.

The tenth annual revisions of the Voluntary Prepayment Medical Benefit Plans brochure and supplemental pamphlet, Charts and Graphs, are in progress. The termination of the printing department within the Association headquarters has complicated these revisions somewhat, but it is hoped that any delay attributable to this will be minimal. As in the past, the Council and Committee have authorized the collection of data from other sources in those instances where the plans do not supply the information requested. Also in preparation is a revision of the pamphlet Growth of Voluntary Health Insurance, which continues to be in popular demand.

---

[1] JAMA, Vol. 156, No. 10 (Nov. 6, 1954), page 986.

Committee on Relations with Lay-Sponsored Voluntary Health Plans

Since the last report concerning the activities of this Committee, Dr. J. Stanley Kenney, New York, was appointed to fill the vacancy created by the death of Dr. James Stevenson of Tulsa, Okla. Another vacancy occurred during the year when the Council designee, Dr. A. C. Scott Jr., Temple, Texas, passed away. Other members of the Committee are: Drs. H. Russell Brown, chairman, Watertown, S. D.; George S. Klump, Williamsport, Pa.; F. J. Elias, Duluth, Minn.; Lewis A. Alesen, Los Angeles; and Mr. C. H. Crownhart, Madison, Wis.

Two Committee meetings have been held, both in Chicago, and the dates were March 10 and 11 and June 14, 1956.

The Committee has attempted to keep informed currently regarding developments with respect to those plans which are sponsored by nonmedical groups and are not considered within the proper sphere of interest of other units of the Association. Moreover, the Committee has been in contact with certain constituent associations and component societies concerning problems in this realm.

The statement embodying the scope of interest of the Committee has been revised somewhat since it was last delineated to the House of Delegates during the 1954 Clinical Meeting. To permit the members of the House to evaluate the modification, the 1954 statement is herein set forth and the revision immediately thereafter. The 1954 Clinical Meeting statement was as follows:

> . . . The Committee on Relations with Lay-Sponsored Voluntary Health Plans studies those plans of non-medical sponsorship that are available to the public at large . . .

The following substitute statement has been accepted:

> The scope of interest of this Committee is the study of insurance adaptations and plans sponsored or approved by organizations other than constituent medical associations or component societies and designed to assist in providing and financing health care for subscribers and beneficiaries. Such plans do not include those organized by employer and/or employee groups limited to membership of a union or employees of an industry. Nonoccupational medical care for industrial workers poses special problems and is under consideration by another Committee of the Council.

A suitable definition of the term "lay-sponsored" has been attempted on several occasions. In light of the difficulties encountered to date, the amended statement is proposed to serve both as a tentative definition (until a satisfactory one can be developed) and to delineate more clearly the scope of activity of the Committee.

FIELD STUDIES

Under the supervision of the Committee, preliminary field studies have been undertaken in an effort to identify and summarize the characteristics of those plans which are frequently referred to as "lay-sponsored."

The staff has been instructed to edit summary reports of field studies of a few programs in this category and submit them, after Committee concurrence, to the Council so the Council will be in a position to decide whether they should be published and made available for distribution. The Committee has been and will continue to be in contact with constituent associations and component societies in order to minimize unnecessary duplication of effort and at the same time keep up-to-date information concerning new developments. In this connection, both the Council and the Committee are cognizant of the continuing efforts of the Commission on Medical Care Plans created by the Board of Trustees and concerning itself with all types of mechanisms through which health services are either provided or financed. In view of this, the Committee is proceeding rather deliberately in order to minimize any possible confusion between the activities of the Council Committee and the Commission.

Committee on Aging

Since the 1955 annual report of the Council this Committee has been activated and has a full complement of members consisting of Drs. H. B. Mulholland, chairman, Charlottesville, Va.; Edward L. Bortz, Philadelphia; Henry Holle, Austin, Texas; Wingate M. Johnson, Winston-Salem, N. C.; Cecil Wittson, Omaha; Frederick C. Swartz, Lansing, Mich.; and Theodore G. Klumpp, New York.

COMMITTEE MEETINGS

The first meeting was held in Boston on Nov. 28, 1955. The Committee focused its attention on a general discussion of its purposes and functions. As an initial project it was agreed to ascertain what the state medical associations and county medical societies were doing in reference to "the problems of the aging." Two subsequent meetings have been held, one in Philadelphia on March 19 and 20, 1956, and the other in Chicago on June 11, 1956.

CHANGE IN NAME

During the first meeting of the committee it was the consensus of the members that the scope of their studies should be broader than the field inferred by the title Committee on Geriatrics, which was the name suggested in the resolution recommending such a committee. The committee believes most serious students of aging avoid the term "geriatrics" except for designating individuals far spent in their life content and activities. They agree that the term probably has a certain utility but is not sufficiently stimulating to arouse the interest of members of the medical profession. Accordingly, upon recommendation of the committee and the Council, the House of Delegates in June 1956 approved changing the name to Committee on Aging.

ACTIVITIES OF STATE ASSOCIATIONS AND COUNTY SOCIETIES

One of the "musts" for every committee of the Council on Medical Service is knowledge of and cooperation with similar state and local medical society committees. Consequently, to learn something of the status of committees on aging within medical organization, questionnaires were sent to (1) all state and territorial associations, and (2) those county societies which in replying to the survey of county societies conducted by the Council on Medical Service indicated some formally organized activity pertaining to geriatrics. The response was certainly not encouraging. In fact, with the ever-increasing concern over the aging population and the problems that are bound to arise, the Committee was amazed at the lack of concern, at least official concern, evidenced by the results of this questionnaire. Only 34 of the 48 state associations replied, and 21 or 70.8 per cent of these states indicated they had no committee concerned with this subject; eight states specified they had geriatrics committees; and eight others stated that some other committee handled problems on aging.

A somewhat better situation exists among the county medical societies. Of the 84 societies to which questions were sent, only 45 or 53.6 per cent replied. Thirty two societies, or 71.2 per cent, have geriatrics committees, and in another seven, or 15.4 per cent, this subject comes within the purview of some other committee. Of those replying, six, or 13.4 per cent, have no committee concerned with this subject.

It is apparent that interest in the problems of aging has not yet permeated the organizational structure of the state medical associations or county medical societies and that considerable effort needs to be directed toward increasing this interest.

AREAS FOR STUDY

Discussion and review of the scope of the problems coming within the purview of this Committee have occupied much of the time during the first three meetings. In this review, the Committee has heard from a number of consultants in specialized fields.

Dr. Leo H. Bartemeier, Chairman, Council on Mental Health American Medical Association, Baltimore, Maryland
Nathan Shock, Ph.D., Chief, Gerontology Branch, Department of Health, Education, and Welfare, Public Health Service, Baltimore, Maryland
Dr. S. D. Pomrinse, Medical Director, Chief, Hygiene of Aging, Chronic Disease Program, Division of Special Health Services, Department of Health, Education, and Welfare, Public Health Service, Washington, D. C.

Other consultants in such fields as retirement, health maintenance, and nutrition have been contacted and are to meet with the committee in the future.

In the meantime, to set direction for its own work and to initiate and provide some leadership to medical societies the Committee has set forth the following as its objectives:

1. To explore problems concerned with the medical, biological, psychological, and social aspects of aging;
2. To collect data concerning energy maintenance, fatigue control, and the preservation of specific motivation;
3. To promote research in these areas;
4. To inform the medical profession of the availability of information regarding the aging processes,
5. To stimulate medical society interest in the problems of the aging, and
6. To impress upon the practicing physician the important role he can play by assuming community leadership to enrich the lives of older citizens.

These objectives, together with a preliminary statement, have been published in The Journal.

PUBLICATIONS

To provide some basic background material to be used by state and local committees on aging or geriatrics, a series of articles is planned for The Journal. This series will cover the following areas, with each article to be prepared by a recognized authority in his field.

Nutritional Needs
The Role of Exercise
Posture
Stress and Exhaustion
Health Maintenance
Rehabilitation and Restorative Services
Control of Fatigue
Motivation for Living
Personal Hygiene
Recreation
Housing
The Senior Citizen and His Community
The Oldster and His Doctor
Effect of Early Life Diseases on Aging Processes
Preparation for Retirement

REGIONAL MEETINGS

In view of the need to stimulate interest among physicians and the state and local medical societies the committee has planned to hold its meetings in various parts of the country and discuss the problems in this field with medical society representatives. The first of such regional meetings is scheduled during the Clinical Meeting of the American Medical Association in Seattle. In addition, the committee requested and has been allotted a half day session in the Scientific Assembly for a panel on the problems of the aging. This panel is to be made up of committee members and other speakers well-qualified in their respective fields. The subjects assigned are among those planned for publication in The Journal.

It is hoped that this pilot venture will be sufficiently successful to warrant other regional meetings for the purpose of establishing liaison between the American Medical Association committee and committees in various sections of the country.

Respectfully submitted,

Joseph D. McCarthy, Chairman.
H. B. Mulholland, Vice Chairman.
John Flack Burton.
Reuben B. Chrisman Jr.
Thomas J. Danaher.
Elmer Hess
J. Lafe Ludwig.
Raymond M. McKeown.
Robert L. Novy.
Carlton E. Wertz.
Mr. Thomas A. Hendricks, Secretary.

REPORT OF THE COUNCIL ON CONSTITUTION AND BYLAWS

To the Members of the House of Delegates of the American Medical Association:

Meetings

During the period covered by this report, July 1, 1955, through June 30, 1956, the Council on Constitution and Bylaws has met four times: Once in Chicago on Nov. 4, 1955; once in Boston on Nov. 27, 1955, at the time of the Clinical Meeting; twice in Chicago, June 9, 1956 and June 14, 1956, at the time of the Annual Meeting. Two informal meetings were held jointly with the Judicial Council. Two members of the Council on Constitution and Bylaws, serving on a subcommittee to prepare a revision of the Principles of Medical Ethics, met with a similar subcommittee of the Judicial Council. Since the last annual report, the Council has presented two supplementary reports to the House of Delegates, one at the Boston Meeting and one at the Chicago Meeting.

Amendments

During the 1955 Annual and Clinical Meetings certain changes were made by the House of Delegates in the Constitution and Bylaws of the Association. These changes were as follows:

1. Changed the name of the Section on Dermatology and Syphilology to the Section on Dermatology.
2. Changed the name of the Section on Physical Medicine and Rehabilitation to the Section on Physical Medicine.
3. Changed the name of the Section on Preventive and Industrial Medicine and Public Health to the Section on Preventive Medicine.
4. Authorized the Board of Trustees to select the official who will preside at the general meetings of the Scientific Assembly.
5. Authorized election of section officers at any meeting of the section rather than at the second one only.
6. Rearranged the enumeration of the sections found in the Bylaws so that they now appear in alphabetical order.
7. Provided that Associate Members of the Association shall not be required to pay dues and shall not receive American Medical Association publications except by subscription.
8. Broadened the scope of activity of the Reference Committee on Amendments to the Constitution and Bylaws to include matters pertaining to the Principles of Medical Ethics of the American Medical Association.
9. Increased the membership of the Council on Medical Service.

The Council has prepared and the House of Delegates has approved appropriate alterations of the Bylaws to implement these changes.

Medical Ethics

Probably the most important activity of the Council during the period covered by this report relates to the preparation of a revision of the Principles of Medical Ethics. It will be remembered that the Council submitted a supplementary report to the House of Delegates in Boston which contained a rather lengthy and complicated revision and rearrangement of the Principles. The House recommended that further consideration of the suggestions be laid over until the Chicago meeting in June, 1956, and requested that the suggestions be considered by this Council and the Judicial Council in a joint meeting.

Joint meetings were held by the full Councils as well as by a subcommittee made up of members of both Councils. The result, as the members of the House now know, was the submission at the Chicago session of an entirely new proposal for revision of the Principles of Medical Ethics. The new version was approved by the Judicial Council. It is short, concise and complete. It eliminates superfluous wording and matters of medical etiquette but retains all matters of ethics found in the present Principles.

In response to the request of the Council on Constitution and Bylaws the House of Delegates decided that the new version should lay over until the Seattle meeting before final action is taken.

The members of the Council feel that the Proposed Principles of Medical Ethics submitted to the House of Delegates by this Council with the unanimous approval of the Judicial Council should be approved in substantially the following form; with possible alterations approved by the House of Delegates.

PREAMBLE

These principles are intended to serve physicians, individually or collectively, as a guide to ethical conduct. They are not laws; rather, they are standards by which a physician may determine the propriety of his own conduct. They are intended to aid physicians, in their relationships with patients, with colleagues, with members of allied professions and with the public, to maintain under God, as they have through the ages, the highest moral standards.

Section 1. The prime objective of the medical profession is to render service to humanity with full respect for both the dignity of man and the rights of patients. Physicians must merit the confidence of those entrusted to their care, rendering to each a full measure of service and devotion.

Section 2. Physicians should strive to improve medical knowledge and skill, and should make available the benefits of their professional attainments.

Section 3. A physician should not base his practice on an exclusive dogma or a sectarian system, nor should he associate voluntarily with those who indulge in such practices.

Section 4. The medical profession must be safeguarded against members deficient in moral character and professional competence. Physicians should observe all laws, uphold the dignity and honor of the profession and accept its self-imposed disciplines. They should expose, without hesitation, illegal or unethical conduct of fellow members of the profession.

Section 5. Except in emergencies, a physician may choose whom he will serve. Having undertaken the care of a patient, the physician may not neglect him. Unless he has been discharged, he may discontinue his services only after having given adequate notice. He should not solicit patients.

Section 6. A physician should not dispose of his services under terms or conditions which will interfere with or impair the free and complete exercise of his independent medical judgment and skill or cause deterioration of the quality of medical care.

Section 7. In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him to his patient.

Section 8. A physician should seek consultation in doubtful or difficult cases, upon request or when it appears that the quality of medical service may be enhanced thereby.

Section 9. Confidences entrusted to physicians or deficiencies observed in the disposition or character of patients, during the course of medical attendance, should not be revealed except as required by law or unless it becomes necessary in order to protect the health and welfare of the individual or the community.

Section 10. The responsibilities of the physician extend not only to the individual but also to society and demand his cooperation and participation in activities which have as their objective the improvement of the health and welfare of the individual and the community.

Commendation to Dr. Louis A. Buie

The Council cannot conclude its report without expressing its sincere tribute to Dr. Louis A. Buie. Prior to the expiration of his term of office last June, Dr. Buie had been a member and chairman of this Council since its inception and gave generously of his time in the furtherance of its activities. Probably few outside of the Council membership are aware of the hours, thought and devotion he expended in attempting, through the years, to formulate a revision of the Principles of Medical Ethics of which the profession could be proud. His regular and active participation in Council deliberations will be missed by the Council and by the entire Association.

Respectfully submitted,

BRITTON E. PICKETT SR., Chairman.
STANLEY H. OSBORN.
FLOYD S. WINSLOW.
WARREN W. FUREY.
WALTER E. VEST.

REPORT OF THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

To the Members of the House of Delegates of the American Medical Association:

The Woman's Auxiliary to the American Medical Association is extremely proud to submit a report of its activities and to extend to the House of Delegates the best wishes of its 74,348 members in all the 48 states, the District of Columbia, and the territories of Alaska and Hawaii. We pledge our continued cooperation in any program or project which the members of the American Medical Association deem suitable for Auxiliary participation.

No other woman's organization has a stronger or a more unifying bond than does the Woman's Auxiliary. First, our membership restrictions require that we be wives of doctors of medicine who hold membership in their respective county and state medical societies and in the American Medical Association. We do have a few members in some states and territories who do not qualify for active membership and who are classified as associate members. These members include those wives whose husbands are members in good standing of their state and county medical societies but who are not members of the American Medical Association. I am happy to report to you that this number is rapidly decreasing, due to pressure brought to bear by wives who wish to hold active rather than associate membership in our Auxiliary. At the annual convention in June, 1956, a new category of membership was included in our Constitution to conform more closely with the membership of the American Medical Association. We now include the wives of service members of the American Medical Association in the Auxiliary membership.

Secondly, because of our close relationship to the medical profession, we have a common purpose. We have never deviated from our original concept of the function of a group such as ours, which is defined as follows in our Constitution: "To assist the American Medical Association in its program for the advancement of medicine and public health."

Fortunately, unity does not carry with it uniformity. There is such a variety of programs and projects in which our states and counties are engaged currently that it would be impossible in the short space alloted to mention them all. However, knowing that you share our pride in the accomplishments of your Auxiliary, we list just a few.

All but one of the states have participated in the financial assistance to medical schools through contributions to the American Medical Education Foundation. This past year we changed our fiscal policy and therefore had no carryover from the previous year's contributions. The 1955-56 Auxiliary contribution to the American Medical Education Foundation was $106,223.23. Since 1952 the Auxiliary has contributed $281,392.84.

Second in popularity among the projects was the sale of *Today's Health.* Subscriptions increased to 57,792 over last year's total of 53,214. Recruitment of nurses and other medical personnel ranked first in the number of counties participating and third in the number of state projects. The total amount for loans to student nurses was $42,475.77; scholarships totaled $100,876.75; for nurses' graduate study $3,050 and for practical nurses $1,929, making a grand total of $148,331.52.

Ninety-three % of the state auxiliaries report programs in safety, rural health and community health studies, and 85% were active in civil defense programs. Forty states are promoting

Course in Practical Electrocardiography.—The New York County Academy of General Practice is sponsoring a course for members of the American Academy of General Practice in practical electrocardiography, Thursdays, 9-11 p. m. for 15 consecutive weeks, commencing Oct. 25 at the Mount Sinai Hospital, 100th Street at Fifth Avenue, New York City. The faculty, under the leadership of Dr. Arthur M. Master, will include Drs. Simon Dack, Arthur Grishman, Harry L. Jaffe, and staff. For information, contact Dr. Joseph A. Pincus, Registrar, 147 W. 55th St., New York 19.

New England Postgraduate Assembly.—The 14th annual New England Postgraduate Assembly will be held at the Hotel Statler, Boston, Oct. 30–Nov. 1. Designed especially for the practicing physician, this year's assembly will feature lectures, symposiums, panels, luncheon panels, round-table discussions, and clinical-pathological conferences. Medical films will be shown. Dr. Robert P. McCombs, Boston, is chairman of the committee arranging the program. Representing their state medical societies on the program are Drs. Stanley B. Weld, Hartford, Conn.; Arthur Ebbert Jr., New Haven, Conn.; Frederick S. Gray, Portsmouth, N. H.; Joseph C. Johnston, Providence, R. I.; Hugh A. Smith, Bangor, Maine; and Philip H. Wheeler, Brattleboro, Vt.

Symposium on Hepatitis.—An International Symposium on Hepatitis Frontiers will be held Oct. 25-27 under the auspices of the Henry Ford Hospital, Detroit. Dr. Charles H. Best, Toronto, Canada, will serve as moderator for the program Thursday morning and Dr. John R. Neefe, Philadelphia, for the afternoon session. The Friday morning program, "Prevention of Hepatitis," will be moderated by Dr. William S. Tillett, New York, and the afternoon session on chemical and physical agents by Dr. Gilbert J. Dalldorf, Albany, N. Y. The banquet is scheduled for 6:30 p. m. at the Sheraton Cadillac. The Saturday morning program on differential diagnosis (Dr. Henry L. Bockus, Philadelphia, moderator) will end with a round-table discussion, as will the afternoon program on management of hepatitis and course and prognosis of hepatitis, for which Dr. Cecil J. Watson, Minneapolis, will serve as moderator.

American Museum of Immigration.—Plans have been announced for an American Museum of Immigration to be housed at the foot of the Statue of Liberty in New York harbor. Its purpose will be to express the gratitude of the countless people of diverse origins who have found freedom, security, and a happier way of life in this country. It will also remind present and future generations of visitors that the American people represent an extraordinary physical and cultural fusion of immigrant and aboriginal races. These purposes will be served by historical exhibits, an auditorium, and other facilities. Since star-shaped Fort Wood, which now surrounds the foot of the statue, has walls 27 feet high and encloses a generous area, the needed space can be provided by a building that need neither extend outside these walls nor rise so high as to obscure the view of the present base of the statue. A public appeal for funds, to be directed from the National Committee Headquarters of the American Museum of Immigration, 270 Park Ave., New York 17, is to open Oct. 28.

Interstate Postgraduate Assembly.—The Interstate Postgraduate Medical Association of North America will hold its assembly Oct. 22-25 in the Municipal Auditorium at Cleveland. Panel discussions have been scheduled on Gastrointestinal Bleeding, Jaundice, and Thyroid Disease. On Monday at 7:30 p. m. Dr. Tom D. Spies, director, Nutrition Clinic, Hillman Hospital, Birmingham, Ala., and professor and head of the department of nutrition and metabolism, Northwestern University Medical School, Chicago, will deliver an address, "The Influence of Nutritional Processes on Aging." At the same time on Tuesday Dr. Benjamin Spock, visiting professor of child development, Western Reserve University School of Medicine, Cleveland, will consider "Sleep Problems in the Early Years." A dinner is scheduled for Wednesday at 7 p. m., at which Dr. Alton Ochsner, New Orleans, will deliver the presidential address, "The Value of Postgraduate Education." Scientific and technical exhibits will be on display.

Heart Association Meets in Cincinnati.—The annual meeting and the 29th annual scientific sessions of the American Heart Association will take place at the Netherland Plaza Hotel, Cincinnati, Oct. 27–Nov. 2. The Saturday morning session will close with presentation of the Lewis A. Conner Memorial Lecture, "Functional Pathology of the Pulmonary Vascular Tree in Congenital Cardiac Disease," by Jesse E. Edwards, Rochester, Minn., and the afternoon session on clinical cardiology with a panel on selection and management of patients for cardiac surgery. The George E. Brown Memorial Lecture, "Oxygen Tension of Tissues in Vivo," by Hugh Montgomery, Philadelphia, is scheduled for Sunday morning. The afternoon session on clinical cardiology will include a panel on management of refractory congestive heart failure. On Monday afternoon the panel title will be "Recognition and Management of Cardiac Arrhythmias." A symposium, "Rehabilitation of the Cardiac Patient," is scheduled for the general session Monday morning.

National Medical Association.—At the 61st annual convention of the National Medical Association, the Hotel New Yorker, New York City, Aug. 13-16, the Dickerson-Morman Memorial Lecture, "Lymphosarcoma of the Orbit," was delivered by Dr. Howard P. Venable, St. Louis. At the Tuesday morning session, after the presidential address by Dr. August C. Terrence, Opelousas, La., Dr. Paul D. White, Boston, presented "Epidemiological Research in Cardiovascular Diseases." The public meeting Tuesday evening opened with greetings by Dr. Louis H. Bauer, New York, past-president, American Medical Association, followed by an address by Thurgood Marshall, LL.B., New York, chief legal counsel, National Association for the Advancement of Colored People. Dr. Vivian M. Wiles, New York, served as moderator for a urology symposium; Dr. Vaughan C. Mason, New York, as moderator for a symposium on the toxemias of pregnancy; and Dr. J. Everard Carey, New York, as moderator for a panel discussion on hypnosis in medicine and dentistry. The sessions ended with a clinical pathological conference followed by a panel on the cervix and fundus uteri, moderated by Dr. Peter M. Murray, New York.

Sloan Foundation Scholarships.—The Alfred P. Sloan Foundation has announced the names of 58 winners of scholarships and, simultaneously, an expansion of its scholarship program. Originally limited to some 100 scholarship stipends tenable at 4 institutions, the program in the future will embrace 13 colleges and universities and make awards to some 240 students. By 1960, when the scholarship program is fully operative, it is anticipated that the foundation's annual expenditure will exceed $420,000 and that its total commitment for the program will be in excess of one million dollars. Individual awards under the scholarship program range from $200 to $2,000 a year. Scholarship awards are renewable for three additional years if the winner of the scholarship maintains the standards prescribed by the institution in which he is enrolled. The foundation, established in 1934 by Mr. Alfred P. Sloan Jr., former president and chairman of the board of the General Motors Corporation, has been active in various fields, including economic education and research, cancer and other forms of medical research, business education, and the promotion of pure research in the physical sciences.

Hans Zinsser Memorial Fund.—The Hans Zinsser Memorial fund of the Harvard University School of Public Health, established by friends, colleagues, and students of the late Dr. Hans Zinsser (1878-1940), is to be "allowed to accumulate until the income therefrom has become sufficient to be devoted effectively to purposes in keeping with Dr. Zinsser's deep concern for human health improvement. . . . It is intended, therefore, that the Zinsser Fund could be used in any part of the university, its scope to include any disease or condition which may from time to time constitute a recognized peril to human health. Support for promising young scientists, support of field or laboratory projects and awards for outstanding achievements by students and research workers in the health field are various ways which have been suggested for utilizing the Zinsser Fund . . . the Fund . . . will be administered by the Dean of the Faculty of Public Health. He will receive applications and proposals for use of the income and will recommend to the President and Fellows of Harvard College how it shall be allocated. . . ." Contributions to the Hans Zinsser Fund may be sent to the Secretary, Harvard School of Public Health, 55 Shattuck St., Boston 15. Checks should be made payable to Harvard University.

Regional Cancer Conference.—The 10th Southwest Regional Cancer Conference will be held at the Hilton Hotel, Fort Worth, Texas, Oct. 26-27. Friday at 8:10 p. m. Dr. Charles T. Ashworth, Fort Worth, will moderate a tumor clinic, in which the participants will be Drs. William A. D. Anderson, Miami, Fla.; W. Emory Burnett, Philadelphia; and Vincent P. Collins, Houston, Texas. Saturday morning will be devoted to a symposium on epithelial tumors of the chest, which will include presentation of "Pathology of Benign and Malignant Epithelial Chest Tumors" by Dr. Anderson; "Diagnosis and Surgical Management of Epithelial Chest Tumors" by Dr. Burnett; and "Radiologic Diagnosis and Therapy of Epithelial Chest Tumors" by Dr. Collins. Dr. Francis C. Coleman, Des Moines, Iowa, will speak on "Role of the Pathologist in Medical Practice in Hospitals" at the noon luncheon. At the afternoon symposium on nonepithelial tumors of the chest, Dr. Anderson will discuss "Common and Uncommon Nonepithelial Chest Tumors," Dr. Burnett will present "Surgical Problems in Nonepithelial Chest Tumors," and Dr. Collins will speak on "Radiologic Diagnosis and Therapy of Nonepithelial Chest Tumors." Texas Christian University will meet the University of Miami in a football game at Amon Carter Stadium, Saturday, 8 p. m.

Life Insurance Medical Directors Meeting.—The 65th annual meeting of the Association of Life Insurance Medical Directors of America will be held at the Roosevelt Hotel, New Orleans, Oct. 23-25, under the presidency of Dr. Ralph R. Simmons, Des Moines, Iowa. Tuesday morning Dr. Francis R. Dieuaide, New York, scientific director, Life Insurance Medical Research Fund, will present "Recent Developments in Our Knowledge of the Major Types of Cardiovascular Disease," and Dr. Jacob A. Bargen and Mr. Robert P. Gage, Rochester, Minn., will consider "Survival Rates and Mortality Studies: Chronic Ulcerative Colitis and Regional Enteritis with Comments on Other Ulcerative Lesions of the Digestive Tract." The following presentations have been scheduled for Wednesday:

Aspects of Vectorcardiography, George E. Burch, New Orleans.
The Double Master's Test—A Study on 300 Normal Males, Frank J. McGurl and Raymond L. Dross, Houston, Texas.
The Value of the Double Standard Two-Step Exercise Test in the Detection of Coronary Disease: A Clinical and Statistical Follow-Up Study of Military Personnel and Insurance Applicants, George P. Robb, Mr. Herbert H. Marks, New York, and Col. Thomas W. Mattingly, Washington, D. C.
Natural History of Atherosclerosis, Russell L. Holman, New Orleans.
Cancer—The Challenger, Eugene V. Higgins, New York.

The annual reception and banquet will be held Wednesday at 6 p. m. The sessions will close Thursday morning with the following symposium on health, accident, and major medical underwriting:

Economic Tolerance, Mr. P. C. Irwin, Des Moines, Iowa.
Major Medical Insurance—*Its Development and Problems*, Mr. Joseph F. Follman Jr., New York.
The *Role of the* Medical *Director in* Areas of Major Medical Insurance, William J. McNamara, New York.
Non-Cancellable and Guaranteed Renewable Insurance—Underwriting Considerations, Joseph C. Horan, New York.

Society for Crippled Children.—The annual convention of the National Society for Crippled Children and Adults will be held at the Hotel Statler, Washington, D. C., Oct. 28-31. Among the speakers at the Monday morning session will be Dr. Walter P. Blount, Milwaukee, who will speak on "The Conquest of the Crooked Back" and Dr. Irving S. Cooper, New York, who will discuss "Achievement Through Neurosurgery." The Virginia Society for Crippled Children and Adults will hold its annual dinner meeting in the South American Room at 7:30 p. m. "A Decade of Progress in Cerebral Palsy: 1946-1956" will be considered Tuesday morning by a panel consisting of Dr. George G. Deaver, New York, William M. Cruickshank, Ph.D., Syracuse, N. Y., Dr. Meyer A. Perlstein, Chicago, and Dr. Winthrop M. Phelps, Reisterstown, Md. A demonstration by the District of Columbia Society for Crippled Children, showing its clinical therapy and education program, will follow. Arthur S. Flemming, director, Office of Defense Mobilization, Executive Office of the President, Washington, D. C., will be the speaker at the annual banquet in the Presidential Ballroom, 7:30 p. m., Tuesday. The Wednesday morning session will include "Health, Education, and Welfare Speak—Partnership in Rehabilitation," under the chairmanship of Dr. Elmer Hess, Erie, Pa., immediate past-president of the American Medical Association, with Drs. Leroy E. Burney and Martha M. Eliot, Romaine Mackie, Ph.D., and Mary Switzer, Washington, D. C., as participants. "Keys to the Rehabilitation Gateway—A Pageant on Prostheses and Appliances," presented *in cooperation with* Orthopaedic Appliance and Limb Manufacturers Association, will follow and will feature aids to the handicapped dating from *the 1906 antiques* to the 1956 modern appliances. A demonstration and tour of the National Institute of Neurological Diseases and Blindness, Clinical Center, Bethesda, Md., will take place 2:15-4:30 p. m., and a film theater will be featured, 2:30-4:30 p. m.

Medical Research Fellowships.—The division of medical sciences of the National Academy of Sciences–National Research Council will accept applications for postdoctoral research fellowships for 1957-1958 until Dec. 1, 1956. *Details may be obtained from* the Division of Medical Sciences, Room 310, National Research Council, 2101 Constitution Ave. N. W., Washington 25, D. C., for the following groups of fellowships, awarded and administered by the *division's medical fellowship board*: (1) national research fellowships in the medical sciences, supported since 1922 by the Rockefeller Foundation; (2) Donner fellowships for medical research, made possible by a new grant from the Donner Foundation; and (3) *Markle fellowships in the medical sciences*, provided through a new appropriation of the John and Mary R. Markle Foundation. These programs are designed to offer research experience in the basic medical sciences for persons who *look forward to careers in academic medicine and investigation.* Fellows are expected to devote their entire time to research at the fundamental level. Funds are not available for support of those who are seeking practical experience in the clinical field. Awards are open to citizens of the United States and Canada who hold the M.D., or Ph.D. degree or the equivalent. Ordinarily fellowships are not granted to persons over 35 years of age. Details may be obtained for fellowships in radiological research, administered for the James Picker Foundation by the division's committee on radiology. Applications will also be entertained from candidates seeking to gain research skills leading to investigative careers in the field of radiology. While persons from closely related disciplines are eligible to apply, candidates whose training has been directly in the field of radiology will receive preference under this program. Candidates must hold the M.D., Ph.D., or Sc.D. degree or the equivalent and should ordinarily be not more than 35 years of age. There are no limitations with respect to citizenship of applicants.

Meeting of Medical Clinics.—The American Association of Medical Clinics will hold its annual meeting Oct. 26-28 at the Mayflower Hotel, Washington, D. C., under the presidency of Dr. R. Franklin Jukes, Akron, Ohio. The program for Saturday morning includes "The Opportunity for Genetic Research in a Clinic Group" by Dr. Charles E. Jackson, Bluffton, Ind.; "Cultivation of Personal Relationships with Clinic Patients" by Dr. Donald N. Sweeny, Detroit, Mich.; and "The Psychiatrist in a Medical Clinic" by Dr. Donald D. Jackson, Palo Alto, Calif. Workshops will precede the luncheon at 12:30 p. m., at which Dr. Lowell T. Coggeshall, special assistant for health and medical affairs to the Secretary, Department of Health, Education, and Welfare, Washington, D. C., will discuss "Adequate Medical Care for the American People." The presidential address will be delivered at 2 p. m. A cocktail hour (courtesy E. R. Squibb and Sons) is scheduled for 5:30 p. m. Sunday *morning* will be devoted to a panel, "How Can Group Practice Give Better and More Economical Service to the Chronically Ill and Aged?"

The following speakers will participate in the panel:

Thomas H. Fox, *Clifton Springs Sanitarium* and Clinic, Clifton Springs, N. Y.
Theodore G. Klumpp, New York, president, Winthrop Laboratories, and member, A. M. A. Committee on Aging.
Henry B. Mulholland, Charlottesville, Va., chairman, A. M. A. Committee on Aging.
Edward J. Stieglitz, Washington, D. C., consultant in geriatrics to the Veterans *Administration and to St.* Elizabeth's Hospital.
Russel V. Lee, Palo Alto Medical Clinic, Palo Alto, Calif., moderator.

Guest speaker at the luncheon, 12:30 p. m., will be Dr. Charles F. Shook, medical director, Owens-Illinois Glass Company, Toledo, Ohio, whose *subject* will be "Our Medical Interest—the Industrial Employee." "Part-Time Physicians or Consultants—Their Place *in Clinics*" *by Dr.* Benjamin deF. Lambert, Lowell, Mass., will precede a panel on methods of lowering malpractice and liability incidents and insurance rates, moderated by Dr. George Plain, South Bend, Ind., which will have as participants Dr. M. Meredith Baumgartner, Janesville, Wis.; Mr. Ralph O. Claypoole Sr., Philadelphia; Mr. Edwin J. Holman, Chicago; and Mr. Theodore Wiprud, Washington, D. C.

Cancer Society Meeting.—The annual scientific session of the American Cancer Society will be held at the Park Sheraton Hotel, New York, Oct. 29-30, the subject of the session being "Endocrines and Cancer." "Estrogens and Tumorigenesis" will be the subject of the Monday morning session under the chairmanship of Dr. Robert L. Noble, professor of medical research, University of Western Ontario, London, Canada. Presentations during the session will include "Urinary Estrogens and Their Quantitative Determination" by Dr. Guy F. Marrian, professor of chemistry, University of Edinburgh, Edinburgh, Scotland, and "Hormonal Aspects in the Genesis of Mammary Cancer" by O. Muhlbock, chairman, scientific board and head, biological department, Netherlands Cancer Institute, Amsterdam, Netherlands. Monday afternoon Gregory G. Pincus, Sc.D., director of laboratories, Worcester Foundation for Experimental Biology, Shrewsbury, Mass., will serve as chairman for the session entitled "Androgens and Corticosteroids." "Mammary Cancer" will be the topic of the Tuesday morning session (Dr. Charles B. Huggins, director, Ben May Laboratory for Cancer Research, University of Chicago, chairman), which will include presentation of "The Role of Adrenalectomy in Cancer of the Breast" by Sir Stanford Cade, surgeon, Westminster Hospital, and lecturer in surgery, Westminster Medical School, London, England, and "The Role of Hypophysectomy in Cancer of the Breast" by Dr. Rolf Luft, associate professor of endocrinology and director, department of endocrinology, Karolinska Institut, Serafimerlasarettet, Stockholm, Sweden. "Cancer of Other Sites" will be the main topic at the afternoon session under the chairmanship of Dr. Cornelius P. Rhoads, scientific director, Memorial Center for Cancer and Allied Diseases, New York. Among the papers presented will be "The Role of Hormones in Cancer of the Uterine Cervix" by Dr. Hans L. Kottmeier, director of the gynecological department, Radiumhemmet, Stockholm, Sweden, and "Relationships Between Hormonal Changes in Pregnancy and the Development of 'Mixed Carcinomas' of the Uterine Cervix" by Alfred Glucksmann, Strangeways Research Laboratory, Cambridge, England. The program includes presentation of 26 additional papers.

CANADA

Conference on Industrial Pulmonary Diseases.—The 1956 annual conference of the McIntyre Research Foundation on silicosis and other industrial pulmonary diseases will be held at the King Edward Hotel, Toronto, Oct. 22-24.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination* Montgomery, June 18-20. Sec., Dr. D. G. Gill, State Office Bldg., Montgomery 4.

Arizona:° *Examination and Reciprocity.* Phoenix, Oct. 17-19. Ex. Sec., Mr. Robert Carpenter, 411 Security Bldg., Phoenix.

Arkansas:° *Examination and Reciprocity.* Little Rock, Nov. 8-9. Sec., Dr. Joe Verser, Harrisburg.

California: *Written Examination.* Sacramento, Oct. 15-18. *Oral Examination for Reciprocity Applicants.* Los Angeles, Nov. 17. Sec., Dr. Louis E. Jones, 1020 N Street, Sacramento.

Colorado:° *Reciprocity.* Denver, Oct. 9. Final date for filing application was Sept. 10. *Examination.* Denver, Dec. 4-5. Final date for filing application is Nov. 2. Sec., Dr. Samuel H. Brown, 831 Republic Bldg., Denver 2.

Connecticut:° *Examination.* Hartford, Nov. 13-15. Sec., Dr. Creighton Barker, 160 St. Roman St., New Haven.

Delaware: *Examination.* Dover, Jan. 8-10. *Reciprocity.* Dover, Jan. 17. Sec., Dr. Joseph S. McDaniel, 225 So. State St., Dover.

District of Columbia:° *Examination.* Washington, Nov. 13-14. Deputy Director, Mr. Paul Foley, 1740 Massachusetts Ave., N.W., Washington 6.

Florida:° *Examination.* Miami Beach, Nov. 25-27. Sec., Dr. Homer L. Pearson, 901 N.W. 17th St., Miami 36.

Georgia. *Examination and Reciprocity* Atlanta, Oct. 9-11. Sec, Mr. Cecil L. Clifton, 111 State Capitol, Atlanta 3.

Idaho: *Examination and Reciprocity* Boise, Jan 7-9. Exec Sec, Mr Armand L. Bird, 364 Sonna Bldg., Boise.

Iowa:° *Examination.* Des Moines, Dec. 3-5. Ex. Sec, Mr. Ronald V. Saf, State Office Bldg, Des Moines.

Kansas: *Examination and Endorsement* Topeka, Dec. 12-13 Sec, Dr Lyle F. Schmaus, 872 New Brotherhood Bldg, Kansas City

Kentucky: *Examination.* Louisville, Dec. 10-12. Sec., Dr Russell Teague, 620 South Third St, Louisville 2.

Louisiana. *Examination and Reciprocity* New Orleans, Dec 6-8 Sec, Dr Edwin H. Lawson, 930 Hibernia Bank Bldg, New Orleans 12

Maine. *Examination and Reciprocity* Portland, Nov 13-14. Sec, Dr. Adam P. Leighton, 192 State St, Portland.

Maryland· *Examination* Baltimore, Dec. 11-14 Sec, Dr. Lewis P Gundry, 1211 Cathedral St., Baltimore 1.

Massachusetts. *Examination* Boston, Jan. 15-18. Sec, Dr. *Robert C Cochrane, State Office Bldg*, Boston

Michigan:° *Examination* Lansing, Oct. 10-12 Sec, Dr. E. C *Swanson, 118 Stevens T. Mason Bldg*, West Michigan Ave., Lansing 8

Minnesota:° *Examination and Reciprocity* Minneapolis, Oct 16-18 Sec, Dr. *F. H. Magney, 230 Lowry* Medical Arts Bldg, St Paul 12

Mississippi: *Reciprocity.* Jackson, December. *Examination* Jackson, June *Asst. Sec., Dr. R. N.* Whitfield, Old Capitol, Jackson.

Missouri: *Examination and Reciprocity.* Kansas City, Oct 25-27. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg, Jefferson City.

Nebraska:° *Examination* Omaha, June 17-19. Director, Mr. Husted K *Watson, Room 1009, State Capitol Bldg.*, Lincoln 9

New Jersey: *Examination* Trenton, Oct. 16-19. Sec, Dr Patrick H Corrigan, 28 West State St., Trenton.

New Mexico ° *Examination and Reciprocity* Santa Fe, Nov 19-20 Sec, Dr. R. C. Derbyshire, 227 East Palace Ave, Santa Fe

New York. *Examination* Albany, Buffalo, New York City and Syracuse, Oct. 16-19. Sec, Dr. Stiles D. Ezell, 23 S Pearl St, Albany.

North Dakota: *Examination and Reciprocity* Grand Forks, Jan. 2-5 Sec., Dr. C. J. Glaspel, Grafton.

Oregon.° *Reciprocity* Portland, Oct. 19-20. *Examination* Portland, January. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg, Portland 4

South Dakota.° *Examination.* Sioux Falls, Jan 21-22 Ex Sec, Mr John C. Foster, 300 First National Bank Bldg., Sioux Falls.

Texas:° *Examination and Reciprocity.* Fort Worth, Dec. 6-8. Applications for reciprocity must be complete and on file at least thirty days prior to the December meeting, and applications for examination must be complete and on file at least ten days prior to the meeting date. Sec, Dr M. H. Crabb, 1714 Medical Arts Bldg, Fort Worth 2.

Utah: *Reciprocity.* Salt Lake City, Nov. 20. *Examination* Salt Lake City, July 11-13. Director, Mr. Frank E. Lees, 324 State Capitol Bldg, Salt Lake City 1.

Virginia: *Examination and Reciprocity* Richmond, Dec 5-7. Address Secretary to the Board, 631 First St, S W, Roanoke.

Washington.° *Examination and Reciprocity* Seattle, Jan 14-16 and Jan 12. Sec., Mr. Edward C. Dohm, Olympia.

West Virginia. *Reciprocity.* Charleston, Oct. 8. *Examination* Charleston, January. Sec., Dr. Newman H. Dyer, State Office Bldg. No 3, Charleston 5.

Wisconsin:° *Reciprocity.* Madison, Oct. 19 and Jan. 9. *Examination* Madison, Jan. 8-10. Sec., Dr. Thomas W. Tormey, Jr, 1140 State Office Bldg, 1 West Wilson St., Madison.

Alaska.° On application in Anchorage, Fairbanks, Juneau and other towns. Sec., Dr. W. M. Whitehead, 172 South Franklin St, Juneau

Guam. *Subject to Call.* Act. Sec., Dr. S. F. Provencher, Agana

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Colorado. *Examination and Reciprocity* Dec 5-6, Lincoln and Denver *Sec., Dr. Esther B Starks, 1459 Ogden St., Denver 18*

Connecticut: *Examination* New Haven, Oct. 13. Exec. Asst, Miss Regina *G. Brown, 258 Bradley St, New Haven 10.*

District of Columbia: *Examination* Washington, Oct. 22-23 Deputy *Directors, Mr. Paul Foley, 1740 Massachusetts Ave, N.W*, Washington

Iowa: *Examination* Des Moines, Oct. 9. Sec, Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination and Reciprocity.* Ann Arbor and Detroit, Oct 12-13. Sec., Mrs. Anne Baker, 116 Stevens T. Mason Bldg, Lansing.

New Mexico: *Examination.* Santa Fe, Oct. 21. Sec, Mrs Marguerite Cantrell, Box 1522, Santa Fe.

Oregon: *Examination* Portland, Dec. 1. Dr. Earl M. Palett, Sec, State Board of Higher Education, Eugene.

South Dakota: *Examination.* Vermillion, Dec. 7-8. Sec., Dr. Gregg M *Evans, 310 E. 15th St*, Yankton.

Texas. *Examination.* Austin and Houston, Oct. 19-20. Sec, Bro Raphael *Wilson, 407 Perry-Brooks Bldg*, Austin.

Washington: *Examination* Seattle, Jan. 9-10. Sec, Mr. Edward C. Dohm, Olympia.

Wisconsin: *Examination.* Milwaukee, Dec. 1. Sec, *Dr. W. H.* Barber, 621 Ransom St., *Ripon.*

Alaska: *Examination and Reciprocity.* Anchorage and Juneau, first week of February, April, June, August and November. Sec, Dr. C Earl Albrecht, Box 1931, Juneau.

°Basic Science Certificate required.

DEATHS

Richards, Esther Loring ⊕ Baltimore; born in Holliston, Mass., June 6, 1885; Johns Hopkins University School of Medicine, Baltimore, 1915; associate professor emeritus of psychiatry at her alma mater, and served as lecturer in mental hygiene at the Johns Hopkins University School of Hygiene and Public Health; member of the American Psychopathological Association, American Academy of Science, American Academy of Political and Social Science, American Psychiatric Association, and the American Association for the Advancement of Science; fellow of the American Public Health Association; cited as one of the 10 outstanding American women of the year by the Woman's National Press Club; served on the staff of the Baltimore City Hospitals; in April, 1954, her portrait was presented to the Johns Hopkins Hospital, where she was a psychiatrist and where, for many years, she was associated with the Henry Phipps Clinic; author of "Behavior Aspects of Child Conduct" and "Introduction to Psychobiology and Psychiatry"; received the honorary doctor of science degree from Mount Holyoke College of South Hadley, Mass., in 1926; died July 6, aged 71, of cancer.

Reeves, Rufus Sargent ⊕ Philadelphia; born in Philadelphia Aug. 1, 1882; University of Pennsylvania School of Medicine, Philadelphia, 1912; past-president of the Philadelphia County Medical Society; founder and first director of the society's Postgraduate Institute, and for this achievement was given the I. P. Strittmatter Award, a gold medal and scroll, on May 2, 1941; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and the Pennsylvania Public Health Association; treasurer and at one time president of the medical alumni of the University of Pennsylvania; director of the department of public health from 1944 to 1952; formerly contract physician to the U. S. Army Signal Corps Depot; at one time on the faculty of his alma mater; veteran of World War I; on the courtesy staffs of Episcopal and St. Agnes hospitals; in 1950 received an honorary degree of doctor of science from Hahnemann Medical College and Hospital; died in the Hospital of the University of Pennsylvania July 13, aged 73, of metastatic carcinoma of the lung.

Shockley, Major Augustus Wroten ⊕ Brigadier General, U. S. Army, retired, Tampa, Fla.; born in Fort Scott, Kan., May 13, 1874; Kansas City (Mo.) Medical College, 1898; veteran of the Spanish-American War; entered the regular Army in 1900 and advanced through the various grades until he was appointed brigadier general in 1935; retired Feb. 28, 1937; director of the Field Service and Correspondence School for Medical Officers, Fort Leavenworth, Kan., from August, 1915, to September, 1917; instructor, General Service Schools, Fort Leavenworth, Kan., from May, 1919, to June, 1922; later commanding officer, William Beaumont Army Hospital, El Paso, Texas, and surgeon and professor of military hygiene of the U. S. Military Academy; in command of the Letterman Army Hospital in San Francisco to the time of his appointment as assistant to the surgeon general of the Army; awarded the Distinguished Service medal; an officer of the Legion of Honor of France; fellow of the American College of Surgeons; died at the MacDill Air Force Base, Tampa, Fla., May 10, aged 81, of abscess of the lung and arteriosclerosis.

Hodges, Francis Traill ⊕ San Francisco; born in Indianapolis Aug. 17, 1907; Indiana University School of Medicine, Indianapolis, 1933; member of the American Academy of General Practice; president of the California Academy of General Practice; interned at the U. S. Marine Hospital, Passavant Memorial Hospital, Chicago Maternity Center, and the Chicago Lying-in Hospital and Dispensary in Chicago; during World War II served as a commander of the U. S. Naval Reserve in the South Pacific; served as surgeon on the Grace and Dollar Lines in the Merchant Marine; past-president of the California Physicians' Service; died in the Santa Barbara (Calif.) Cottage Hospital, Aug. 15, aged 48, of a broken neck suffered in a diving accident.

Ramsaur, Jackson Townsend ⊕ Gastonia, N. C.; born in Montreal Nov. 16, 1907; Rush Medical College, Chicago, 1934; specialist certified by the American Board of Preventive Medicine; past-president of the Gaston County Medical Society; past vice-president of the Western North Carolina Public Health Association; past-chairman of the health officers' section of the North Carolina Public Health Association and at the annual convention in 1952 received "honorable mention for meritorious achievement in public health"; since 1950 county health officer; on the staffs of the Garrison General and Gaston Memorial hospitals; died June 28, aged 48, of cerebral accident and hypertensive cardiovascular disease.

Crow, Thomas A., Manitou, Ky.; Hospital College of Medicine, Louisville, 1896; died in Madisonville May 18, aged 86, of arteriosclerosis.

Evans, Thomas Asa E., Farmers, Ky.; American Eclectic Medical College, Cincinnati, 1895; University of Louisville (Ky.) Medical Department, 1907; for many years director of the Rowan County Health Department; served as judge of Rowan County; died in Morehead March 27, aged 82, of arteriosclerosis.

Fineberg, Bernard Jacob, Jersey City, N. J.; Columbia University College of Physicians and Surgeons in New York City, 1923; served as police physician; medical examiner for the city police department; on the staff of the Fairmount Hospital; died June 29, aged 57, of acute coronary occlusion.

Gardiner, Elizabeth May, Bennington, Vt.; Woman's Medical College of Pennsylvania, Philadelphia, 1915; retired director of the division of maternity, infancy, and child hygiene of the New York State Department of Health; director of the division of child welfare in the Rhode Island Department of Health from 1919 to 1923; served on the staff of the Butler Hospital in Providence, R. I.; died July 7, aged 74, of ruptured aneurysm of the descending aorta and arteriosclerosis.

Geib, Frank Julius, Cleveland; Harvard Medical School, Boston, 1899; member of the Cleveland Academy of Medicine and the Cleveland Medical Library; at one time on the faculty of the Western Reserve University School of Medicine; at various times on the staffs of the City Hospital, St. Vincent Charity Hospital, and St. Alexis Hospital; died June 21, aged 83, of heart disease.

Gorham, Herbert Jenkins, Nashville, N. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1926; served with the state department of health; died June 17, aged 55.

Hamblin, William Nathan ⊕ Westfield, Mass.; Syracuse (N. Y.) University College of Medicine, 1942; interned at the Rochester (N. Y.) General Hospital; formerly a resident at the Hospital of the Good Shepherd in Syracuse and the Albany (N. Y.) Hospital; veteran of World War II; formerly chairman of the board of health; died in the Noble Hospital June 14, aged 39.

Harris, Hardie Fleming, Cleveland; Meharry Medical College, Nashville, Tenn., 1905; a director of the Quincy Savings and Loan Company; died June 3, aged 75, of cancer of the prostate.

Hermes, Harry Leonard, New York City; New York Homeopathic Medical College and Flower Hospital, New York City, 1918; a member of the Medical Society of the State of New York; fellow of the American College of Surgeons; interned at the Bellevue Hospital; on the staffs of the Misericordia Hospital, Medical Arts Center Hospital, and the Flower and Fifth Avenue Hospitals, where he died May 2, aged 67, of coronary thrombosis.

Herwig, Theodor Christian Gustav ⊕ Akron, Ohio; Georg August-Universität Medizinische Fakultät, Göttingen, Prussia, Germany, 1924; member of the American College of Chest Physicians; veteran of World War I; on the staff of the City Hospital; died June 20, aged 62.

⊕ Indicates Member of the American Medical Association.

Holdren, C. W., Athens, W. Va.; Baltimore University School of Medicine, Baltimore, 1892; died July 17, aged 88, of a heart attack.

Jones, Errol Thomas, St. Clair, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1914; veteran of World War I; secretary and past-president of the school board; on the courtesy staff of the A. C. Milliken Hospital, Pottsville, where he died June 13, aged 65, of arteriosclerotic heart disease, emphysema, and pulmonary fibrosis.

Kenneth, Milena Anna, North Miami, Fla.; Université de Paris Faculté de Médecine, France, 1951; interned at St. Vincent's Hospital in New York City, where she served a residency at St. Luke's and Willard Parker hospitals, and at the Jewish Hospital in Brooklyn, N. Y.; died June 30, aged 31.

Lee, Frank Shin ⊕ Honolulu, Hawaii; Medical Department of St. John's University, Shanghai, China, 1938; member of the American Academy of General Practice; died March 24, aged 50, of cerebral hemorrhage and nasopharyngeal cancer with general metastases.

Lewis, Cyril Ettrick, Auburn, Calif.; Jefferson Medical College of Philadelphia, 1904; an associate member of the American Medical Association; served on the staff of the Highland General Hospital, where he died July 15, aged 78, of cardiovascular disease.

Lewis, William Bryant, Houston, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1913; for many years served as a medical missionary in the Belgian Congo, where he built the Lewis Memorial Hospital in the Tunda Village; died April 15, aged 64.

Maxwell, John Boal ⊕ Logansport, Ind.; Rush Medical College, Chicago, 1890; served on the staff of St. Joseph Hospital, where he died July 5, aged 97, of hypostatic pneumonia.

McGuire, John Jett ⊕ Pensacola, Fla., Tulane University of Louisiana School of Medicine, New Orleans, 1919; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; on the staffs of the Santa Rosa Hospital in Milton and the Baptist and Escambia General hospitals; on the courtesy staff of Sacred Heart Hospital; died July 1, aged 61, of coronary occlusion.

Mittelman, Joseph Herman, New York City; University of the City of New York Medical Department, New York City, 1894; died May 29, in Brooklyn, aged 95.

Nathan, Edward Meyer ⊕ Quincy, Mass.; Tufts College Medical School, Boston, 1932; on the staffs of the Beth Israel Hospital in Boston and the Quincy City Hospital; died June 17, aged 48, of cerebral hemorrhage.

Noland, Stacy Taylor, Rehoboth Beach, Del.; College of Physicians and Surgeons, Baltimore, 1914; served in France during World War I; past-president of the Arlington County (Va.) Medical Society; practiced in Arlington, Va.; died in the Garfield Memorial Hospital, Washington, D. C., July 17, aged 66, of bronchogenic carcinoma.

North, Charles David ⊕ Rockland, Maine; Medical School of Maine, Portland, 1907; served as Knox County medical examiner, health officer of Rockland, and city physician; on the staff of the Knox County General Hospital; died June 27, aged 76, of heart disease.

O'Dwyer, William, Madison, Wis.; Rush Medical College, Chicago, 1901; died June 15, aged 79, of heart disease and bronchopneumonia.

O'Keefe, Charles Darrell ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1918; assistant professor of clinical obstetrics and gynecology at his alma mater; on the staffs of the Barnes and St. Louis Maternity hospitals and St. Luke's Hospital, where he died June 27, aged 63, of myocardial infarction.

Overton, Orrin V. ⊕ Janesville, Wis.; Rush Medical College, Chicago, 1923; member of the American Academy of General Practice and charter member of the Rock County Chapter; past-president and secretary of the Rock County Medical Society; member and past-president of the staff of the Mercy Hospital; died June 17, aged 58, of acute coronary thrombosis.

Pagelsen, Otto Hugo ⊕ Des Moines, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, Chicago, 1898; died in the Iowa Methodist Hospital June 23, aged 86, of cardiovascular accident and fracture of the hip.

Pariseau, George Emory ⊕ Major, U. S. Army, retired, Bethesda, Md.; Tufts College Medical School, Boston, 1909; also a graduate in pharmacy; appointed a first lieutenant in the Medical Corps of the U. S. Army in March, 1911; served in France during World War I; at one time registrar at Fitzsimons Army Hospital in Denver; retired for disability in line of duty Dec. 15, 1922; died in the Walter Reed Army Hospital, Washington, D. C., July 29, aged 74, of hepatorenal failure, pyelonephritis, and acute granulocytic leukemia.

Parker, John Henry, Tampa, Fla., Vanderbilt University School of Medicine, Nashville, Tenn., 1916; died May 22, aged 82.

Parr, Holly Hicks, Eudora, Ark.; Atlanta (Ga.) College of Physicians and Surgeons, 1906; died June 29, aged 77.

Paul, Andrew Beno, New York City; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1926; member of the Medical Society of the State of New York; on the staffs of the Manhattan Eye, Ear and Throat Hospital and the University Hospital; died June 19, aged 54, of coronary occlusion.

Payne, Guy, Canaan, N. Y.; Bellevue Hospital Medical College, New York City, 1898; member of the American Psychiatric Association; past-president of the New Jersey Psychiatric Association and the New Jersey Hospital Association; specialist certified by the American Board of Psychiatry and Neurology; veteran of World War I; retired in 1947 as medical director and superintendent of the Essex County Overbrook Hospital in Cedar Grove, N. J., with which he was associated for many years; died July 1, aged 78, of arteriosclerosis and cerebral hemorrhage.

Pelzer, Seymour George ⊕ Bristol, Tenn.; Universität Bern Medizinische Fakultät, Switzerland, 1936; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; a member of the board of directors of the Salvation Army, and parole officer; on the staff of the Bristol Memorial Hospital; member of the Chamber of Commerce; died July 27, aged 45, of acute coronary thrombosis.

Perrine, Cornelius C. ⊕ Fair Haven, N. J.; Jefferson Medical College of Philadelphia, 1932; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served during World War II; on the staffs of the Riverview Hospital in Red Bank and the Monmouth Memorial Hospital in Long Branch; died June 22, aged 50, of coronary occlusion.

Peterson, Allan Richard ⊕ Daggett, Mich.; Northwestern University Medical School, Chicago, 1928; trustee of the village council; on the staffs of the St. Joseph-Lloyd Hospital in Menominee and the Marinette (Wis.) General Hospital; president-elect of the Menominee County Medical Society; treasurer of the board, Pine Crest State Sanatorium in Powers; died in Sault Sainte Marie, Ontario, Canada, June 24, aged 55, of coronary thrombosis.

Phelps, Eugene Talmage ⊕ Hebron, Neb.; Rush Medical College, Chicago, 1912; member of the American Diabetes Association, American Academy of General Practice, and the Illinois State Medical Society; for many years practiced in Chicago, where he was on the staff of the Woodlawn Hospital; died in the Bishop Clarkson Memorial Hospital, Omaha, June 15, aged 71, of hemorrhage from esophageal varices.

Pierce, Paul Leon ⊕ Denison, Texas; Baylor University College of Medicine, Dallas, 1921; member of the American Academy of General Practice; on the staff of Madonna Hospital; died June 3, aged 59, of suffocation during a fire in his home.

Pilkinton, Lloyd, Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1917; medical examiner for insurance companies; died July 1, aged 63, of a heart attack.

Polkinhorn, Henry Alexander ⊕ Washington, D. C.; Medico-Chirurgical College of Philadelphia, 1896; died July 25, aged 82.

Pope, Henry Cook, Richmond, Ky.; Hospital College of Medicine, Louisville, 1906; member of the Kentucky State Medical Association; vice-president of the Henry Cook Pope Hospital, where he died June 22, aged 75, of coronary thrombosis.

Porter, Charles Edwin ⊕ Redfield, Iowa; Drake University College of Medicine, Des Moines, 1908; member of the city health department; died June 18, aged 78, of myocardial failure.

Poska, Abraham ⊕ Seattle; Rush Medical College, Chicago, 1899; died in Los Angeles June 17, aged 78, of arteriosclerosis.

Price, John Leo, St. Louis; St. Louis University School of Medicine, 1910; died June 12, aged 71.

Rahhal, George Metray ⊕ Atoka, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1945; interned at the Wichita-St. Joseph Hospital in Wichita, Kan., and the City-County Hospital in Fort Worth, Texas; entered the Medical Corps, Army of the United States, in April, 1946, and separated as a captain in April, 1948; served as physician at the State Penitentiary in McAlester; on the staff of the Mary Hurley Hospital in Coalgate; died June 27, aged 39, of internal hemorrhage.

Ray, Robert Hensley ⊕ West Memphis, Ark. (licensed in Arkansas in 1903); also an ordained minister; served two terms in the state legislature; formerly secretary of the Crittenden County Medical Society; one of the original members of the staff of Crittenden Memorial Hospital; died July 4, aged 77, when his automobile was struck by a train.

Rice, Alexander Hamilton, New York City; Harvard Medical School, Boston, 1904; formerly professor of geographical exploration at his alma mater; died in Newport, R. I., July 23, aged 80, of uremia and arteriosclerosis.

Roberts, William Job, Clinton, La.; Memphis (Tenn.) Hospital Medical College, 1900; past-president and secretary of the East Feliciana Parish Medical Society; veteran of World War I; at one time medical officer with the Veterans Administration in Denver; served as a Presbyterian minister; died May 26, aged 87, of coronary occlusion.

Sanders, Guy Cecil ⊕ Richards, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1912; past-president of the Grimes County Medical Society; for many years president of the local school board; died May 2, aged 70, of pneumonia and brucellosis.

Scharpenberg, Louis George ⊕ Sedro Woolley, Wash.; Northwestern University Medical School, Chicago, 1939; interned at the King County Hospital in Seattle; died July 10, aged 45, of cerebral hemorrhage.

Smith, Edwin Merle, Grand Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1925; member of the American Academy of General Practice, on the staff of the Blodgett Memorial Hospital, where he died Aug. 3, aged 60, of multiple myeloma.

Smith, Fletcher Adrian, Elberton, Ga.; Emory University (Ga.) School of Medicine, 1928; died July 14, aged 56, of cancer of the sigmoid colon.

Sperl, Joseph Tours, Gary, Ind.; Rush Medical College, Chicago, 1923; died May 18, aged 70.

Swenson, Samuel August, Omaha; University of Nebraska College of Medicine, Omaha, 1910; member of the American Academy of General Practice; an associate member of the American Medical Association; on the staffs of the Immanuel, Nebraska Methodist, and Children's Memorial hospitals; died July 31, aged 77, of carcinoma of the liver.

Sylvester, George Elwin, Black River, N. Y.; Bellevue Hospital Medical College, New York City, 1889; an associate member of the American Medical Association; past-president of the Jefferson County Medical Society; served as president of the board of education, as village health officer, and health officer of Rutland for years; on the staffs of the Mercy Hospital and House of the Good Samaritan in Watertown; died June 30, aged 91, of hypertensive heart disease.

Teitelbaum, Michael Henry ⊕ New York City; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1925; member of the American Psychiatric Association and the Association for Research in Nervous and Mental Diseases; veteran of World War II; on the staff of the Neurological Institute; died in the Presbyterian Hospital Aug. 10, aged 58, of embolism following surgery and heart disease.

Teller, William H., Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; an associate member of the American Medical Association; chief surgeon emeritus at the old Jewish Hospital, now a part of the Albert Einstein Medical Center; died July 14, aged 89.

Thompson, Elmer Gibson, Chicago; Chicago College of Medicine and Surgery, Chicago, 1910; died in St. Mary of Nazareth Hospital Aug. 5, aged 69, of cerebral metastasis from carcinoma of the left lung.

Timblin, William Stanley ⊕ Rockford, Ill.; Rush Medical College, Chicago, 1913; specialist certified by the American Board of Internal Medicine; associated with the Swedish-American Hospital, where he was president of the medical staff, 1954-1955, for four years member of the executive committee, and chairman of the medical section for the last two years, and where he died Aug. 9, aged 67, of rupture of the myocardium and myocardial infarction.

Vaughan, George Edward, Southside, Tenn.; Vanderbilt University School of Medicine, Nashville, 1898; an associate member of the American Medical Association; member of the Kentucky State Medical Association; formerly practiced in Louisville, Ky., where he was on the faculty of the University of Louisville School of Medicine, and on the staffs of the Norton Memorial Infirmary and the Louisville General Hospital; died June 1, aged 79, of cerebral hemorrhage.

Vergosen, Harry Edward, Jr., Detroit; Detroit College of Medicine and Surgery, Detroit, 1933; interned at the City of Detroit Receiving Hospital; formerly a resident at the Herman Kiefer Hospital; veteran of World War II; on the staffs of the Florence Crittenton, East Side General, and Mount Carmel Mercy hospitals; died June 20, aged 52, of acute myocardial infarction and diabetes mellitus.

Vermilya, Joseph Clyde, Brownstown, Ind.; Medical College of Ohio, Cincinnati, 1896; died June 17, aged 84, of coronary thrombosis, valvular heart disease and arteriosclerosis.

Ward, Cassius A., Jacksonville, Fla.; Leonard Medical School, Raleigh, N. C., 1907; died June 22, aged 81, of arteriosclerotic heart disease and diabetes mellitus.

Way, Clarence Wilton ⊕ Sea Isle City, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1909; veteran of World Wars I and II; formerly secretary of the Cape May County Medical Society; served as editor of the *Journal of the Medical Society of Cape May, N. J.*; died July 31, aged 73.

Weitzner, Herbert A. ⊕ Berkeley, Calif.; Rush Medical College, Chicago, 1938; interned at the Beth-El Hospital in Brooklyn, N. Y.; formerly a resident at the Triboro Hospital of Queens Hospital Center in Jamaica, N. Y., and the Veterans Administration Hospital in Batavia, N. Y.; on the staff of the Kaiser Foundation Hospital in Oakland, where he died June 19, aged 44, of coronary thrombosis.

Whitty, Charles Aloysius ⊕ Norwichtown, Conn.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1929; member of the American Trudeau Society; fellow of the American College of Surgeons; served as a resident surgeon at the Cedarcrest Sanatorium in Hartford; died in the Grace-New Haven Community Hospital, New Haven, June 18, aged 52, of tuberculosis following a right pneumonectomy.

Wood, Mary Anna, Pittsfield, Mass.; Tufts College Medical School, Boston, 1898; died in the Pittsfield General Hospital April 11, aged 91, of arteriosclerosis.

Wrather, James R., Amarillo, Texas; University of Louisville (Ky.) Medical Department, 1886; member of the State Medical Association of Texas; past-president of the Potter County Medical Society; died in St. Anthony's Hospital July 13, aged 81, of arteriosclerosis and cardiac asthma.

FOREIGN LETTERS

FINLAND

Congenital Dislocation of the Hip and Breech Presentation.—At two children's hospitals in Helsinki a study of the cause of congenital dislocation of the hip was undertaken by Nystrom and Zilliacus, whose findings are published in *Nordisk medicin* for July 12. Their series of 124 patients with this condition consisted of 96 girls and 28 boys. In 85 the disease was unilateral (on the left side in 53 and on the right in 32). In 16% there was a history of breech presentation, and it would seem that the chance of a breech presentation being associated with congenital dislocation of the hip is so great that the latter should be looked for whenever the former has occurred. Most of the available evidence on the subject suggests that the congenital dislocation promotes the breech presentation and not the reverse. The mean weight at birth of the babies born with breech presentation in this series was only 3,216 gm., whereas it was 3,575 gm. for all those with congenital dislocations. Having observed 10 patients in whose families congenital dislocation of the hip had occurred in more than one member, the authors are inclined to include this condition among the hereditary diseases. The immediate cause of the breech presentation in cases of congenital dislocation may be that it prevents the fetus from using its legs for turning away from a breech presentation.

Orchitis Due to Mumps.—In *Nordisk medicin* for Aug. 9 Klemola and Somer report a series of 105 patients with orchitis due to mumps. Corticotropin was given intramuscularly to 41 patients, cortisone to 11, and a placebo to 53. No statistically significant difference could be found with regard to the duration of the fever and other symptoms, and in each of the three groups there were patients showing a remarkably prompt response to the injections. These findings are in contrast to the more positive findings published by Solem in *Acta medica scandinavica* in 1954, and it is admitted that in the present series the doses of corticotropin (40 I. U. on the first day, 20 on the second and again on the third, and 10 on the fourth) may have been too small.

INDIA

Cardiospasm.—Gopinath and co-workers (*Journal of the Indian Medical Association*, Aug. 1, 1956) state that cardiospasm is observed in 18% of all patients with esophageal lesions. The authors' series comprised 22 patients ranging from 10 to 60 years of age. The duration of symptoms ranged from 11 months to over three years. Dysphagia, pain, vomiting, and loss of weight were the commonest symptoms. The operations that were performed on different patients included dilatation, modified Heller, classic Heller, Heyrovsky, and Heyrovsky combined with gastrojejunostomy. The authors prefer Heller's operation, using the thoracic route. The advantages include short operative time, uneventful postoperative period, short hospital stay, and dramatic functional improvement. This is the only simple procedure that is effective and not complicated by reflux esophagitis. The clinical results of both dilatation and Heller's myotomy may far exceed the improvement noted objectively by having the patient swallow barium. This suggests that a narrow segment of the esophagus is the focus to be treated and that the dilatation is a secondary effect.

Urinary Diastase.—Anand and Sawhney (*Indian Journal of Surgery*, June, 1956) assessed the significance of the test for urinary diastase in the diagnosis of acute pancreatitis. They studied 112 normal healthy subjects to find the range of normal variations and 78 patients with acute upper abdominal pain, including 43 with acute cholecystitis. Repeated estimations were carried out in 18 patients with acute pancreatitis at short intervals to detect variations in the pattern of curves of urinary diastase during the course of the disease. Determinations of serum amylase were also made in all these subjects to discover the relationship, if any, between the levels of serum and urinary amylase. Wide variations in urinary diastase levels in healthy persons and in patients with upper abdominal pain were noted. They concluded that levels of 60 units or more per 100 cc. should be considered abnormal but not diagnostic of pancreatitis. The levels may differ at different times in the same subject, according to the concentration of the urine. This factor makes the test unreliable in the diagnosis of acute pancreatitis. Simultaneous estimations of serum amylase and urinary diastase should be made to arrive at a definite diagnosis.

Serum Amylase.—Anand and Sawhney made further study of the serum amylase test (*Indian Journal of Surgery*, June, 1956). In 100 normal, healthy subjects, 87 had values ranging between 80 and 200 Somogyi units per 100 cc. The rest had levels of over 200 units. In addition to these, 87 patients with upper abdominal pain, including 41 with acute cholecystitis, were studied, and serial estimations of serum amylase levels were made at short intervals on 25 patients with acute, relapsing pancreatitis. Repeated estimations were also made on six patients with pseudopancreatic cysts. Serum amylase levels remain within normal limits in most of the upper abdominal emergencies uncomplicated by pancreatitis. Any rise above 320 units per 100 cc., especially if the estimations are made at the height of the pain and if the level drops after the attack subsides, is suggestive of pancreatitis. Repeated estimations at frequent intervals are necessary to detect a slow or delayed rise in some patients with pancreatitis. It is also possible to have episodes of pancreatitis unassociated with any rise in serum amylase level. The readings should, therefore, be obtained in all attacks. In most patients the degree of rise in level of serum amylase varies with the severity of the disease, and the subsequent fall parallels subsidence of the attack. Once pseudopancreatic cysts have formed, the level of serum amylase remains elevated till the cyst is drained, even if there are no superimposed attacks of pancreatitis. This test is therefore of great help in confirming suspected diagnoses. In patients with chronic cysts in whom there is marked fibrosis of the cyst wall or in whom the communication of the cyst with the pancreatic duct closes, the absorption of serum amylase into the general circulation diminishes and the level falls.

Milk Powder for School Children.—Lal and Bose (*Journal of the Indian Medical Association*, Aug. 16, 1956) compared the nutritional results in a group of 337 schoolboys to whom skimmed milk powder from the United Nations International Children's Emergency Fund was distributed and a group of 359 boys who were getting no milk. The powder contained (in grams per 100 ml.) 35.35 of protein, 0.74 of fat, 49 of lactose, 0.14 of calcium, and 7.98 of mineral. The period of observation was 12 months. The group getting the milk showed a better increase in both height and weight, and the incidence of nutri-

---

The items in these letters are contributed by regular correspondents in the various foreign countries.

tional defects was lowered. It was observed that, with the existing diet, even 1 oz. of skimmed milk powder a day would further increase the height of the boys by 0.4 in. (1.02 cm.) and weight by 0.63 lb. (0.29 kg.) in a year.

ISRAEL

Cardiovascular Laboratory.—The cardiovascular laboratory of the Hadassah University Hospital was the first in Israel to use such procedures as cardiac catheterization, ballistocardiography, angiocardiography, and aortography. It also introduced such pulmonary function tests as determinations of maximum breathing capacity, residual air, and intrapulmonary mixing efficiency and the determination of respiratory gases in blood and expired air. The hemodynamics of patients with mitral stenosis were studied before they underwent valvulotomy in the department of chest surgery. The nature of pulmonary hypertension, prominent in certain patients with mitral stenosis, was investigated, and it was observed that increased pulmonary vascular resistance diminishes after administration of tolazoline hydrochloride, without a concomitant fall in cardiac output. The conclusion was drawn that pulmonary hypertension in mitral stenosis may be partly reversible by administration of a sympathicolytic drug. These studies are being extended, and the effect of tolazoline on the cardiac output and central blood volume, as determined by the Hamilton-Stewart method, is now under investigation. Although the most reliable method for the diagnosis of mitral stenosis or mitral insufficiency seems to be direct catheterization of the left side of the heart, the esophageal piezocardiogram has been found very useful in the determination of those conditions. Shortening of the C-V interval in the indirect atrial pulse pressure record was found to be characteristic of mitral insufficiency. The tracings recorded by this method resembled those obtained by direct puncture of the left atrium at the time of operation. Ballistocardiography has been applied extensively for the study of acute hemodynamic changes after the administration of drugs.

The effect of Foliandrin, a cardiac glycoside obtained from the oleander bush, was observed in experiments on healthy persons and on patients with heart failure. Ballistocardiograms of patients with heart failure showed a marked improvement, which appeared a few hours after administration of the drug, while in normal persons the pattern deteriorated. These effects were similar to those observed after the administration of rapidly acting digitalis glycosides. The effects of chlorpromazine on the ballistocardiogram, blood pressure reading, and electrocardiogram were studied in a series of normal persons, and it was observed that, after the intramuscular administration of the usual amounts of this drug, blood pressure decreased, the electrocardiogram became abnormal, and the ballistocardiographic pattern deteriorated. It appears, therefore, that administration of this drug to patients with organic heart disease may be harmful.

Filariasis.—M. Yoeli reported (*Harefuah* 61:56, 1956) on a survey of filariasis among Indian-Jewish immigrants that was carried out in the period June, 1955, to May, 1956. Examination of blood taken at night from 878 immigrants revealed 102 to be carriers of Wuchereria bancrofti. Microfilaria carriers were found in all age groups. The density of the microfilariae in the peripheral blood of the carriers varied greatly. Most carriers were symptom-free and did not show any clinical manifestations of their infection. The settlers examined were part of a group of 2,155 Indian Jews, most of whom settled in Israel after 1953. Ethnically they belong to the racially distinct descendants of ancient Jewish communities in the Travancore-Cochin region of India. In a detailed study carried out in 1953 in the Jewish communities of Malabar, all the manifestations of endemic filariasis were found. Of 1,904 persons examined, 13.5% showed clinical signs of overt filariasis. In Israel the Indian Jews are grouped in ethnically homogeneous villages in the hilly part of the country and in the dry Negeb in the south, but many have settled and have been absorbed in the modern and well-established settlements of the country. A study of conditions existing in these homogeneous villages revealed factors in the habits and habitat of the Indian-Jewish settlers favoring transmission of filariasis (overcrowding, high temperature, and high humidity in the houses and personal habits that may facilitate infection of local mosquitoes and permit development of infective larvas of W. bancrofti).

A small number of Culex modestus were found infected with W. bancrofti (all stages) in dwellings of carriers in a hill village in the Jerusalem area. Nocturnal blood examination of 619 European members of two settlements, among whom Cochin-Jewish immigrants have been living for the past two to five years, showed no infection with W. bancrofti, in spite of heavy Culex infestation and the existence of carriers among the new immigrants. Chances of filarial transmission under conditions prevailing in modern settlements in Israel are small, but there may be some local infections in the settlement of Indian Jews who preserved the old ways of life and where antimosquito measures and specific antifilarial treatment is not carried out. A systematic campaign for treatment with diethylcarbamazine citrate has been initiated under strict supervision by the Israel Ministry of Health. Examination of blood of groups of 15 W. bancrofti carriers after a two-week course of treatment (2 mg. of diethylcarbamazine per kilogram of body weight, three times daily) showed a total suppression of microfilariae from the peripheral blood for a period of 15 weeks and a partial suppression to subinfective levels for a period of five months. It may, therefore, be presumed that, through the combined action of systematic and repeated diethylcarbamazine therapy and antimosquito measures, filariasis will not spread in Israel and the existing foci will be eliminated in time.

ITALY

Geriatricians Meet.—The meeting of the Italian Society of Gerontology and Geriatrics was held in June in Montecatini-Terme. Professor Sotgiu classified old persons as those who have no digestive disturbances and who, without getting fat, eat large quantities of food; those who because of lack of appetite eat little; and those who have subclinical or functional disturbances and do not consult a physician. Digestive disorders in old persons are often caused, at least in the beginning, by a loss of teeth that have not been replaced. Professor Patrassi described the histopathological changes that occur in the liver of old persons. The most frequent changes are due to sclerosis. On the basis of these alterations, functional inadequacy develops slowly and is manifested especially in protein metabolism, with a diminution in serum albumin and an increase in gamma globulin.

SWITZERLAND

Bacterial Allergy and Vasculitis.—Bacterial allergy seems to be an important factor in the pathogenesis of many diseases, notably glomerulonephritis and acute rheumatic fever, in which there is an allergy to group A hemolytic streptococci. Certain episodes in patients with tuberculosis can also be explained by an allergy to the Mycobacterium tuberculosis. P. Miescher (*Schweiz med. Wchnschr.* 86:799, 1956) studied several patients with Schönlein-Henoch syndrome, migrating phlebitis, and related conditions and showed that a local common infection, not serious in itself, initiated such serious complications as purpura, digestive or urinary hemorrhages, arthralgia, phlebitis, or subcutaneous nodules as in rickets. The author believes that these different manifestations represent a hyperergic tissular response to bacteria or their toxins. He bases this belief on (1) positive skin reactions to bacterial filtrates; (2) the histology of the purpuric eruptions and nodules, which are characterized by an infiltration of polynuclear leukocytes around capillaries, venules, and arterioles; (3) the close similarity of the histology of the area positive to skin test when bacterial filtrates of streptococci, micrococci, enterococci, and Escherichia coli were used to that of the primary purpuric lesion, (4) absence of bacteria in the blood and in the tissular lesions; (5) the ability of an injection of the bacterial vaccine (the antigen) and of any operation on the infectious area to initiate an attack; (6) the disappearance of symptoms after the elimination of the infection; (7) the appearance of symptoms within an interval after a relapse of the primary local infection; and (8) improvement following desensitization.

Hypophysectomy for Cancer of the Breast.—Luft and Olivecrona (*Schweiz med. Wchnschr.* 86:113, 1956) describe their results with hypophysectomy in a series of 50 patients with cancer of the breast with metastases. There were three postoperative deaths: one from pulmonary embolism, one from aspiration pneumonia, and one from thyrotoxicosis. Three other patients died of intercurrent affections; 26 were not improved and did not live long. For several, hypophysectomy was shown not to be total. The question of relation between the radical nature of the operation and the therapeutic success was not determined. In addition, the tests usually showed a total loss of hypophyseal function. Twenty patients showed subjective and objective improvement, the objective criteria being the diminution or the disappearance of the tumor or of its cutaneous and lymphatic metastases and the diminution or arrest of osseous and pulmonary metastases for at least six months. The general state of the patients was better and their pains greatly reduced. The period of quiescence lasted one or two years, after which death came quickly. Eleven patients were still living one to three and one-half years after the operation. The authors also performed hypophysectomies in some patients with diabetes and the Kimmelsteil-Wilson syndrome. This operation is justified by its effect on experimental diabetes and by the fact that two hormones of the hypophysis are diabetogenic. In the last four years this operation was performed on 20 patients with severe malignant disease. There were three postoperative deaths and four deaths within several months, two of which were due to the attempt to use desoxycorticosterone as a substitute for cortisone. Transitory epileptic crises constitute a complication that was not found in patients operated on who also had cancer of the breast. In the survivors the dosage of insulin could be reduced. The systolic and diastolic pressures were lowered a little over a period of one year. There was a diminution in the size of the heart. Renal function and retinopathy remained stationary, but in some patients there was an improvement in the appearance of the eyegrounds.

UNITED KINGDOM

Report of Cancer Campaign.—Men who drink beer daily tend to run an increased risk of cancer, according to Dr. Percy Stocks (33rd annual report of the British Empire Cancer Campaign). Dr. Stocks reached this conclusion after studying the dietary habits of 2,770 hospital patients. Among men, frequent beer-drinking is positively associated with cancer of the esophagus, intestine, lungs, and other organs, but not with gastric cancer. In contrast, daily milk-drinking was associated with a decreased incidence, especially of lung cancer. The Duke of Gloucester, president of the campaign, said that the campaign's income for 1955 totaled $1,400,000. It might be thought that the campaign was well off, but in fact it had no more than one year's reserve funds.

Dentist Criticizes Health Service.—In his presidential address to the annual conference of the British Dental Association, Mr. R. J. Hooker said that the experience of dentists working in the National Health Service had proved that there is an emphasis on the second rate. All dentists are paid on the same scale, and the man who conducts his practice in the cheapest possible manner with the barest minimum of equipment does the best financially. There is no allowance for skill, experience, or amenities provided for patients. Mr. Hooker agreed that there had been a great increase in the amount of prophylactic work done for young people and that dentistry had been made available to many more people, but it is unfortunate that the service is under political control

Shortage of Nurses.—Lack of nurses will cause the hospital service as now known to collapse soon, said Dr. J. F. Galloway, Wolverhampton Medical Officer of Health, at the British Medical Association's annual meeting. There are now 104 women to every 100 men in the age group 18-29. In 1966 the proportion will be 97 women to every 100 men. By that time nearly all women of that age will be either expectant or nursing mothers. It would then be impossible to recruit nurses on the same scale as today. For home nursing, people would have to rely on women who had finished with their family responsibilities. These women would have a month or six weeks of training and would be assigned to a definite area.

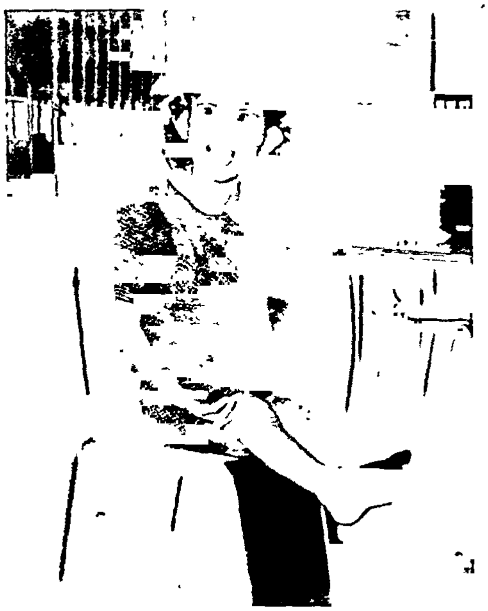
Cancer Scares.—Mr. A. Dickson Wright, a leading London surgeon, speaking at the meeting of the British Medical Association said that everything we do, whether it be smoking or drinking beer, has some danger of cancer attached to it. The Chinese opium smoker and the Malayan betel-nut chewer have their special liabilities. The motorist is exposed to carcinogenic fumes Even such a harmless entertainment as sunbathing has its quota of cancer risk. Since prophylaxis can cut us off from all our amusements, it is best to enjoy life and take the small risks attached to these things.

Standard Titles for Serologic Products.—The *British Medical Journal* of July 7 contains an article by Perry and Parish wherein they make a plea for an international standardization of titles for serologic products. They propose using abbreviations comprising a shortened version of the name of the disease or organism associated with the material administered and a shortened version of the name of the type of product concerned. In some cases a third part may have to be added in order to identify a particular variety of the type of product. The first general principle is that, if only one disease or organism is mentioned, three letters (usually the first three) are used. Wherever possible the Latinized title is abbreviated. Should confusion appear likely as a result of this general method of abbreviation, the full name is used, e. g., Cho for cholera but no abbreviation for typhoid or typhus. The second general principle is that, where more than one disease appears in the title, capital letters only are used as abbreviations for the names of the diseases and organisms, e g, TAB for typhoid, paratyphoid A, and paratyphoid B, and DTP for diphtheria, tetanus, and pertussis. The abbreviation of the name of the disease or organism is followed by a diagonal line, after which appears the abbreviation for the type of product The scheme envisages the use of prophylactics for which the general abbreviation Vac is suggested (Tet/Vac for tetanus toxoid) and therapeutic antiserums for which the general abbreviation Ser is suggested (Tet/Ser for tetanus antitoxin). In a few cases the abbreviation Vac will be replaced by Tox, where both a vaccine and a toxoid are commonly available (Sta/Tox for staphylococcus toxoid). If there are a number of distinct varieties of one type of product and it is desirable to distinguish between them, the two-part abbreviation just described is followed by another diagonal line, after which is written an approved abbreviation for the particular variety of product concerned, e. g., Dip/Vac/APT for diphtheria prophylactic alum-precipitated toxoid. This should not be a frequent problem.

CORRESPONDENCE

UNKNOWN CHILD

To the Editor:—The police department of the city of New York is endeavoring to identify an unknown white female found in the basement of Beth El Hospital, Brooklyn, N. Y., on July 31, 1956, and removed to Bellevue Hospital for treatment. The subject's medical description, according to Dr. Ferdiman at Bellevue Hospital, is as follows: She makes symbolic gestures with hands and makes many rocking movements, keeping legs in a semifetal position. There is marked wasting of muscles in the legs. She has 24 teeth; bifid uvula; and hypertension at all joints, with no marked neurological deficit or obvious nutritional deficiencies. Height measures 41 in. (104.1 cm.); head measures 18.1 in. (46 cm.); chest measures 21.9 in. (55.5 cm.); weight is 28.25 lb. (12.8 kg.); and x-rays of her teeth reveal a dental age of 8 to 9 years. X-ray pictures of bones reveal age of 8 to 9 years. She is thought to have microcephaly, with mental retardation and regressing autism. She has cleft palate and pilonidal sinus, which may or may not have been present at birth. Since the readers of THE JOURNAL are doctors, it is possible that one of them may have delivered, treated, or examined the subject at one time and can assist in her identification.



THOMAS A. NIELSON
Chief Inspector
Missing Persons Bureau
Police Department
City of New York
New York 13.

POSTHERPETIC NEURALGIA

To the Editor:—I have recently reviewed an article in THE JOURNAL (161:511 [June 9] 1956) on postherpetic neuralgia. In this article and other articles are listed the various medicines and surgical procedures to use. However, a very important and highly effective agent was not even discussed, and I have seen practically no mention of the same in any journal. I refer to the use of ganglionic blocking agents, particularly to those that produce a parasympatholytic effect. I would also like to refer readers who are interested to an article published in *Northwest Medicine* (50:432 [June] 1951), by myself, Reekie, and Sinclair. It was found in this particular series that the ganglionic blocking agent methantheline (Banthine) bromide was most effective. My unpublished data on a series of 15 patients revealed the efficacy of any of the true parasympatholytic agents in herpes zoster or postherpetic neuralgia. One may give the drug in tablet form or by injection. The proper contraindications should be observed and the side-effects discussed with the patient, but any patient who has the severe pain of herpes will not object to a few side-effects if his pain is relieved, and it will be in about 90% or more of the cases if the proper dosage is used. It is possible, and I have seen it happen, that 75% of the pain will be relieved in a matter of 30 to 60 minutes, even though the pain may have been present for days or weeks. In some cases, complete abolition of pain can occur within 24 hours.

It is my impression that herpes zoster and the resultant neuralgia are similar in character to reflex sympathetic dystrophy. I feel also that it is a dysfunction of the autonomic nerve system rather than a true bacterial or viral disease. It is possible that a virus or other agent could be a precipitating cause, but it is more probable that it is not and is purely a reflex change. This also leads one to speculate on other skin lesions that are characteristic. Has anyone ever given ganglionic blocking agents to patients with measles, chickenpox, smallpox, hives, or any illness with skin lesions in the so-called viral or allergic category, to see what will happen? It is time that a fresh approach to many illnesses be stimulated. It is conceivable to me that it would be possible to alter the skin lesions and even the course of the illness, such as in measles, chickenpox and others.

HUGH S. BROWN, M.D.
Paulsen Medical Building
Spokane, Wash.

MUSEUM OF HISTORY AND TECHNOLOGY

To the Editor:—The Congress of the United States has recently authorized the construction on the Mall in Washington of a museum to be called the Museum of History and Technology. The bill providing the funds for its construction was signed into law by President Eisenhower on June 13. The Museum of History and Technology, to be completed about 1960, will exhibit materials now housed in the Arts and Industries Building of the Smithsonian Institution. Among the many subjects included in the new museum will be medical history, dental history, and pharmaceutical history. Our preliminary plans for the Hall of Medical History call for exhibits on anesthesiology, cardiology, neurology, ophthalmology, pediatrics, roentgenology, and surgery, as well as exhibits on hospitals, nursing, and pioneers of American medicine. We wish to solicit the assistance of all members of the medical profession in finalizing our plans for the Hall of Medical History of the new Museum of History and Technology. While suggestions and assistance in planning the actual exhibits will be greatly appreciated, we are particularly anxious to obtain significant equipment for possible inclusion in the historical exhibits. Early x-ray machines, electrocardiographs, stethoscopes, sphygmomanometers, ether inhalers, and all types of surgical instruments are needed to complete our collections. We are also seeking complete fixtures and equipment to reproduce a pre-1900 physician's office, and a pre-1900 surgical operating room. Offers of such material should be sent directly to the undersigned. Due to limitations of space and to avoid duplication, actual material should not be sent until accepted.

GEORGE GRIFFENHAGEN
Acting Curator
Division of Medicine
and Public Health
Smithsonian Institution
Washington 25, D. C.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Myocardial Infarction Treated by Early Ambulation. P. Brummer, E. Linko and A. Kasanen. Am. Heart J. 52:269-272 (Aug.) 1956 [St. Louis].

Since the summer of 1952 shorter and less strict bed rest has been prescribed for patients with myocardial infarction admitted to the Medical Clinic of the University of Turku, Finland. The patients have been permitted to sit up in bed immediately after the state of shock has subsided. Bedside toilet privileges have also usually been allowed at an early stage. The patients have been allowed to begin ambulation two weeks after infarction, if no special contraindications are present. One week later they have been dismissed from the hospital. From about the middle of 1952 to the end of 1954 a total of 332 patients with myocardial infarction were treated. Seventy-four patients (22.4%) died during the period of bed rest, before ambulation was started.

Observations on the remaining 258 patients revealed that ambulation after a bed rest of two weeks involves no threat to the patient. The only two patients of this group who died during hospitalization had been in bed longer than two weeks. In a comparable series of 242 patients observed by Eckerström in Sweden, there were 17 deaths during the third week of bed rest in the hospital. The total mortality during the first six months from the beginning of ambulation is also fairly small with 22 deaths compared to 44 in Eckerström's series. Recurrence of infarctions was observed in 21 of the patients during the first month after discharge from the hospital, that is, from the fourth to the seventh week after the acute attack; six of the recurrent infarctions occurred during the first week. No suitable series was available for comparison of the incidence of recurrent infarctions, but the authors admit that the risk of recurrence may have increased to some degree after early dismissal from the hospital. Sudden increase of physical activity at home and discontinuation of anticoagulant therapy may be responsible for the increase in the recurrence of infarctions during the first month after dismissal. As regards other complications, their number was below rather than above normal in the series of patients treated by early ambulation.

Selection for Anticoagulant Therapy in Cardiac Infarction Using the Heparin Retarded Coagulation Time. A. A. F. Peel. Brit. Heart J. 18:378-384 (July) 1956 [London, England].

Rosenthal's "heparin-retarded coagulation-time" test, which measures the clotting sensitivity of the blood to added heparin, was performed in 149 patients with cardiac infarction. Those in whom clotting was accelerated were treated with anticoagulants (biscoumacetate [Tromexan] or phenylindanedione [Dindevan]), and those with a normal or prolonged clotting time did not receive any anticoagulants. The results were compared with those in an earlier series of patients in whom this method of selection and anticoagulant therapy were not used. In patients who had no history of previous cardiac disease, the author's method of selection met with considerable success. Anticoagulants were unnecessary in those whose heparin-retarded coagulation time remained normal; there were 28 such patients, and none of them died. In those with accelerated heparin-retarded coagulation time, anticoagulant therapy reduced the "expected" mortality rate of 54% to 18%. Recurrence or embolism within one year after the infarction was three times more frequent in those with a short heparin-retarded coagulation time than in those with a normal heparin-retarded coagulation time. The mortality rate was improved in patients of both sexes and of all ages; the improvement has been particularly striking in the older age group, which normally carries a much higher risk.

In patients with a history of previous cardiovascular disease the mortality remained high irrespective of the heparin-retarded coagulation time, and anticoagulants seemed incapable of reducing it. Nevertheless, the heparin-retarded coagulation-time test may serve as a guide with regard to the risks of extension of the infarct and of embolism, since death from these two causes occurred more frequently in patients in whom the heparin-retarded coagulation time was accelerated despite anticoagulant therapy. The heparin-retarded coagulation-time test was also performed in 126 patients with cardiac ischemia in an attempt to determine the need for prophylactic anticoagulant therapy; the incidence of infarction within six weeks of the onset of ischemia was reduced from 11% in an earlier series of patients in whom anticoagulants were not used to 8% in those with a short heparin-retarded coagulation time who received prophylactic treatment.

The Effect of Thyroid Disease on Calcium Metabolism in Man. S. M. Krane, G. L. Brownell, J. B. Stanbury and H. Corrigan. J. Clin. Invest. 35:874-887 (Aug.) 1956 [New York].

Abnormal thyroid function profoundly alters the calcium metabolism. The conventional balance techniques used in the study of calcium metabolism do not measure the processes of deposition and resorption of calcium. An indication of the skeletal turnover of calcium can be obtained from serial observations of the specific activity of radioactive calcium (Ca^{45}) in the blood and urine after intravenous injection. Ca^{45} was given intravenously to patients with hyperthyroidism and myxedema. Euthyroid subjects and patients with Paget's disease of bone and others with hypoparathyroidism were similarly studied. Several patients were studied before and after appropriate treatment. Total quantities of the isotope excreted and specific activities of the serum, urine, and feces were determined for from 9 to 22 days. In addition, stable calcium, phosphorus, and nitrogen balance tests were performed on each subject. In four subjects with hyperthyroidism, the specific activity of serum and urine declined more rapidly and to lower levels than in euthyroid controls. In contrast, two myxedematous patients demonstrated the least fall in specific activity. After five months of treatment of the myxedema, specific activity curves were found to decline at the same rate as in the control patients. Observation of all the specific activity curves suggests that they can be analyzed into a series of decreasing exponential functions. It is proposed that each function represents a discrete calcium compartment within the body. Changing thyroid function modifies the size of the calcium compartments and the rate of flow to and from these compartments. Compartment sizes and flow rates are greatest in hyperthyroidism and Paget's disease of bone and least in myxedema. Two of four hyperthyroid subjects were in nitrogen equilibrium, but in spite of this they showed marked losses of calcium in the urine and feces. The findings indicate that bone formation, as well as bone destruction, is proceeding at an increased rate in thyrotoxycosis.

Hashimoto's Struma Lymphomatosa: Diagnostic Value and Significance of Serum-Flocculation Reactions. R. W. Luxton and R. T. Cooke. Lancet 2:105-109 (July 21) 1956 [London, England].

Chronic lymphomatous thyroiditis (*Hashimoto's struma lymphomatosa*) is not uncommon, but its clinical picture is not always recognized and consequently there is disagreement about its incidence. Chronic lymphomatous thyroiditis should always be considered if a middle-aged woman has symptoms of hypothy-

---

The place of publication of the periodicals appears in brackets preceding each abstract.

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals. Requests for periodicals should be addressed "Library, American Medical Association." Periodical files cover 1947 to date only, and no photoduplication services are available. No charge is made to members, but the fee for others is 15 cents in stamps for each item. Only three periodicals may be borrowed at one time, and they must not be kept longer than five days. Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

roidism and a firm goiter Sometimes the patient is euthyroid, and occasionally the presenting syndrome may be indistinguishable from toxic diffuse goiter (Graves' disease). Accurate diagnosis is important In the past, surgical exploration was frequently resorted to because the firm goiter raised the question of malignancy, in which, however, hypothyroidism is rare Even in the absence of overt signs of hypothyroidism the discovery of an unusually firm thyroid gland should lead to laboratory investigation In chronic lymphomatous thyroiditis abnormal laboratory findings usually include a low normal or subnormal basal metabolic rate, a raised blood cholesterol level, a raised erythrocyte-sedimentation rate, and abnormal flocculation tests of liver function With this picture, diagnosis without recourse to operation should be possible

The correct treatment of chronic lymphomatous thyroiditis with hypothyroidism is the oral administration of dried thyroid in adequate dosage This treatment reduces the goiter and relieves the hypothyroid symptoms Serum flocculation tests of liver function are abnormal in the great majority of patients with chronic lymphomatous thyroiditis not treated with dried thyroid The thymolturbidity and colloidal gold tests were carried out in 24 patients with chronic lymphomatous thyroiditis and were found to be initially abnormal in 21 of them Treatment with dried thyroid caused a reversion to normal in the flocculation tests in 10 of the patients in from 4 to 26 months The colloidal gold test is more sensitive than the thymol turbidity test The bromsulphalein test was raised (up to 19% retention) in five of the nine patients examined

In 23 other patients with chronic lymphomatous thyroiditis treated with dried thyroid before serum flocculation tests were made, the tests were normal in 18 and became normal in 3 others within 29 months from the start of treatment There is evidence that in chronic lymphomatous thyroiditis the liver and spleen may become abnormal, in one patient advanced cirrhosis of the liver developed The abdomen should be carefully examined in patients who may have chronic lymphomatous thyroiditis, because a palpable spleen supports this diagnosis The fact that the serum flocculation reactions are positive in chronic lymphomatous thyroiditis has three important implications 1 The tests offer an additional means of diagnosis of a goiter without recourse to surgical exploration 2 The diseased thyroid may produce some abnormal secretion that damages the reticuloendothelial system 3 The reversion to normal of the flocculation tests, when treatment with dried thyroid is instituted, suggests a possible connection between thyroid activity and certain forms of hepatic cirrhosis

Treatment of Hepatic Coma or Precoma with Thioctic Acid. F Rausch Klin Wchnschr 34:737-742 (July 15) 1956 (In German) [Berlin, Germany]

A failure of the enzyme systems is to be expected in the severe hepatic insufficiency existing in hepatic coma Thioctic acid, one of the newest biocatalyzers, was used because it is capable of oxidizing pyroracemic acid and consequently can intervene in the intermediate metabolism This acid, which is a sulfur carbon compound, was found in liver extracts even before its chemical structure had been determined It is also found in organs other than the liver, and it is known to activate many enzyme systems The author describes the clinical histories of 12 patients in whom treatment with thioctic acid exerted a decisive influence on the hepatic coma The thioctic acid was injected intravenously in doses of 2.2 to 6.6 mg. In the first patient, Kussmaul's breathing had set in and the coma had persisted for 76 hours before 2.2 mg of thioctic acid was injected Six hours later, the patient awoke from his deep coma, Kussmaul's breathing stopped, and the fetor hepaticus disappeared

The coma subsided in all 12 patients Only one patient, who had been subjected to extirpation of the spleen because of hemolytic jaundice and whose liver showed no essential histological changes, died during a second attack of hepatic coma, after a first attack had responded to the injection of thioctic acid. The other five deaths were caused not by the hepatic coma but rather by circulatory insufficiency, bleeding from esophageal varices, or a malignant neoplasm. One of the patients who died survived her first attack of hepatic coma for 18 months, another survived for three months Six of the 12 patients are still alive and some of them are able to work. The author is convinced that thioctic acid is capable of interrupting hepatic coma, because no other substance was given when the coma stopped. He admits that in rare cases hepatic coma subsides without treatment, but he believes that the fact that successive attacks of coma in the same patients responded to the injection of thioctic acid, as well as other observations in the 12 patients treated, definitely proves that thioctic acid exerts a decisive effect The mode of action of the acid has not been explained Some investigators regard it as a hepatotropic and lipotropic and consequently hepatoprotective substance. The lipotropic effect suggests that thioctic acid might prove more effective in patients with fatty liver than either choline or methionine

Considerations on More than One Thousand Cases of Needle Biopsy of the Liver. G. Meneghini, F Orlandi and N Bendo Minerva med 47:1493-1494 (May 16) 1956 (In Italian) [Turin, Italy]

The authors report on seven years of experience with needle biopsy of the liver. The results were negative in only 79 of 1,179 patients Causes for failure were grouped under three headings technical errors, 37.9% of the cases, lack of cooperation from the patients, 20.2%, and local conditions, 41.7% Five severe complications occurred two hemorrhages, one bile peritonitis, one shock due to perforation of a hydatid cyst, and one sepsis. There were no fatalities Surgical treatment was necessary in three cases The authors combined their cases with others in the literature and found that, in 8,681 biopsies, severe complications occurred in 0.39% of the cases Fatal complications occurred in 0.08% of the cases, i. e., one fatality for 1,250 needle biopsies Experience is the only factor that can prevent severe complications.

The Blood Groups in Peptic Ulceration. D. A P. Brown, A. G. Melrose and J. Wallace Brit M. J. 2:135-138 (July 21) 1956 [London, England]

The distribution of the ABO blood groups among 2,059 patients with peptic ulcer was studied in two hospitals in Glasgow, Scotland. In 276 of these patients the maximum acid output of the stomach in relation to the ABO blood groups also was studied A control series was provided by 5,898 consecutive new registrations of blood donors at the regional blood transfusion center An increased frequency of group O was recorded in patients with duodenal ulcer, but the blood-group distribution in patients with gastric ulcer did not differ significantly from that of the controls, probably because the number of patients with gastric ulcer was too small. Among the patients with duodenal ulcer, those requiring surgical treatment made the greater contribution to the group O excess The frequency of group O was greatly increased in patients with marginal ulcers. No difference was observed in the frequency of rhesus-negative persons as compared with controls No correlation was noted between acid output and ABO group in patients with ulcers at either site. The results of a survey of peptic ulcer in one of the two hospitals in which the authors' studies were carried out enabled the authors to submit evidence suggesting that the patients in this investigation constitute a fairly representative sample of those attending or admitted to hospital in Glasgow.

Para-Aminobenzene-Sulfamido-Isopropyl-Thiodiazol in the Treatment of Diabetes Mellitus. A. Loubatières, C Fruteau de Laclos and P Bouyard Semaine hôp. Paris 32:2358-2368 (July 6) 1956 (In French) [Paris, France].

The authors report clinical observations on the action of N^1-[5-isopropyl-1, 3, 4-thiadiazol-2-yl] sulfanilamide (RP-2254). The physiological and pharmacodynamic properties of this substance are recalled, particularly its hypoglycemia-inducing action and its antidiabetic action An explanation of the clinical phenomena is suggested by an analysis of the respective behavior of diabetic animals and men in response to experiments. The effects of RP-2254 were studied for a period of over six months in 30 patients who were classified in three groups. those with satisfactory response to the treatment, those with no response, and those with partial response. The patients of the first group were obese, lipoplethoric diabetics. In these patients the pancreas contained a notable amount of insulin and the systemic blood contained a moderate amount of insulin. The patients of the second group had an insulin deficiency in both the pancreas and the systemic blood. Observations concerning these first two groups of patients seemed to confirm Loubatières' initial hypothesis that RP-2254, as an insulin-secreting substance, might cause the stored insulin of the pancreas to pass into the blood stream. The authors conclude that these hypoglycemia-inducing sulfanilamides may be given to diabetics over a prolonged period but that they should be used with great caution as long as specialists in diabetes have not yet definitely expressed their opinions on the subject.

Diagnostic Use of Adrenal Inhibition in Cushing's Syndrome. C. L. Cope. Brit. M. J. 2:193-197 (July 28) 1956 [London, England].

A five-day course of the orally administered halogen-substituted steroid 9 alpha-fluorohydrocortisone was given to three adult patients (one 46-year-old woman and two men aged 25 and 39 years respectively) and a 9-year-old boy with adrenal cortical hyperfunction (Cushing's syndrome) and to a 56-year-old man, a cardiac convalescent, who had no adrenal or other endocrine abnormality. Two of the three adult patients with adrenal cortical hyperfunction had so-called adrenal hyperplasia, and the third had mild and incomplete adrenal cortical hyperfunction of as yet undetermined causation. A large adrenal tumor was easily palpable in the left hypochondrium of the 9-year-old boy; when removed, it was found to be an anaplastic carcinoma of the adrenal cortex. Almost complete inhibition of the production of cortisol (hydrocortisone) was revealed by the disappearance of cortisone and hydrocortisone from the urine in the patient with normal adrenals and in the three adults with adrenal cortical hyperfunction. In sharp contrast to these findings, no trace of interruption occurred in the steadily increasing excretion of cortisone and hydrocortisone in the urine of the boy with carcinoma of the adrenal cortex. The results obtained in the five patients support the view, previously expressed by the author and by other workers, that adrenal cortical inhibition by 9 alpha-fluorohydrocortisone may be of diagnostic value in adrenal cortical hyperfunction as a means of distinguishing between that caused by adrenal hyperplasia and that caused by carcinoma.

Prolonged Chemotherapy in Chronic Pulmonary Tuberculosis with Combinations of Isoniazid, Paraaminosalicylic Acid, and Streptomycin. C. L. Joiner, K. S. Maclean, K. Marsh and others. Lancet 2:165-169 (July 28) 1956 [London, England].

In 1954, at the end of 24 weeks' therapy, the effect of treating chronic pulmonary tuberculosis with a combination of isoniazid and aminosalicylic acid (PAS) was compared by Joiner and associates with that of treating it with pairs of the three drugs, isoniazid, streptomycin, and aminsosalicylic acid, in rotation, each pair being administered for four weeks. The patients who had received the rotating treatment were considerably better both clinically and as regards sputum conversion. The patients have now been followed up for two years. The authors emphasize the fact that rotating therapy, when pairs of the three drugs, isoniazid (250 mg. daily), aminosalicylic acid (10 mg. daily), and streptomycin (1 gm. twice weekly), are given in rotation for four-week periods, is highly satisfactory in chronic pulmonary tuberculosis. Continuous treatment with isoniazid and aminosalicylic acid in similar dosage is significantly less efficient. Previous treatment with aminosalicylic acid, even if given in relatively small amounts and many years before, may explain the relative failure of the isoniazid-aminosalicylic acid regimen. Chemotherapy should be continued for at least a year and often longer if worthwhile results are to be achieved in the chronic fibrocaseous type of pulmonary tuberculosis.

Colour-Blindness in "Ovarian Agenesis": (Gonadal Dysplasia). P. E. Polani, M. H. Lessof and P. M. F. Bishop. Lancet 2:118-120 (July 21) 1956 [London, England].

In contrast with their feminine appearance, a large proportion of patients with so-called ovarian agenesis (gonadal dysplasia) do not have a female pattern of nuclear chromatin in skin cells and leukocytes, and in this respect they resemble males. This finding has both an application and an implication. The application is practical and is related to diagnosis after and especially before puberty. The implication is biological, because the inference is that the affected persons, though phenotypic females (with lack of secondary sexual characters after puberty), are genetic males. There are two ways in which further insight into the hypothesis of the genetic maleness of phenotypic females with ovarian agenesis could be gained: (1) by identifying the pair of sex chromosomes in dividing cells from tissue cultures of skin, bone marrow, or blood; and (2) by showing that individuals with ovarian agenesis and "male chromosomal sex" are carriers of genetically determined characters found more commonly in males.

The first method is not easy. As for the second method, sex-linked recessive conditions determined by genes carried on the nonhomologous segment of the X-chromosome, like hemophilia, could be used for this purpose but are too rare to be used statistically to demonstrate genetic maleness in a necessarily limited sample of cases of "ovarian agenesis." Since congenital red-green color blindness is sufficiently common to be detectable in a relatively small sample, the Ishihara test for color vision was made on 25 patients with ovarian agenesis. The finding of four color-blind subjects among them supports the hypothesis.

Obesity and Hypertrichosis. D. Z. Rocca. Semana med. 108:864-865 (June 14) 1956 (In Spanish) [Buenos Aires, Argentina].

Four hundred forty-three women with hypertrichosis, between the ages of 15 and 20 years, were observed in the Instituto Nacional de Endocrinologia of Buenos Aires. One hundred seventy-six of these were obese. In the group of obese patients, 124 had disorders of menstruation, 22 had a polycystic ovary, the elimination of the urinary 17-ketosteroids was increased in 20, and 16 had goiter. The author concludes that obesity and hypertrichosis are due to corticoadrenal disorders of hypophysial or hypothalamic origin. Often these conditions are combined with ovarian disorders and with goiter, showing a possible common causal factor. Corticoadrenal hyperfunction of hypophysial or hypothalamic origin stimulates on the one hand hypertrichosis and on the other lipogenesis, similar to that observed in Cushing's syndrome or in Achard-Thiers' syndrome, as the cause of obesity. A pure disorder of the metabolism of the calories with consequent increase in appetite is not the causal factor of obesity when this condition is combined with hypertrichosis.

SURGERY

Aneurysm of Thoracic Aorta in an Infant Treated by Resection and Arterial Homograft. D. A. Cooley and F. M. Taylor. J. Pediat. 49:185-190 (Aug.) 1956 [St. Louis].

Aneurysm of the aorta in infancy and childhood is rare, and successful surgical treatment has not been previously recorded. The authors report the case of an 11-month-old infant with a large fusiform aneurysm of the distal thoracic aorta that was either mycotic or congenital in origin. The aneurysm was resected and the aortic segment replaced by a lyophilized arterial homograft, with ultimate recovery of the patient.

Amnion Implantation in Peripheral Vascular Disease. E. Troensegaard-Hansen. Brit. M. J. 2:262-268 (Aug. 4) 1956 [London, England].

In an attempt to reduce intermittent claudication, human amnion was implanted into the thigh of 40 men between the ages of 35 and 89 years with peripheral vascular disease. Claudication was caused by arteriosclerosis in 38 patients and by Bürger's disease in 2. Symptoms had been present for more than six months in most of the patients, and conservative treatment had been practiced without significant effect in all of them. Three had been subjected to sympathectomy without effect on the claudication. The condition of the patients before and after the amnion implantation was assessed by their tolerance to exercise, the presence or absence of rest pain, the radioactive sodium test, oscillometry, radiography, and skin-temperature recordings. In 29 patients the claudication disappeared after the amnion implantation and could not be produced by severe exercise. In seven patients exercise tolerance was increased but mild claudication occurred during severe effort. One patient was a complete therapeutic failure. In three patients with early dry gangrene the condition of the extremity deteriorated after the amnion implant and high amputation was required. Evidence of tissue necrosis should, therefore, be regarded as a contraindication for amnion implantation. Preoperative and postoperative studies showed an increase in circulatory efficiency after the amnion implantation, as evidenced by increase in walking distance, exercise tolerance by ergometry, loss of rest pain, and increase in the dispersion rate of radioactive sodium from the calf. These favorable results depended on the use of intact amnion with a well-defined nucleated epithelial and stromal layer, whereas in 20 controls who received macerated amnion there was neither clinical improvement nor change in the results of objective tests.

Implants give rise locally to a vigorous outgrowth of capillaries and are absorbed in about three weeks. Clinical improvement begins in about three days and is maintained for a period that cannot yet be assessed. It has lasted for over three and a half years in two patients, over one year in seven, and in the remaining patients over eight months. There have been four relapses. It is suggested that the superficial circulatory changes after the amnion implantation, as evidenced by the feeling of warmth and rise of temperature in the extremity concerned, might also include the muscle vessels, so giving relief from claudication. The observation of relief from night pain is not inconsistent with this possibility. If an implant shows any signs of sepsis, generally no improvement is gained, either subjectively or objectively. However, very occasionally some subjective improvement has been observed in spite of sepsis. Some amnion has proved to be inactive, even after preparation by a standard technique, and at present no satisfactory explanation can be given for this observation. Reimplantation must always be carried out until claudication disappears. Reimplantation had to be performed four times in one patient before a satisfactory result was obtained.

A Clinico-Pathological Study of Thyroid Carcinoma. R. Alhadeff, F. Scott and S. Taylor. Brit. J. Surg. 43:617-626 (May) 1956 [Bristol, England].

Sixty-seven patients between the ages of 15 and 87 years with carcinoma of the thyroid were studied in an attempt to correlate the clinical and pathological findings. Nearly one-quarter of the patients were less than 40 years old. Up to the age of 40 years the same number of cancers occurred in both sexes, but in the patients over 40 years of age the ratio of women to men was 2.4 to 1. Microscopic examination of the tumors revealed that 31 patients had follicular tumors, 14 papillary tumors, 18 anaplastic tumors, 2 squamous tumors, one sclerosing tumor, and in one patient the tumor was unclassified. The three main histological groups had a distinctive age distribution; papillary carcinomas were more frequent in patients less than 30 years of age, the follicular types predominated in the patients between the ages of 30 and 40 years, while in patients in the fifth decade the three groups of tumors appeared with equal frequency. Twenty (30%) of the 67 patients had a preexisting goiter, i.e., a symptomless enlargement of the thyroid, for more than 10 years. Malignant change in a long-standing goiter was nearly three times more often follicular than anaplastic in type.

Regardless of the histological type, half of the carcinomas had already metastasized to regional lymph nodes by the time the patients were first seen. Follicular cancers metastasized twice as frequently to the skeleton, and the anaplastic cancers metastasized twice as frequently to the lungs. Papillary cancers were not observed to give rise to bone deposits. The disease was localized to the neck in patients less than 30 years of age. The absence of distant metastases in these patients favors a more radical surgical attack on thyroid carcinoma in young patients. Clinical evidence of hyperthyroidism was present in four patients. Iodine uptake was found most commonly in follicular carcinomas but was occasionally observed in other types. Microscopic examination revealed a definite pattern of metastasis depending on the histological type of the tumor. A correct preoperative diagnosis of thyroid carcinoma was made in 42 patients (63%): In the remaining 25 patients (37%) carcinoma was revealed only at operation or on pathological examination. The subsequent clinical course showed good correlation with the histological classification and grading of the tumors. Over one-third of the 19 patients with follicular grade 1 tumors died within six years from the time they first came under observation. Of the remainder, five have been followed for over 5 years. Of the 12 patients with follicular grade 2 cancers, 6 died within seven months of their first admission to hospital. Of those still alive, one has been followed for seven years. There was one death among the 11 patients with grade 1 papillary carcinoma and one death among the 3 patients with grade 2 papillary carcinoma. In the anaplastic group the large-cell carcinomas were the most malignant and rapidly growing of all thyroid tumors; the five patients with this type of tumor died within an average period of three months.

Management of Intraductal Papilloma: Its Relationship to Cancer of the Breast. M. A. Howard and M. S. Rosenblatt. Am. J. Surg. 92:142-150 (Aug.) 1956 [New York].

Seventy-six of 884 women who had a breast operation at the Good Samaritan Hospital in Portland, Ore., between 1949 and 1954, had intraductal papilloma (an incidence of 8.5%), and 83 of 1,773 women who had a breast operation at St. Vincent's Hospital in the same city, between 1940 and 1950, had intraductal papilloma (an incidence of 4.6%). The age of the 159 patients varied from 13 to 79 years. Eighty-five patients had a discharge from the nipples and 74 had not. The discharge was serosanguineous in 53, serous in 21, milky in 4, and watery in 7. Ten patients with intraductal papilloma also had concurrent carcinoma of the mammary gland, and the carcinoma was not related to the intraductal papilloma. Only one patient had an intracystic papilloma of the breast with early malignant change in situ. A second patient had an intraductal papilloma with sanguineous discharge and without penetration of the ducts, but the nuclear pattern was large and showed a predisposition to malignant change.

Intraductal papilloma accompanied by nipple discharge is a confusing and frequently a poorly managed problem. Carcinoma as well as benign breast disease can produce many different types of nipple discharge. The gravest danger is the possibility that nipple discharge may be produced by a deep-seated carcinoma of the papillary type or that intraductal papilloma may be associated with a carcinoma. There is a wide divergence of opinion in regard to the treatment of nipple discharge in intraductal papilloma. The methods used include observation without any treatment; semicircular or straight incision and removal of duct and intraductal papilloma; semicircular incision joined by straight incision; and simple mastectomy, particularly in postmenopausal patients. Of the 76 patients operated on at the Good Samaritan Hospital, 52 had segmental excision, and 28 had this operation at St. Vincent's hospital. Simple mastectomy was performed in only 9 patients at the Good Samaritan Hospital, but 38 patients had simple mastectomy at St. Vincent's hospital. Radical mastectomy was performed on 10 patients at the Good Samaritan Hospital and on 5 patients at St. Vincent's Hospital. The authors believe that carcinoma occurs so infrequently with intraductal papilloma that simple mastectomy is rarely indicated and radical mastectomy is never indicated unless a carcinoma is definitely diagnosed and proved by microscopic examination. They consider segmental resection of the involved portion of the breast with the offending duct to be the procedure of choice.

Cancer in the Second Breast. A. R. Kilgore, H. G. Bell and R. E. Ahlquist Jr. Am. J. Surg. 92:156-161 (Aug.) 1956 [New York].

Independent cancer developed in the second breast in 31 of 1,199 women with cancer in the first breast who had undergone radical mastectomy at the University of California and St. Joseph's Hospitals in San Francisco between 1918 and 1949. The cancers in the second breast were considered independent primary growths by general agreement with the following criteria: (1) definite evidence that the first radical mastectomy was performed for carcinoma; (2) lapse of time during which there is no sign of recurrent or metastatic disease; (3) development of a clinically independent second primary cancer in the opposite breast without any evidence of metastatic involvement elsewhere; and (4) compatibility of the clinical course of the patient after the second radical mastectomy with that of a primary lesion. With regard to the fourth criterion, it should be recognized that early recurrence or metastasis is not necessarily inconsistent with a new primary lesion. According to these criteria the incidence of independent cancer in the second breast was 2.6%; the 31 women were between the ages of 32 and 75 years. Nine of the 31 patients died of cancer and 3 died of intercurrent disease, while 19 are still living.

Many of the 1,199 patients whose first breasts were removed as late as 1949 are still living, and they are still exposed to the development of a new primary lesion, since carcinomas in the second breast may arise after intervals of as long as 10, 15, 20, or even more years. Five hundred sixteen of the 1,199 patients were in stage 1 at the time their first breasts were removed, and 162 of this selected group were operated on 15 or more years ago. In only 11 (6.8%) of these did cancer develop in the second breast. Although the total in this group is too small for accurate statistical evaluation, a substantial correction for future cases among patients still living is indicated. The eventual incidence will apparently rise to about 6%, roughly three times the general incidence of unilateral cancer. Thus a patient in stage 1 has a substantially greater chance of developing independent cancer in the remaining breast than the average woman has in either of her two breasts. Women vary in attitude toward loss of a remaining breast. Some have great reluctance to undergo another surgical intervention, even a minor one; others think it worthwhile to lose the second breast for whatever additional safety this may offer and for freedom from some anxiety about the possible appearance of a new cancer. An intelligent well-balanced woman is entitled to decide for herself on the basis of the most nearly accurate facts one can give her.

Vagotomy and Pyloroplasty in the Treatment of Duodenal Ulcer.

J. A. Weinberg, S. J. Stempien, H. J. Movius and A. E. Dagradi. Am. J. Surg. 92:202-207 (Aug.) 1956 [New York].

More than 500 patients with duodenal ulcer underwent vagotomy and pyloroplasty at the Veterans Administration hospital in Long Beach, Calif., during the past six years. There were two surgical deaths: one of these occurred on the sixth postoperative day and was caused by pulmonary embolism; the other occurred on the eighth postoperative day and was ascribed to uremia resulting from imbalance of electrolytes after a long preoperative period of pyloric obstruction. Two hundred patients were followed up postoperatively for from two to six years. Good results were obtained in 179 (89.5%). Poor results were obtained in 21 (10.5%): 10 (5%) of these were considered therapeutic failures because of definite or suspected evidence of recurrence, 8 (4%) had postoperative disabling sequelae, and 3 (1.5%) had manifestations of severe emotional stress.

The authors believe that vagotomy and pyloroplasty accomplish a cure more effectively than any of the other surgical procedures. Failure to heal the ulcer by vagotomy is almost invariably caused by incomplete interruption of the nerves. Complete vagotomy calls for good exposure and a familiarity with the pattern of the vagus nerves in the lower part of the mediastinum. Special emphasis is given to the technique of pyloroplasty. The commonly used technique of employing two or more rows of sutures to close the pyloroplasty wound causes an infolding of tissues that may interfere with satisfactory emptying of the stomach and thus defeat the purpose of the pyloroplasty. This difficulty is avoided by using a single row of sutures. There has been no evidence of leakage in the more than 500 pyloroplasties performed by the authors with the one-row suture technique. An important consideration in the successful use of pyloroplasty is the recognition of its contraindications. It is unsatisfactory for patients in whom the pyloroduodenal segment is constricted or distorted by inflammatory edema or excessive scarring. It is also unsuited for patients with a dilated and lowhanging stomach. Gastrojejunostomy or limited gastric resection should be used in these patients.

Vagotomy for Chronic Peptic Ulcer: A Five-Year Follow Up.

C. Slaney, P. G. Bevan and B. N. Brooke. Lancet 2:221-224 (Aug. 4) 1956 [London, England].

Ninety-one patients were operated on from 1947 to 1948 for chronic peptic ulceration. All patients have been followed up to the present time and the authors analyze the results after five years and assess the value of vagotomy in the treatment of chronic peptic ulceration. Eighty-three patients were male and eight female; their ages ranged from 19 to 68. Partial gastrectomy had been done previously in two cases and gastroenterostomy in three. Pain and vomiting were the chief symptoms in most cases; bleeding had taken place in 16 and perforation in 10, being coincidental in 2; the duration of symptoms varied from 4 months to 44 years. Seventy-nine patients had duodenal ulcer, five anastomotic ulcer, and one a gastric and a duodenal ulcer combined. Early in the investigation six patients with gastric ulcer were also included. All the ulcers were considered to be chronic. After the exclusion of four deaths not associated with ulcer, one operative death, and one patient lost to follow-up, it was found that recurrences developed in 24 patients (2 of whom died) out of the 85 remaining (28.2%), of whom 65 had had no drainage procedure at the time of vagal section nor any gastric operation before it. Recurrences developed in 18 of these 65 patients, giving a recurrence rate of 27.7% for vagotomy as the sole treatment of peptic ulcer. The frequency of recurrence appears to have been unaffected by the presence or absence of gastroenterostomy, pyloroplasty, or partial gastrectomy done either before or at the time of the vagotomy. The rate of recurrence will increase with the passage of time, for further recurrences have been observed since the five-year period. A notable feature was the development of gastric ulcer in six patients who had previously had duodenal ulcer. This might be explained by the mechanism that comes into play in concomitant gastric and duodenal ulcers, the gastric ulcer arising secondarily to stenosis and hold-up due to a duodenal ulcer; vagotomy would provide a good neuromuscular cause for disturbance of the normal pyloric outflow. Two difficulties have been encountered during the five-year period of assessment. The criteria of healing are entirely clinical because scarring may remain to present radiological evidence of duodenal deformity at all times. The various tests of gastric acidity are too variable in their results on different occasions in one individual to make comparison easy and are thus robbed of meaning; exact clinical correlation appears to be impossible.

Metastasizing Insulinoma with Hypoglycaemia.

R. C. Shaw. Brit. J. Surg. 43:579-585 (May) 1956 [Bristol, England].

A case of carcinoma of the islet cells of the pancreas invading the proximal lymph nodes and giving rise to spontaneous hyperinsulinism is described in a 49-year-old man. The patient had shown from boyhood an excessive liability of the adrenosympathetic system, with sweating, tachycardia, and peripheral vasoconstriction followed by faintness when he experienced psychic or somatic trauma. As he grew older this reaction to injury or unpleasant news became more prominent. The occurrence of these attacks of weakness or actual faintness became more pronounced in recent years and suggested the possibility of intermittent spontaneous hypoglycemia caused by excessive islet-cell activity over a long period, as indicated by the relief he obtained by taking sweet drinks. For several years the patient had had pain over the epigastrium and to the right of the umbilicus; this pain increased and was referred to the lumbodorsal region and also below the left costal margin. The urgency of surgical intervention was apparent from the severity of this pain combined with loss of weight, anorexia, and a major hypoglycemic attack that had occurred before his admission to the hospital.

On laparotomy, a hard craggy tumor was found in the tail of the pancreas; it involved the vessels in the hilum and the spleen. The whole of the tail of the pancreas, together with the spleen and the great omentum, was removed. Microscopic examination of the specimen revealed numerous small and large circumscribed tumor nodules replacing pancreatic tissue. The structure was acinar and trabecular. Large portions showed solid acini. Some tumor nodules were surrounded by dense fibrous tissue. The proximal lymph nodes were widely invaded. The patient survived the operation and was still in normal health two and a half years later. He resumed his work and experienced no further hypoglycemic attacks and was immune from psychological reaction on reference to or encounter with unpleasant subjects, particularly injury or death. Roentgenographic examination of the skull, especially the pituitary fossa, and of the chest showed no abnormalities.

This is the second case of proved functioning carcinoma of the islet cells of the pancreas recorded in Great Britain. Most patients are seen only after major hypoglycemic attacks have occurred, but it seems that the condition may exist unrecognized over many years, the transitory hypoglycemic attacks being rapidly corrected by mobilization of glycogen Some of the associated symptoms suggest hyperadrenalism, which may spontaneously counteract the drop of the blood sugar level by rapid glycogenolysis Pain is not a feature of the benign insulinomas, but it appears in most cases of malignant change. It is persistent and tends to radiate to the left costal margin and the back. The presence of Whipple's triad of fasting hypoglycemic attacks relieved by the ingestion of sugar and the low fasting blood sugar level in addition to pain and anorexia is a strong indication that a malignant process is occurring in an islet-tumor of the pancreas It is suggested that the changes resulting in cell imbalance are directly linked with dysfunction of the adrenosympathetic anterior pituitary mechanism, which causes proliferation of the islet cells and connective-tissues elements and results in cell imbalance and invasion of the pseudocapsule of the adenoma and transition to a carcinoma. These malignant changes are also accompanied by a proliferation and degeneration of the cells of the blood vessels in the tumor area as well as in the cells of the supporting tissues, resulting in dense fibrosis and hyalinization in the affected area One outstanding peculiarity of the malignant insulinoma is the long period during which the body is able to maintain a barrier against the further extension of the growth If the condition is diagnosed at an early stage, probably the best procedure is a wide resection, or widespread irradiation therapy may be tried

Nutritional and Electrolyte Evaluation in Massive Bowel Resection. Study of One Case and Review of Literature. D G Pietz Gastroenterology 31.56-73 (July) 1956 [Baltimore]

Pietz applies the term "massive bowel resection" to the removal of 6 ft , 7 in (200 cm) or more of the small intestine For subsequent evaluation of the patient, however, the determination of the length of functioning intestine is more important than the measurement of the surgical specimen Furthermore, variability in the length of the human intestine and the difficulty of accurately measuring the removed segment introduce further error The average length of the small intestine is 21 5 ft (657 cm), with a range of 10 to 28 ft (305 to 853 cm) depending on race, sex, and diet Since it did not appear feasible to evaluate the nutritional and electrolyte changes resulting from massive intestinal resection on the basis of the single case history presented, the author collected from the literature 42 case histories that seemed appropriate for this study The clinical and laboratory data in these 43 patients led to the following conclusions 1 The absence of all but 1 or 2 ft of mesenteric small intestine was compatible with fair nutrition and absence of diarrhea or severe metabolic disturbances 2 Metabolic alterations and significant fat losses were unusual if 6 ft or more of mesenteric small intestine remained If no other complicating factors were present, weight and general health were usually fully regained 3 Fat, nitrogen, and electrolyte excretion in the stool appeared less extensive if a segment of ileum (with or without jejunum), the ileocecal valve, and the entire colon was present as compared with a similar length of jejunum alone with a portion of colon absent 4 Steatorrhea was common in extensive resections and was due primarily to faulty absorption of fat 5 Protein loss was moderate, although this was associated with a positive nitrogen balance 6 Large losses of calcium in the stool with negative calcium balance were common in the extensive resections Hypocalcemia was present in 19% of the patients and in 75% of those with tetany. 7 The patient reported had a tendency toward hypokalemia, which did not improve on increased potassium intake or other therapeutic measures

Soft-Tissue Neoplasms Associated with Congenital Neurofibromatosis H R McCarroll J Bone & Joint Surg 38A:717-731 and 900 (July) 1956 [Boston]

The bizarre disease known as congenital neurofibromatosis has many variable clinical manifestations Soft-tissue neoplasms are commonly encountered Those of major importance are the diffuse soft-tissue hypertrophy, plexiform type of neurofibromatosis, and the primary tumors arising in the major nerve components The frequency with which malignant tumors occur cannot be stated with accuracy Hosoi has estimated that malignant tumors develop in 13% of all patients with von Recklinghausen's disease, but in the author's series of 136 cases, they were observed in only three patients Malignant schwannomas, however, have been reported more frequently in the mediastinum and retroperitoneal area, and as a result they seldom come to the attention of the orthopedic surgeon.

The soft-tissue neoplasms of this disease may be classified in two groups primary neurogenic tumors and tumors of other soft-tissue structures, although all the manifestations of neurofibromatosis result directly or indirectly from involvement of nerve tissue. Many of these lesions are of primary neurogenic origin, while others are induced indirectly by hypertrophy and proliferation within the nerves. In this group may be included the café au lait spot, verrucous skin hypertrophy, diffuse soft-tissue hypertrophy, diffuse flat hemangioma, and primary lymphatic changes. Diffuse hypertrophy of an extremity or part of an extremity commands the attention of the orthopedic surgeon Regional surgical treatment often restores function when the involvement is limited to a portion of one extremity or is manifested solely by hypertrophy of subcutaneous tissues, and it may even control the disease. When an entire extremity is involved, vascular or lymphatic changes may occur that necessitate repeated regional surgery, and amputation may even have to be considered.

One type of soft-tissue tumefaction is elephantiasis neuromatosa, which has been described by Stout. Tumefaction in the deeper, major nerves is clinically more important, since malignant changes are more likely to occur, malignant tumors, incompletely removed, may recur locally many years later. Stout states that the plexiform type of neurofibromatosis may progress continuously up a nerve or a group of nerves and may eventually involve the spinal cord This study seems to support Stout's statement that lesions in von Recklinghausen's disease are of two varieties. (1) those resulting from proliferation of sheath cells and nerve fibers and producing primary nerve-tumors, either benign or malignant, and (2) the associated or secondary lesions induced directly or indirectly by the neurofibromatous proliferations in the cutaneous, subcutaneous, skeletal, vascular, and lymphatic manifestations

NEUROLOGY & PSYCHIATRY

Eastern Equine Encephalomyelitis in Massachusetts in 1955: Report of Two Cases in Infants. W D Winter New England J Med 255.262-267 (Aug 9) 1956 [Boston].

Two cases of eastern equine encephalomyelitis, which occurred in a 7-month-old boy and an 11-month-old boy in eastern Massachusetts in September, 1955, are described The younger infant died and autopsy revealed striking hippocampal lesions characteristic of eastern equine encephalomyelitis. The older infant survived with severe permanent brain damage Two cases of eastern equine encephalomyelitis in adults in Massachusetts in 1955 were reported by other workers

An abundance of mosquitoes is a prerequisite for the appearance of eastern equine encephalomyelitis in man, and this is in turn favored by an abnormally wet period followed by a warm dry spell These conditions were present in eastern Massachusetts in the autumn of 1955, when 44 fatal cases of the disease occurred in horses and four extensive outbreaks in pheasant farms. It is probable that the virus is enzootic in wild birds and that mites and lice from these, as well as mosquitoes, may play a part in transmission, and also that conditions favorable for increase in mosquito population are associated with overflow into equine and human populations. When experimental infections were undertaken, the virus titer that developed in the horse was not infective for the mosquito. This observation suggests that the horse is merely an "indicator" species rather than a link in the epidemiological chain Control of the disease in human beings may be accomplished by mosquito-control measures and in certain situations by active immunization

Eastern Equine Encephalomyelitis in Massachusetts: Report of Two Cases, Diagnosed Serologically, with Complete Clinical Recovery. H de F. Webster. New England J Med 255:267-270 (Aug. 9) 1956 [Boston]

Two cases of eastern equine encephalomyelitis are described in a 40-year-old man and a 48-year-old woman who were admitted to the neurology service of Massachusetts General Hospital in September, 1955. The patients were residents of two different counties. Neither patient admitted to any direct exposure to sick horses; no members of either family and no infants or children were ill in their immediate neighborhoods. The man had a history and clinical course closely approximating that in other descriptions, but he never had more than 141 white blood cells per cubic millimeter in his spinal fluid, and, of these, 60% were lymphocytes. The woman was mildly confused and somnolent for several days, but her chief complaints were vertigo, nausea, and ataxia. Complement-fixation and neutralization tests performed with three serum samples from each patient revealed a serial rise in antibody titer against eastern equine encephalomyelitis, which made the diagnosis virtually certain. Both patients recovered completely. The literature to date is briefly reviewed.

Thorazine and Serpasil Treatment of Private Neuropsychiatric Patients. F. J. Ayd Jr. Am. J. Psychiat. 113:16-21 (July) 1956 [Baltimore].

Ayd reports observations on the treatment of 300 nonhospitalized private psychiatric patients, 150 of whom were treated with chlorpromazine (Thorazine) and 150 with reserpine (Serpasil). The dosage and route of administration varied with the severity and acuteness of the patient's condition. The neurotic and moderately disturbed psychotic patients received chlorpromazine in divided daily doses of 100 to 500 mg. orally or were given 0.5 to 10 mg. of reserpine orally. Disturbed schizophrenic and manic patients, who were hospitalized initially, received daily 500 to 2,500 mg. of chlorpromazine or 5 to 15 mg. of reserpine, orally and intramuscularly. Parenteral medication was usually discontinued within one week. Patients were treated for he following disorders: acute and chronic psychoneuroses, hizophrenic reactions, manic-depressive reactions, senile psychoses, and character disorders. The author believes that these drugs are valuable additions to the therapeutic armamentarium of the psychiatrist in private practice. Properly utilized, these drugs can (1) increase the number of patients who may be treated in the office; (2) shorten the period of hospitalization or make hospitalization unnecessary, thereby reducing admissions to overcrowded psychiatric hospitals; (3) replace or reduce the need for electroconvulsive therapy; and (4) reduce the cost of psychiatric care.

The Use of Frontal Lobe Procaine Injections in the Treatment of Mental Disorder. J. M. Whitworth, L. M. Weinberger, M. B. Zimbler and A. F. Paolino. Ohio M. J. 52:727-728 (July) 1956 [Columbus].

It is gradually being realized that the beneficial results, as well as the complications, of frontal lobe surgery bear relation only to the total amount of brain tissue destroyed and not to any particular tracts or fibers sectioned. Personality and intellectual dilapidations increase as more and more tissue is surgically abstracted. It follows that, since brain tract anatomy is not relevant, any method of graded destruction is suitable. An intuitive recognition of this idea led a number of workers to inject various substances into the frontal lobes. The authors list the materials that has been used and describe their own experiences with the injection of a 0.5% procaine solution in 36 patients. They found that from 20 to 30 cc. of 0.5% procaine solution injected into each frontal lobe is destructive and produces small areas of cystic necrosis.

This technique appears to accomplish much that surgical methods do, without the hazard of hemorrhage. The injections can be graded in quantity and repeated. There is no surgical aftercare, and the complications are not serious. The authors believe that procaine injections, like all other forms of physical treatment, merely treat the symptom and that the mental symptom best relieved is "tension." They are in a position to make only tentative conclusions, since all of their patients have been treated within the past year. About two-thirds have been so benefited that they can work effectively at home or at a job. Surgical and postmortem observations revealed that injections of from 20 to 30 cc. of 0.5% solutions of procaine into each hemisphere do produce focal necroses in the white matter. However, the detectable organic deteriorations are slight and can be identified only by mild impairment of memory. Gross damage to the intellect or the personality was not observed.

GYNECOLOGY & OBSTETRICS

Management of Urinary-Vaginal Fistula in 253 Cases. V. S. Counseller and F. H. Haigler Jr. Am. J. Obst. & Gynec. 72:367-376 (Aug.) 1956 [St. Louis].

Two hundred fifty-three women with urinary-vaginal fistulas were treated at the Mayo Clinic between 1933 and 1954. The most frequent type of fistula was vesicovaginal; the second in frequency was urethrovaginal, and the third was ureterovaginal. The cause of the urinary fistulas was surgical or traumatic rather than obstetric by ratio of about 8 to 1. Total abdominal hysterectomy is a much more common operation today than formerly, and it headed the list of the causative procedures, with 120 patients. These fistulas resulted from the lack of adequate exposure, bleeding and the use of many hemostats, and an attempt to keep the vagina partially or completely closed with special forceps. The number of fistulas after repair of cystocele was about equal to the number of those occurring with vaginal hysterectomy. A rather new type of vesicovaginal fistula occurred after transurethral resection of the neck of the bladder for urinary retention or obstruction.

The type of surgical treatment of the fistula depends entirely on its character, its location, and on whether it is complicated or uncomplicated. Two hundred twenty-four patients underwent direct repair, either vaginal, abdominal, or transvesical. Twenty-nine patients had indirect repair by ureterosigmoidostomy, nephrectomy, nephrostomy, ureteral reimplantation, or closure of the vagina. The vaginal approach was used in 218 of the 224 patients with direct repair, the abdominal approach in 5, and the transvesical approach in one. With vaginal repair, a primary cure rate of 88% was obtained, which is especially noteworthy when one considers that more than half of these patients had undergone repair previously from one to five or more times. If the fistula is high and cannot be exposed or if it is complicated by a rectovaginal fistula, the abdominal approach is the best. With regard to closure of the fistula, it has been found that it is far safer to repair the fistula transversely than in any other direction. The suture material was all absorbable catgut and of small caliber. All 29 patients on whom indirect operations were performed were cured in the sense that they were not leaking urine. Postoperative complications occurred almost always in those difficult cases in which there were recurrences and a diseased urinary tract. They occurred regardless of the direct or indirect procedures. The percentage of complications was much greater in the direct abdominal approach than in the direct vaginal approach. There were two postoperative deaths, but they were not related to the surgical procedure itself.

The Use of the Bioflavonoid Compounds in the Prevention or Reduction in Severity of Erythroblastosis Fetalis. W. M. Jacobs. Surg. Gynec. & Obst. 103:233-236 (Aug.) 1956 [Chicago].

This report deals with six mothers who had previously been immunized with the Rh factor and who during their present pregnancy were treated with the bioflavonoid compound, cvp. A total of 12 mothers were treated with cvp, but six were not included in this series, five of them because their babies proved to be Rh negative (all of the husbands were heterozygous positive) and one because the previous history of immunization was doubtful. The women were given six capsules (600 mg.) of the bioflavonoid compound daily. This therapy was begun before the 14th week of pregnancy, because it is believed that crossover of fetal cells does not occur prior to this time. Prevention or reduction of capillary fragility of the placenta, an antihistamine reaction, and reduction or prevention of capillary fragility in the baby are the three factors that form the basis for the use of bioflavonoid compounds in the treatment of women isoimmunized with the Rh factor.

The most dramatic results were obtained in three of the women, who, although they had previously had erythroblastotic infants, showed no titer rise throughout their pregnancies and whose present infants showed no signs of erythroblastosis fetalis. In the other three women, base-line titers, which apparently represented holdover antibody titers from previous immunization, were present early in gestation. In all of these the titer rise was only slight. Without treatment it could have been expected that these infants would have been at least as severely affected as their predecessors, and probably more so; however, they were healthier and less severely affected than the previous infants. In accordance with the routine treatment for infants with erythroblastosis fetalis, these infants were given exchange transfusions, but it was believed that, because of the mild form of erythroblastosis, exchange transfusion was probably not necessary. Although the number treated is small, the author feels that there is evidence that the bioflavonoid compounds do have some value in the prevention of erythroblastosis fetalis or that they will at least reduce its severity.

The Treatment of Premenstrual Tension with a Combination of an Antihistaminic and a Theophylline Derivative. T. H. McGavack, H. J. Spoor, M. L. Stone and S. Pearson. Am. J. Obst. & Gynec. 72:416-422 (Aug.) 1956 [St. Louis].

Forty-three patients between the ages of 14 and 50 years with premenstrual tension were given a compound in tablet form, consisting of 50 mg. of 2-amino-2-methyl-1-propanol-8-bromotheophyllinate and 30 mg. of pyrilamine maleate (neoBromth). Seventeen of these patients had frank edema; 12 had water retention as shown by pronounced changes in weight and tightness of shoes, but no obvious edema; and 14 had no clinically recognizable water retention. The frequency and amount of dose of the drug were varied to suit individual needs. Therapeutic doses ranged from 2 tablets (160 mg.) twice to four times daily for from 3 to 10 days before the onset of menstruation. In three patients continuous administration proved advisable. Slight, moderate, pronounced, and complete relief were obtained by 8, 9, 14, and 4 patients respectively. Eight patients were therapeutic failures. Of all the manifestations, water retention was the one most consistently favorably influenced, and the nervous and mental symptoms of tension were next. Breast engorgement, gastrointestinal symptoms, and pelvic manifestations were controlled in most of the patients, and marked improvement in headaches occurred in slightly over half the patients. Adolescent or pubertal acne with normal premenstrual periods of aggravation was improved in 15 of 22 patients. No undesirable side-effects were observed with doses of up to 4 tablets (320 mg.) four times daily (a total daily dose of 1,280 mg.) for four consecutive weeks of administration. The theophylline-antihistamine combination employed is a useful aid in the management of premenstrual tension, particularly when associated with high degrees of water retention.

PEDIATRICS

Complications of Smallpox Vaccination and Their Treatment with Vaccinia Immune Gamma Globulin. R. Lundström. J. Pediat. 49:129-140 (Aug.) 1956 [St. Louis].

Serious complications of smallpox vaccination are rare. A survey is given of such complications, as well as of their incidence in Sweden. During a five-year period, there were two deaths from eczema vaccinatum, both in unvaccinated infants, and two deaths from postvaccination encephalitis. The author stresses the importance of making a sharp distinction between generalized vaccinia, eczema vaccinatum, and gangrenous vaccinia. The clinical picture of fetal vaccinia resembles that of gangrenous vaccinia. Some cases of unusual complications and of vaccination combined with other illnesses are described. Kempe's vaccinia immune gamma globulin, prepared by fractionation of blood from newly vaccinated persons and distributed by the State Bacteriological Laboratory of Sweden, is both a preventive measure against complications and a treatment for them. In vitro experiments showed it to have a high content of antibodies to the variola and vaccinia viruses, about 10 to 20 times higher than that of ordinary gamma globulin preparations. The main indications for its use are prevention of spreading of vaccinia to patients with eczema who have been in contact with newly vaccinated persons; treatment of newly vaccinated persons suffering from or contracting another serious disease; and in cases of generalized vaccinia, eczema vaccinatum, and gangrenous vaccinia. The preparation should be tried when there is a risk of corneal lesions as well as in postvaccination encephalitis, since specific therapy for these conditions is lacking. When a smallpox epidemic threatens, the preparation can presumably be used as an adjuvant in prophylaxis. If specific immune gamma globulin is not available, other gamma globulin preparations should be used in large doses. They should preferably be prepared from the blood of military personnel, who are generally vaccinated on induction. The author reports a case of generalized vaccinia with hypogammaglobulinemia, in which gamma globulin partly derived from such a source was successfully used.

Gas Gangrene of the Colon in a Newborn Infant: Report of a Case Successfully Treated by Total Colectomy. E. Haigh. Brit. J. Surg. 43:659-661 (May) 1956 [Bristol, England].

A case of gas gangrene involving the lower ileum and the entire colon in a newborn baby boy is described. Laparotomy was performed through a transverse supraumbilical incision and resection was carried out through normal intestine just above the Meckel's diverticulum to the rectosigmoid region. An ileoproctostomy was performed. Large doses of penicillin and gas gangrene serum and a transfusion of 85 cc. of blood were given. Gastric suction and intravenous therapy had been instituted preoperatively and were continued postoperatively. The postoperative course was entirely satisfactory. At first the infant had seven or eight semiformed stools a day, but he developed normally and gained 6 oz. a week. He was discharged after one month. At the age of three months he had only three to five normally formed stools daily and was gaining well. At one year of age he weighed 23 lb. (10.4 kg.) and had only one or two stools a day. The extensive resection thus was not followed by permanent diarrhea, malnutrition, or retardation of general development. It is suggested that the infection developed by direct invasion through the mucosa from an acute anaerobic enteritis. Total colectomy in the newborn may be a practicable procedure for other conditions.

DERMATOLOGY

A Comparison of Chloroquine and Gold in the Treatment of Lupus Erythematosus. J. T. Crissey and P. F. Murray. A. M. A. Arch. Dermat. 74:69-72 (July) 1956 [Chicago].

Crissey and Murray compared the therapeutic effect of chloroquine with that of gold sodium thiosulfate in the treatment of chronic discoid lupus erythematosus. Remissions were obtained in 57 of the 66 patients treated with the gold preparation and in 21 of the 24 treated with chloroquine. Thus, there was no significant difference in the proportion of patients who responded to these drugs. Patients treated with chloroquine responded more rapidly than those treated with gold. There was a significantly greater number of recurrences within a year after treatment with chloroquine than after gold. Data collected since this study suggest that this recurrence rate can be materially reduced by continuing administration of small doses of chloroquine for several months after clinical remission has taken place. The advantage of oral administration of chloroquine over the injection of the gold preparation is evident. Gold is known to cause side-effects, but the authors observed no serious side-effects from chloroquine.

Changing Therapy in Cutaneous Tuberculosis. A. W. Glick. J. Mt. Sinai Hosp. 23:537-549 (July-Aug.) 1956 [New York].

Glick differentiates three types of cutaneous tuberculosis: (1) primary tuberculoses, in which tubercle bacilli can be readily demonstrated by direct examination culturally and/or by animal inoculation; (2) tuberculids, in which organisms are rarely if ever demonstrated and which are of an allergic nature with foci of active tuberculosis elsewhere; and (3) the fringe group, among which are sarcoid and possibly the rosacea-like tuberculid of Lewandowski. He discusses the first two groups. Before the use of isoniazid, calciferol was the best single agent for the treatment of cutaneous tuberculosis. Calciferol produces clinical cures in possibly 50 to 75% of the cases in which it is used. It does produce toxic symptoms, some of which may be permanent, such as impairment of renal function. It seems to be contraindicated in cases of erythema induratum. Thiosemicarbazone seems to be of value in erythema induratum and in tuberculosis of mucocutaneous surfaces, but it produces many toxic symptoms. Streptomycin is very useful as a single remedy, but resistance of the bacillus to the drug can develop. Aminosalicylic acid has little value when used alone. Many investigators feel that various combinations of the above agents produce better results than any single one. Isoniazid has been in use for only a few years. Its final evaluation will take time, but it is possibly the best single drug presently available. It has fewer side-effects, produces faster results, and does not cause the tubercle bacillus to become resistant. The consensus seems to be that combination therapy with the above agents will become the method of choice.

OTOLARYNGOLOGY

Multiple Paragangliomas in the Head and Neck: Case Report. J. J. Conley. Ann. Otol. Rhin. & Laryn. 65:356-360 (June) 1956 [St. Louis].

The patient was a 26-year-old woman with an asymptomatic lump in the left side of the neck. It had been present for three weeks and had gradually increased in size, but it was not associated with pain, pressure, or syncope. There was moderate, diffuse, bilateral cervical lymphadenopathy and a firm node in the region of the carotid bifurcation on the left side. The node was intimately related to carotid artery pulsations and was not compressible. There were paralysis, atrophy, and fibrillation on the right side (contralateral) of the tongue, with inability to protrude this side of the tongue. There was a complete nerve-type deafness in the right ear. A carotid body tumor was removed from the bifurcation of the internal and external carotid arteries at the level of the carotid bulb on the left side. The carotid arteries were not injured. The postoperative course was uneventful. Eight months later the patient complained of a sensation of fulness in the right ear, and examination revealed a reddish prominence entering the tympanic cavity from the region of the jugular bulb. A glomus jugular tumor was removed from the right ear through an endaural approach. The tumor arose from the dome of the jugular bulb in the region of the floor of the tympanic cavity and extended into the inferior part of the cochlea with destruction of the inferior aspect of the promontory of the cochlea. There was also destruction of the bone behind the descending portion of the facial nerve. The facial nerve was not injured during operation. Postoperatively the patient had severe vertigo for about 10 days. This gradually subsided. Recent examination of the woman failed to reveal any abnormality.

Approximately 350 carotid body tumors and 102 glomus jugulare tumors have been reported in the literature, but multiple and bilateral paragangliomas in the head and neck are exceedingly rare. These tumors are asymptomatic in their early stages. As they increase in size, they may cause pain, pressure, or syncope or may affect a special organ. This is particularly true in glomus jugulare tumors, which may produce vertigo, deafness, cranial nerve involvement, and discharge from the ear.

Otolaryngologic Aspects of Hypometabolism. J. A. Hilger. Ann. Otol. Rhin. & Laryng 65:395-413 (June) 1956 [St. Louis].

The thyroid hormone is the essential regulator of cellular oxidation. Hypometabolism can result from impaired function at any level in the chain from pituitary to thyroid. Four etiological forms have been postulated: hypothalamic, pituitary, athyreotic, and somatic or peripheral. The advanced degree of athyreotic hypometabolism causing widespread mucoproteinous changes in the tissue ground substance is commonly called myxedema. This is but one form of hypometabolism and is relatively uncommon, whereas various other hypometabolic conditions are common. They are characterized by a wide range of nonspecific symptoms headed by fatigability and intolerance to cold. These patients are often classified as psychoneurotics. Coarse hair, thick skin, infertility, sluggish mentality, and bradycardia are indicative of hypometabolism. The basal metabolic rate is useful in diagnosing hypometabolism. The radioiodine methods may falsely suggest that a euthyroid is low and a hypothyroid is normal. The chemical determination of the protein-bound iodine of the plasma is the most reliable method. Second in value is the basal metabolic rate determination.

Hypometabolism is a frequent cause of otolaryngologic presenting symptoms. Chronic vocal cord edema not associated with inflammatory reaction is strongly suggestive of hypothyroidism. The cord is firm, not deeply reddened unless it bears the brunt of excessive vocal trauma, and the edema is uniform over the whole cord. Because of greatly increased cordal thickness, the voice is hoarse and of low pitch. Advanced degrees of cordal myxedema may result in diffuse polypoid change requiring surgical stripping. Separation of the edematous masses from the underlying elastic tissues of the cord is relatively easy with the cupped forceps technique. The focalized myxedema and polyps will recur if the hypothyroidism is unsuspected and untreated. The author describes the history of a woman to illustrate the effect of thyroid replacement therapy and the improvement in laryngeal function after stripping of the vocal cords. He also presents the case of a man with myxedema in whom the upper respiratory and pharyngeal mucosa was thick and edematous. Thyroid replacement therapy proved essential. Observations on this patient also demonstrated the poor healing tendency of the tissues in the presence of severe hypothyroidism. On the basis of another case history the author shows that mucoproteinous edema of the nasal mucosa is productive of chronic nasal obstruction. Here again adequate thyroid replacement will be effective, though surgery and allergic management may have failed. With regard to the external and middle ear, the author says that one of the usual symptoms of hypothyroidism is a reduction of sweat gland activity. Frequently the function of ceruminous glands suffers the same fate. The resulting dry, itching external ear is a frustrating problem unless the thyroid deficiency is recognized and treated.

The symptoms of mucoproteinous edema of the pharynx are chronic and long-standing and are variously described as "sore throat," "throat discomfort," "lump in the throat," etc. A pale and glossy edema of the pharyngeal mucosa is sometimes discernible. A search will usually elicit a history of additional systemic symptoms of hypothyroidism. When the specific diagnostic tests are confirmatory, the results of thyroid therapy are gratifying. Headache of vascular character and distribution is not uncommon as a presenting symptom in the hypothyroid patient It is relieved by adequate thyroid replacement.

The acoustic and vestibular disturbances resulting from endolymphatic hypertension, which have been referred to as Ménière's disease, endolymphatic hydrops, or labyrinthosis constitute a disorder of multiple etiology, but one in which in many patients endocrine imbalance plays an important part If the patient with endolymphatic hypertension is found to be wanting in thyroid hormone, replacement therapy with thyroid hormone is justified. Otosclerosis and endolymphatic hypertension sometimes coexist. Here an appreciation of the influence of the hypometabolic state on the inner ear is valuable preoperatively and postoperatively. It may alter the long-term results of surgical treatment in otosclerosis.

THERAPEUTICS

Intramuscular Trypsin in the Treatment of Acute Thrombophlebitis. W. A. Reid and A. H. Wilkinson, Jr. J. M. A. Georgia 45:351-353 (Aug.) 1956 [Atlanta].

Sixty patients between the ages of 3 months and 85 years with an acute attack of thrombophlebitis or with an acute exacerbation of the relapsing syndrome were treated with bed rest, elevation, and antibiotics at the Grady Memorial Hospital between Oct. 1, 1954, and Aug. 15, 1955. Thirty of the 60 patients received in addition intramuscular injections of trypsin, and the other 30 were given anticoagulant therapy and served as controls. Intramuscular injections of 2.5 mg. (0.5 cc.) of trypsin (Parenzyme) deep in the muscles in alternating gluteal regions were given every eight hours. Since contact with water diminishes the activity of trypsin, thoroughly dry syringes have been used for its administration. The patients were evaluated daily. In both the control and the therapeutic trial group the drugs were withdrawn as soon as the patient became asymptomatic. The next day the patient became ambulatory, and if symptoms did not recur the patient was discharged on the third day of observation. If symptoms recurred with ambulation, therapy was restarted.

The general clinical response in patients receiving trypsin was comparable to or even better in some respects than that in those receiving anticoagulant therapy. The average number of days elapsing before the patient became asymptomatic was 1.3 shorter in the group receiving trypsin intramuscularly. The time required for patients to become free of pain was also less in the group treated with trypsin than in that treated with anticoagulants. Local toxic effects, pain, and induration, as noted in a total of 867 injections, were minimal and never necessitated withdrawal of trypsin. This probably resulted from the careful administration of the drug deep in the gluteal muscle. The deltoid muscles were never used. No generalized toxic reactions or postoperative complications, such as impairment of wound healing or hemorrhage, were noted to suggest the possibility of afibrinogenemia, which has been reported by other workers. It was necessary to discontinue anticoagulant therapy because of bleeding in 5 of the 30 patients treated with heparin and bishydroxycoumarin (Dicumarol). The total number of hospital days was 3.9 less in the group treated with trypsin than in that treated with anticoagulants. Clinical evidence of nonfatal pulmonary infarction occurred in two patients treated with trypsin intramuscularly. Continued study is essential for the proper evaluation of the effectiveness of intramuscular therapy with trypsin in thrombophlebitis.

Novobiocin in the Treatment of Surgical Infections Due to Staphylococci and Other Gram-Positive Bacteria. A. M. Rutenburg, P. Shapiro and F. Schweinburg. New England J. Med. 255:325-330 (Aug. 16) 1956 [Boston].

In vitro studies with novobiocin (Cathomycin), a new antibiotic isolated from cultures of Streptomyces spheroides, showed the extreme effectiveness of the drug against most strains of micrococci (staphylococci) and streptococci, and its particular usefulness against micrococci resistant to other antibiotics. Except for some strains of P. mirabilis and Ps. fluorescens, novobiocin was not effective against the gram-negative bacilli tested.

Thirty patients with a variety of surgical infections caused by hemolytic micrococci and other gram-positive bacteria were treated with novobiocin. Twenty-three of the 30 patients had failed to respond to previous therapy with other antibiotics such as penicillin, streptomycin, tetracycline, chlortetracycline, bacitracin, and erythromycin. The remaining seven patients had had no previous therapy. No other antibiotics were given in combination with novobiocin. The drug was administered orally; 1 gm. was given initially and 1 to 1.5 gm. in divided doses daily thereafter. Most patients received 0.25 gm. every six hours. The drug was absorbed rapidly after the administration of this dose, and plasma concentrations ranged from 6 to 46 mcg. per cubic centimeter. The average duration of treatment was 10 days. The therapeutic results were good in 28 patients who responded within 48 hours with rapid and progressive improvement; local and systemic evidence of infection subsided, drainage from the infected wounds decreased and became sterile, and the wound healed. The results in the remaining two patients were considered poor. One of them had extensive wound infection and slough after partial resection of irradicable carcinoma of the thyroid and tracheotomy, and various bacterial strains were cultured from his wound; of these strains only hemolytic Micrococcus (Staphylococcus) aureus was sensitive to novobiocin. The second patient had a urinary-tract infection caused by novobiocin-resistant bacteria and an ulcerated lesion of the toe with underlying osteomyelitis. Hemolytic M. aureus sensitive to novobiocin was cultured from the wound. The patient failed to improve because of inadequate peripheral arterial circulation.

Novobiocin was well tolerated. Only 2 of these 30 patients and an additional 60 patients who received the drug for prophylaxis or for the treatment of various medical infections had mild gastrointestinal side-effects. Both recovered promptly after the drug was withdrawn. There were no other systemic reactions.

The New Dehydrocortisone Drugs (Prednisone and Prednisolone) as Antireactive Medicaments of Choice in the Treatment of Pulmonary Tuberculosis. M. Reale, A. Garaventa, G. Paoli and G. Costa. Minerva med. 47:1764-1773 (June 6) 1956 (In Italian) [Turin, Italy].

The authors studied the effect of prednisone and prednisolone on 30 patients with pulmonary tuberculosis. Eight patients had localized, early, and clinically primary forms of the disease; 12 had the diffused type of infection; 6 had tuberculosis of the serous membranes; 1 had silicosis; and 3 had bronchial asthma. Observations were continued for a few months after treatment. Prednisone was given to 15 patients, prednisolone to 14, and 1 patient was given both drugs in succession. The starting dose was 30 mg. per day, given in five portions of 6 mg. each. The diet was controlled in order to facilitate the assimilation of the drug. The starting dose was continued for 10 to 20 days. The daily dose was then gradually decreased to 25, 20, and 15 mg. Subsequently, doses of 10 and 5 mg. were continued depending upon the condition of each patient. The average total dose was 1,000 mg.; patients with milder forms of the disease received from 600 to 700 mg. Treatment lasted from 40 to 60 days. Used with specific antimycobacterial therapy, these two drugs have in the progressive stage of tuberculosis an immediate clearing effect upon the perifocal inflammation. Rapid and progressive clearing, healing of the tuberculous lesions, and disappearance of toxic symptoms follow. The effect is suppressive in clinically primary isolated forms that are caused by germs sensitive to tuberculostatic drugs. The effect is only temporary in the progressive stages of diffused chronic advanced phthisis that are often resistant to antimycobacterial drugs.

Pharmacology of Mecamylamine. R. V. Ford, J. C. Madison and J. H. Moyer. Am. J. M. Sc. 232:129-143 (Aug.) 1956 [Philadelphia].

The pharmacological effects of mecamylamine (Inversine), a new ganglionic blocking agent with the structural formula 3-methylaminoisocamphane, were tested in 17 dogs. The effects of stimulation of the distal end of the vagus nerve after the parenteral administration of increasing doses of the drug were used to determine the site of action of mecamylamine. The blood pressure response to carotid occlusion was also observed. The curves of the blood pressure response to increasing doses of mecamylamine and of hexamethonium were compared. The effects on renal clearances of *p*-aminohippurate and creatinine, as well as on water and electrolytes (sodium and potassium), were also observed in these dogs. Mecamylamine blocks the transmission of impulses through the sympathetic and parasympathetic ganglions. The duration of the ganglionic blockade was from 10 to 20 times longer than that produced with hexamethonium. The renal hemodynamic response to mecamylamine was associated with a prompt decrease in mean blood pressure. The glomerular filtration rate and the renal blood flow showed a significant decrease from one to three hours after the administration of mecamylamine. There was no statistically significant change in electrolyte excretion after the drug was administered.

The pharmacological effects of mecamylamine were studied in 55 patients with hypertension, 36 of whom were ambulatory outpatients and 19 of whom were hospitalized. The fact of the complete absorption of mecamylamine when administered orally was illustrated by comparison of the effects of the drug when given in comparable doses orally as well as parenterally. The problem of tolerance was illustrated by the hospitalized patients who were observed very closely while receiving the drug in progressively increasing dosage. Partial tolerance to the drug developed but was overcome by a second "titration" of the drug. Frequently the dose requirement later decreased slightly after the blood pressure had been regulated for a prolonged period of time. The most important pharmacological attributes of mecamylamine are its long duration (average 17 hours) and prompt onset (average 68 minutes) of action and its complete absorption when administered orally. Comparison of treatment programs consisting of one, two, or three divided doses daily revealed no significant difference between the programs in degree of side-reactions or percentage of patients achieving satisfactory control. However, in routine clinical use for the treatment of ambulatory outpatients, the general experience indicates a preference for at least a three-dose-a-day treatment program with the largest dose given at noon. The average dose of mecamylamine required to produce significant effects was 28 mg. per 24 hours, while with hexamethonium it was 2,307 mg. per 24 hours and with pentolinium 341 mg. per 24 hours. The percentages of patients achieving a responsive level were 90, 76, and 79 respectively. The percentages of patients becoming normotensive were 34, 37, and 33 respectively. Marked reduction in blood pressure for a long period of time was also accompanied by a reduction in the glomerular filtration rate and renal plasma flow, particularly in patients with severe hypertension before the institution of therapy. Mecamylamine is the drug of choice in the treatment of patients with moderate to severe hypertension.

Drug Therapy of Hypertension: II. Experience with Reserpine, Apresoline, Ansolysen, Ecolid, and Mecamylamine (Inversine). M. Moser, A. I. Macaulay, R. Granzen and K. W. Trout. New York J. Med. 56:2487-2497 (Aug. 15) 1956 [New York].

Twenty-five men and 35 women between the ages of 24 and 76 years with severe hypertension and evidence of renal, cerebral, or cardiac complications were treated with reserpine and hydralazine (Apresoline) alone or in combination with either chlorisondamine (Ecolid) chloride, pentolinium (Ansolysen) tartrate or mecamylamine (Inversine). Therapy was usually begun in the hospital, and patients were discharged only after stabilization of dosage was achieved. Both a sustained, unequivocal drop in blood pressure and clinical improvement with minimal side-effects were obtained in 24 patients who received combined treatment with reserpine, hydralazine, and pentolinium. In several of these patients whose pressures had been reduced to and maintained at normotensive levels for one year or longer, it has been possible to reduce the dosage of drugs without altering the response. In an additional 15 patients a satisfactory blood pressure response has occurred, but other criteria for an excellent response have not been met.

Six patients who had been on pentolinium therapy for periods of from six months to one year and who had achieved a satisfactory blood pressure were placed on chlorisondamine chloride therapy. The average dose of pentolinium that had been required to maintain the response was 450 mg. daily in four divided doses. An average daily dose of 150 mg. of chlorisondamine chloride given in two or three divided doses proved to be effective in producing an equivalent response. In two patients there was a further drop in blood pressure with chlorisondamine chloride. Persistent blurring of vision, however, which did not respond to the use of pilocarpine given orally or pilocarpine eye drops, was the most distressing side-effect of this drug. Twenty-six patients were treated with mecamylamine, a new potent ganglionic blocking agent, in combination with hydralazine and/or reserpine. Twelve of these patients had received pentolinium for from three months to two years before mecamylamine therapy was started. Excellent results were obtained in 7 patients, good results in 10, and 9 were therapeutic failures. Severe constipation and/or abdominal cramps constituted the only serious side-effect of mecamylamine therapy. Patients who had been on pentolinium therapy usually had fewer side-reactions with mecamylamine, but this may have been the result of an adjustment to previous ganglionic blockade. Some tolerance to mecamylamine was noted in all patients after from one to three weeks, but this was usually overcome by increasing the dosage. The average total daily dose of mecamylamine that proved to be effective was 34 mg. The range of the effective dose varied between 12 and 60 mg. daily. The over-all percentage of patients considered to have experienced a good or excellent response to pentolinium or mecamylamine therapy in combination with reserpine and/or hydralazine was 65%.

Two New Ganglion-Blocking Agents in Treatment of Hypertension. S. Locket. Brit. M. J. 2:116-122 (July 21) 1956 [London, England].

Two active members of a recently described group of ganglion-blocking agents, namely, N^1, N^1, N^2-trimethyl-N^1-(6-cyano-6, 6-diphenylhexyl) ethylene-1-ammonium-2-morpholinium dichloride (356c54) and the 5-cyano-5, 5-diphenyl-pentyl homologue (139c55 or Presidal), were given to 5 men and 10 women between the ages of 23 and 59 years with severe hypertension. Oral, intravenous, and subcutaneous administration were each tried, but the best hypotensive effect was obtained by the subcutaneous route. The minimal effective single therapeutic dose of 356c54 by this route was 10 mg. and the maximum dose found necessary was 40 mg. With 139c55 the comparable doses were approximately half of these and the maximal subcutaneous dose used in treatment was 27.5 mg. Results were most satisfactory. The ability to maintain a sustained hypotension for from 7 to 24 hours with 356c54 and for even longer with 139c55 resulted in a rapid relief of symptoms and a reversion to normal of many of the changes known to be associated with persistent severe hypertension. Attacks of left ventricular failure stopped when treatment began, breathlessness was relieved, and angina of effort ceased to occur. When electrocardiographic changes occurred, they were towards normal, and the size of the heart was reduced. Evidence suggested a decreased liability to thrombosis in arteriosclerotic vessels. The advantages of the compounds, particularly of 139c55, in the treatment of hypertension lie in the more gradual onset of activity; the greater duration of action, which makes treatment possible with a single or at most two daily injections; the slowing effect on the heart rate; and the relative lack of action on the small intestine.

Hydrocortisone Aerosol Associated with Tuberculostatic Therapy in the Treatment of Collateral Tubercular Bronchitis. M. Reale, G. Paoli and G. De Caro. Minerva med. 47:1773-1776 (June 6) 1956 (In Italian) [Turin, Italy].

The authors gave hydrocortisone aerosol to 20 patients being treated with antibiotics. Fifteen patients had collateral bronchitis with very advanced cavitary phthisis, and five had bronchial syndromes. The dose was 1 cc. of microcrystalline suspension of hydrocortisone acetate, which corresponds to 25 mg. of cortisone. Therapy with antibiotics was continued after treatment with hydrocortisone was stopped. The effect of the new drug was very good. Almost at once the patients felt well; they could sleep at night, their appetite reappeared, they gained from 4 to 6 lb. in weight, and their fever decreased. The general well-being could probably be attributed to the euphoristic effect of the drug. The effect of the drug, however, lasts only as long as it is being given. The drug does not have a curative effect but a symptomatic one. The results of the drug are permanent only in so far as the combined therapy with antibiotics has an effect on the tuberculous process. The results are transitory when the tuberculous lesion cannot be checked with antibiotics. The drug has no side-effects.

PATHOLOGY

The Glomerular Lesions of Diabetes Mellitus: Cellular Hyaline and Acellular Hyaline Lesions of "Intercapillary Glomerulosclerosis" as Depicted by Histochemical Studies. E. E. Muirhead, P. O'B. Montgomery and E. Booth. A. M. A. Arch. Int. Med. 98:146-161 (Aug.) 1956 [Chicago].

Muirhead and associates point out that Kimmelstiel and Wilson and Murakami, in 1936, established the identity of special glomerular lesions in association with diabetes mellitus. Since then considerable interest has centered about the location, composition, and pathogenesis of glomerular changes in diabetes. This paper is concerned with the results of the application of a series of histochemical procedures to the kidneys from six diabetic subjects. Two hyaline lesions are observed within the glomeruli of kidneys of diabetic subjects. One lesion tends to be nodular and is both cellular and collagenous. For this structure the term "cellular hyaline lesion" is preferred. The other lesion is crescentic, globular, oval, or elongated and is acellular. It has the same appearance as the hyalin of arteriolosclerosis. For this structure the term "acellular hyaline lesion" is preferred. The cellular hyaline lesion is commoner than the acellular hyaline lesion. In some kidneys, however, one lesion is encountered as often as the other. The acellular hyaline lesion displays the staining characteristics of "fibrinoid." A series of histochemical procedures applied to this substance demonstrates the presence of multiple ingredients, such as triglycerides, fatty acids; phosphatides, cholesterol, and its esters; aldehyde groups likely associated with polysaccharides, mucopolysaccharides, mucoproteins, glycoproteins, glycolipids, or unsaturated lipids; sulfuric acid esters of polysaccharide origin; free carbonyl groups; free potassium, and protein-bound sulfhydryl groups. The cellular hyaline lesion has the staining characteristics of collagen. The above histochemical procedures with this structure yield either negative or minimal results, except for the periodic acid–Schiff reagent procedure, which is positive.

The staining and histochemical characteristics of the acellular hyaline lesion are identical with those of the hyalin of hyaline arteriolosclerosis. The disposition of the acellular hyaline material is considered in keeping with an intracapillary position. It is suggested that the glomerular acellular hyaline masses are derived from the hyalin of the arteriole by embolization. Rupture of the material through the capillary wall can account for its presence in Bowman's space and certain tubules. Reasons have been cited for the view that vascular fibrinoid is derived from altered smooth muscle of the media. The considerations of the present study suggest a similar origin from smooth muscle for the acellular hyaline lesion of the glomerulus of diabetic subjects. The pathogenetic relationship between the cellular hyaline and acellular hyaline glomerular lesions of diabetes remains obscure.

Phaeochromocytoma: Catechols in Urine and Tumour Tissues. H. Weil-Malherbe. Lancet 2:282-284 (Aug. 11) 1956 [London, England].

Studies of tumor tissue from a patient with pheochromocytoma showed that the tumor contained, in addition to adrenaline and noradrenaline, considerable amounts of 3-hydroxytyramine and 3:4-dihydroxyphenylalanine (Dopa). A second tumor, discovered at autopsy, contained similar amounts of adrenaline and noradrenaline, but very little hydroxytyramine and Dopa. The tumor specimens were received as solid pieces of tissue immersed in 0.1 *N* hydrochloric acid. The time intervals between surgical removal or death and immersion in acid were about 3 hours and 16 hours. Both samples remained in acid *for about 24 hours before being analyzed.* Three catecholamines were extracted from the urine of the patient with pheochromocytoma. The excretion of noradrenaline is known to be greatly increased in patients with pheochromocytoma, and this was also found in the present case. There was in addition an increase of hydroxytyramine proportionately as large as or larger than the increase of noradrenaline excretion. The urine was examined again after the patient had been on a protein-free diet for two days. This regimen did not greatly affect the excretion of adrenaline or of noradrenaline, but it decreased the excretion of hydroxytyramine. After the operation the excretion of all three catecholamines returned to normal. Hydroxytyramine and Dopa, found in the first tumor, are substances previously not demonstrated in pheochromocytoma. The lower concentrations of hydroxytyramine and Dopa in the second tumor may have been due to postmortem decomposition.

Bacteriologic Study of Human Liver in One-Hundred-One Cases. P. From and J. H. Alli. Gastroenterology 31:33-38 (July) 1956 [Baltimore].

The liver has been regarded by some as a filtering organ for various types of microbial life, because it has been observed that the addition of broad-spectrum antibiotics to the diet of rats permits survival of these animals under conditions that would otherwise produce a diffuse hemorrhagic necrosis of the liver. If the antibiotic is given orally the effect may well be a result of the change in intestinal flora; if, on the other hand, the antibiotic is given parenterally, the effect might be due to specific changes within the liver. However, if this improvement is specifically due to the antibiotic effect, there should be some proof that organisms do reside in the liver. The authors undertook a bacteriological study of human liver specimens obtained with peritoneoscopic biopsy forceps from 101 patients. Sterile technique was practiced. The liver specimens of 13 of the patients yielded bacterial organisms. The authors believe, however, that all the organisms encountered in the liver biopsy cultures were contaminants. None of the organisms was found in any predominance on streaked, selective, solid media, and all the organisms obtained from cultures of liver were also observed from cultures obtained in the endoscopy room after 20-minute exposure of selective plates. Thus the statement that the liver acts as a filtering agent for microorganisms could not be corroborated, and the conclusion is reached that the human liver does not harbor bacteria and has no normal flora. The possible benefits from the use of the broad-spectrum antibiotics in nonbacterial, nonparasitic, and nonmycotic liver disease appear to be due not to a direct antibiotic effect within the liver but to changes that may occur in the intestinal flora.

Identification of Hydroxytyramine in a Chromaffin Tumor. M. McMillan. Lancet 2:284 (Aug. 11) 1956 [London, England].

The possible synthesis of adrenaline and noradrenaline in the body with hydroxytyramine as an intermediate was suggested in 1942 by Blaschko. Hydroxytyramine occurs in the urine of animals. In man its excretion is sometimes five times greater than that of noradrenaline. It has not been detected in mammalian tissues containing a high proportion of noradrenaline, nor has it been found after exhausting the adrenal by excessive secretion or by interfering with normal sequences of synthesis using antimetabolites. Its absence has thrown doubt on its function as a precursor.

Hydroxytyramine in large amount with some noradrenaline was detected in a biopsy specimen taken from a girl, aged 18, with a paraganglionic tumor considered to be malignant, and with fluctuating hypertension. Hydroxytyramine and noradrenaline were identified by their RF values. No trace was found of various other compounds, including adrenaline. This is apparently the first occasion on which hydroxytyramine has been reported as the predominant catecholamine in a pheochromocytoma. There have been several reports of its absence from tumors, but Manger and others reported its presence with adrenaline and noradrenaline in only one of 35 tumors examined chromatographically, and related it to postmortem change in an embalmed specimen. The urine of a patient with a pheochromocytoma containing 0.05 mg. of adrenaline and 8.4 mg. of noradrenaline per gm. of tumor yielded as much as 2,000 mcg. daily with similar amounts of noradrenaline. In the present case there was no correlation between the composition of the tumor and the urinary excretion. The presence of hydroxytyramine in an apparently malignant tumor is of interest, for many pheochromocytomas with metastases have been described as being biologically inert. Of the relatively few tumors that have been biologically active and that have been examined for their catecholamine content, still fewer have been classified as malignant, and these have been said to contain adrenaline and noradrenaline only. The relationship between hydroxytyramine and malignancy merits further study.

Pathogenesis of Endocardial Fibro-Elastosis. W. J. S. Still and E. H. Boult. Lancet 2:117-118 (July 21) 1956 [London, England].

Congenital endocardial fibroelastosis is usually present at birth. It is characterized by diffuse thickening of the endocardium, which is sometimes 10 times as thick as healthy endocardium. The process is found chiefly in the left ventricle, involving the valves in about half of the cases. Cardiac hypertrophy is invariably present, and most infants die from cardiac failure in the first year of life. Material from six infants, aged 6 to 9 months, who had uncomplicated endocardial fibroelastosis was studied by electron microscopy. The surface of the left ventricle was washed and the endocardium from various parts peeled off in superficial and deep layers. Samples from both layers were teased out and ground up, at a controlled temperature, to make fine suspensions in distilled water. Each suspension was divided into two parts, of which one part was digested in 2% chymotrypsin for four hours at 37 C to destroy fibrin without materially affecting collagen or elastic tissue. All the suspensions were stained with a 0.1% solution of phosphotungstic acid to simplify electron microscopy and were washed in distilled water. A drop of each suspension was deposited on four copper grids previously covered with "Formvar" membranes and air-dried. The preparations were shadowed with gold-palladium at an angle of 2:1, and all the grids were scanned at a magnification of 2,000, selected fibers being photographed at a magnification of 10,700.

The electron microscopic structure of the predominating fibers in the surface layers of the fibroelastotic endocardium was indistinguishable from that of fibrin, which seems to suggest that they are derived from blood by the incorporation of fibrin deposits. Nevertheless, ordinary histological investigation does not reveal evidence of the deposition of fibrin on the endocardium, but there may be two reasons for this: (1) the fibrin may have been deposited in utero, as suggested by the condition in premature stillborn infants; and (2) possibly the fibrin is deposited in very thin films and immediately incorporated in the endocardium, thus becoming no longer recognizable as fibrin. While the incorporation of fibrin is an important factor in the thickening of the endocardium in congenital endocardial fibroelastosis, the authors do not imply that it accounts for the whole process. Muscle necrosis with replacement fibrosis at the myoendocardial junction seems to indicate that some process there is also involved.

BOOK REVIEWS

Handbook of Poisons. By Robert H. Dreisbach, M.D., Ph.D., Professor of Pharmacology, Stanford University School of Medicine, San Francisco. Cloth. $3. Pp. 426, with illustrations. Lange Medical Publications, P.O. Box 1215, Los Altos, Calif., 1955.

There has been a need for a compact book that summarizes information on commercially available poisonous chemicals. The author has undertaken to provide a concise summary of the diagnosis and treatment of the clinically important poisons. The book provides a digest of general considerations in treatment of poisoning and discusses pesticides and other agricultural poisons as well as industrial hazards, household chemicals, medicinal poisons, and plant and animal hazards. Appendixes illustrating and describing mechanical resuscitation equipment, drugs, and equipment in the treatment of poisoning and first-aid measures add to the usefulness of this volume. For brevity or to facilitate comparison much of the material is presented in outlines and tables. This manner of presentation of material, while helpful to the busy physician, sacrifices the background information that is useful for full appreciation of the rationale behind various admonitions and recommendations. The handbook has been carefully compiled and should prove useful to all who wish a handy and compact reference on poisonous materials.

Hormones and the Aging Process: Proceedings of a Conference Held at Arden House, Harriman, New York, 1955. Edited by Earl T. Engle and Gregory Pincus. Cloth. $8.50. Pp. 323, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1956.

This slim volume consists of 18 essays by outstanding endocrinologists who participated in a symposium on the problem of hormones and the aging process. Unfortunately, the paucity of available information on this subject necessitated the inclusion of much material that only by a stretch of the imagination may be said to pertain to gerontology. Moreover, since the aging process is accompanied by such widespread changes throughout the organism, observed alterations of a given hormonal level with age need not necessarily reflect the effect of age but may represent concomitant changes elsewhere in the organism. Thus, the osteoporosis commonly attributed to failure of ovarian function may, in fact, be a consequence of skeletal changes unrelated to the menopause. Despite these general criticisms, the present volume includes excellent reviews and discussions of many topics of current interest to endocrinologists and gerontologists. The topics discussed include urinary steroid and gonadotropic excretion, plasma steroid levels, the thyroid at different ages, the hormonal regulation of muscle, calcium and phosphorus metabolism, protein metabolism, effects of testosterone derivatives, pathology of the aging rat, fluid and electrolyte metabolism, endocrine regulation of prostatic growth, and metabolic balances in aged men. Of more immediate clinical interest are the chapters on osteoporosis, steroid replacement in the aged, and the effects of steroids in breast cancer. The book summarizes the recent experimental studies in these diverse fields and should be of particular interest to endocrinologists engaged in research. The gerontologist may be stimulated to extend his efforts in a field that, although of great promise, remains to be explored. The book is well printed and illustrated, but a more complete subject index would have been helpful.

Medical Parasitology for Medical Students and Practicing Physicians. By William G. Sawitz, M.D., Professor of Parasitology, Jefferson Medical College of Philadelphia, Philadelphia. Second edition. Cloth. $6. Pp 342, with 89 illustrations Blakiston Division, McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, 95 Farringdon St., London, E.C 4, England, 1956.

This book is intended for the use of medical students and practicing physicians. The material is presented from the medical point of view to provide the information necessary for understanding of parasitic diseases. The introduction gives a list of common technical terms used in the text, with a concise definition of each term. A classification of parasites and the classes of the animal kingdom containing medically important parasites is also found in the introduction. The book covers the material in this classification in a clear and informative way. Specific treatment is dealt with in a separate chapter, with the subject well-outlined and the dosage, efficiency, and toxicity of the drugs given. A synopsis of the entire book covers about 20 pages. The final chapter gives techniques for laboratory diagnosis. A fine vocabulary of technical terms and an index conclude the book. This is a well-written and well-illustrated book that fulfills its purpose. It should be of great practical use and interest to the medical student as well as to the practicing physician.

Ankylosing Spondylitis: Clinical Considerations, Roentgenology, Pathologic Anatomy, Treatment. By J. Forestier, M.D , F.A.C.R , F. Jacqueline, M.D., and J. Rotes-Querol, M.D. Translated by A. U. Desjardins, M S, M.D., F.A.C.P. [from La spondylarthrite ankylosante, Masson, 1951.] Cloth. $10.75. Pp. 374, with 145 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England, Ryerson Press, 299 Queen St, W, Toronto 2B, Canada, 1956.

The authors have recorded their experience with over 400 patients, and their conclusions agree with those of other clinicians. It is to their credit that they have not wasted the reader's time by delving into hypotheses as to etiology and pathogenesis, fields in which they claim no special qualifications The book would be more acceptable if it were condensed and arranged in a more orderly fashion. Few readers will wish to read 375 pages on arthritis of the spine. The translation from French into English has been carefully done, and the ideas of the French authors appear clearly presented. In 1884, A. Strumpell described a disease that he considered unique in that there was progressive ascending ankylosis of the spine without involvement of the peripheral joints. This concept of ankylosing spondylitis is still favored by most American physicians. The present authors, however, consider ankylosing spondylitis a disease that involves the entire locomotor apparatus, particularly the articulations of the spine, those of the shoulders, and those of the lower extremities. Their statement that 75% of their patients had peripheral joint involvement does not conform to the experience of other students of the disease, who report 10 to 15% involvement of peripheral joints. This tends to cloud the issue of whether ankylosing spondylitis is a specific entity or just one form of rheumatoid arthritis.

A Manual of Anaesthetic Techniques. By William J. Pryor, M B , Ch B , F.F A.R C S., Anaesthetist, Thoracic Unit, Christchurch Hospital, Christchurch, New Zealand. With foreword by J. H. T. Challis, M R C.S, L.R.C.P., F.F.A.R.C.S., Senior Anaesthetist, London Hospital, London, England. Cloth. $7. Pp. 224, with 77 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, John Wright & Sons, Ltd, 12-14, Triangle West, Bristol 8, England, 1956.

This book was written primarily for residents who are either rotating through anesthesia study or are in the early phases of anesthesia training. It attempts in no way to be complete in details as to various anesthetic techniques, but it does have a fairly good reference list at the end of each section on the various problems discussed. Although, in general, the outlook of the book is British, a great deal of valuable information is contained in these relatively few pages. The organization of the text is orderly and self-explanatory, dealing in general with the various equipment and techniques useful in anesthesia. The various chapters are essentially up-to-date, and the American equivalents for the British drugs are adequately indicated. The illustrations are good and are of sufficient number. The book can be recommended for libraries and for students who wish to get a superficial knowledge of a subject and of references available for further reading.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

QUERIES AND MINOR NOTES

HYPERSENSITIVITY TO HEAT

To the Editor:—*Is there any possibility of desensitizing skin against sunburn? Last year, after driving wearing short sleeves in an open car on two very hot sunny days, I developed sunburn on both forearms to such a degree that I was incapacitated. A month later I went on vacation and developed, in the same area, an erythema with swelling of the skin and burning and itching discomfort, which compelled me to return home; on this occasion I had not exposed myself to the sun. Evidently perspiration irritated the sensitized area of the skin. During the following months I frequently developed some hives on different parts of my body for which there was no reason found, although I experimented with omitting all kinds of food from my diet, changing my bedroom, changing the type of my clothing, and other measures. Lately, the hives, for which I used different medicaments, have not bothered me much, but the erythema of the arms reappeared on the first hot day, 10 days ago, without exposure to the sun, while I was sitting in a New York theater. The reaction, after some days of treatment, disappeared almost completely, only to return yesterday (a very hot day), again without any exposure to the sun. I have been in perfect health all my life and, particularly, have never suffered from any skin diseases. Is my supposition correct that perspiration irritates the sensitized skin, and is there any way to desensitize skin?*

M.D., New Jersey.

Answer.—This condition appears to be one of hypersensitivity to heat. In this syndrome an exposure to heat may produce local or systemic symptoms. The systemic or distant effects may be those due to systemic histamine release (lowered blood pressure or fainting) or manifestations such as asthma, rhinitis, or skin eruptions. In the local cases one may provoke erythema, urticaria, or angioneurotic edema from local exposure. The original sunburn reaction on the arms may have made that skin more susceptible. Heat hypersensitivity, as well as hypersensitivity to cold, is regarded not as a true allergy but as a lowered threshold of a stimulus that releases histamine. Perspiration can, of course, irritate this type of skin in the same nonspecific sense as it would irritate any kind of skin inflammation. Antihistamines might help to diminish the reactions from heat. If the condition becomes very difficult to manage, administration of the corticosteroid hormones (cortisone or prednisone) might be indicated. It might be possible to achieve a tolerance to heat by systematic exposure to it. This could be done by immersing the forearms in fairly hot water for about three minutes, to be followed by immersion in cold water. Another method is to use daily baths with gradually increasing temperatures.

FUNGUS INFECTIONS OF HANDS AND FEET

To the Editor:—*Please advise me of the accepted treatment of recurring episodes of fungus infections seen in boys previously serving in the Pacific.*

M.D., West Virginia.

Answer.—The majority of the persistent recurrent eruptions of the hands and feet occurring in servicemen who were in the Southwest Pacific, and in other tropical areas, were eczematous eruptions due to multiple etiological factors and not to fungus infections. However, a significant number of men did acquire chronic fungus infections of the feet for the first time, usually including involvement of the toenails; a much smaller number acquired infections of the hands, with or without concomitant involvement of the fingernails. Such infections are almost always due to Trichophyton purpureum. Fungus infections of the feet, hands, and nails due to Trichophyton purpureum are very resistant to all types of treatment and, indeed, essentially incurable, although usually appropriate treatment improves the condition. Infections with the same organism involving the body or the groin usually respond to treatment and, in most instances, can be cleared up permanently. These chronic fungus infections of the feet and/or hands are characterized by scaling, slight erythema, varying degrees of maceration in the interdigital surfaces of the feet, and often some degree of fissuring between the toes. Usually, there is no vesiculation and no sign of eczematization.

Many therapeutic agents have been recommended. Probably there is no more effective medicament than one-half strength Whitfield's ointment applied at bedtime and/or 3% salicylic acid and 6% benzoic acid in 70% alcohol applied twice daily during the day. If there is excessive perspiration, it is well to use a foot powder, such as one of the higher fatty acid preparations (Desenex or Sopronol). The patient should be advised to wear light porous shoes, insofar as this is possible. Such measures tend to be palliative; there are apt to be periodic exacerbations, in which case treatment should be reinstituted. Chronic fungus infections of the toenails are essentially incurable. Persistent treatment of infected fingernails, including piecemeal removal of the involved nail with a nail file, followed by the application of the salicylic acid and benzoic acid preparations noted above, may result in the cure of a fingernail infection, but if there is involvement of at least several nails, the prognosis is not good. Surgical avulsion of the fingernails as a therapeutic measure is not recommended.

PREGNANCY FOLLOWING MASTECTOMY

To the Editor:—*A 23-year-old woman had a simple left mastectomy in November, 1955, followed by 18 x-ray treatments. Pathological diagnosis was carcinoma of the left breast. Since that time she has married and has gained about 30 lb. (13.6 kg.) in weight. At present she has no complaints and examination is negative. She is now two months pregnant. Please advise as to treatment. Should a therapeutic abortion be done?*

M.D., Pennsylvania.

Answer.—Greenhill (Obstetrics, ed. 11, Philadelphia, W. B. Saunders Company, 1955, p. 572) says: "In the absence of any trustworthy guide to prognosis, it does not seem justifiable (except under unusual circumstances) to jeopardize the life of the mother by allowing her to bear additional children. Patients who desire to become pregnant following radical mastectomy should wait at least three years if axillary metastases were not present at the time of operation and five years if axillary metastases were present." In view of the fact that this patient conceived only about seven months after the radical mastectomy and within even less time after the x-ray therapy, the pregnancy should be terminated.

COLD PERMANENT WAVES

To the Editor:—*What is known concerning the toxicology of thioglycollic acid as it is used as a softener in permanent waves? I am principally concerned with a problem of headaches, edema, and a transient dermatitis in a beauty parlor operator who states this material is the only known toxin to which she might be exposed. The cardiovascular system presents no abnormalities; serum proteins, liver function, and renal function seem to be intact. While the edema is at times premenstrual, it may occur at any time. The patient has diuresis up to 12 lb. (5.4 kg.) at times with one mercurial injection.*

Larry H. Birch, M.D., Marion, Ohio.

Answer.—It has been estimated that 2 million cold permanent waves, employing salts of thioglycollic acid, are given each month. The number of reactions is small when this total figure is considered. However, the alkaline solutions of the thioglycollates, currently used in cold hair-waving solutions, are not inert physiologically and may produce local and systemic reactions. Beauty operators who are exposed daily to varying quantities of this solution would be especially prone to such reactions. It is also

---

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PARALYSIS AFTER PENICILLIN INJECTION

To the Editor:—*In Queries and Minor Notes, March 10, 1956, page 921, an instance was reported of flaccid paralysis of a leg occurring 24 hours after injection of penicillin on that same side. The deposition of injectables such as penicillin or diphtheria, tetanus, or pertussis vaccine in or around the sciatic nerve is capable of effecting nerve damage resulting in paresis or paralysis. These are generally reversible reactions, with return of normal function in a majority of instances. The injection of a foreign substance, protein or chemical, is capable of producing a localized inflammatory response as a consequence of mechanical, irritant, or allergic action. The tissues invaded, as well as the adjacent tissues, partake in the response, which in some instances may be severe and long-lasting. Such persisting reactions are to be expected, especially with the long-acting preparations of penicillin or other therapeutic or immunizing substances, because the reaction is intensified by the combination of these materials with alum or aluminum precipitates, and the like.*

It would seem that the paralysis might be the result of traumatic damage from the material itself to the sciatic (or radial) nerve, which with a coincident attack of poliomyelitis might erroneously be imputed to be a predetermined localized poliomyelitic paralysis. Firstly, the poliomyelitis must be established by other diagnostic criteria, such as concomitant meningeal symptoms and positive spinal fluid. Secondly, even with a confirmation of the coexistence of poliomyelitis, one must be aware that the paralysis may still be due to the localized damage of the injection and not to invasion of the poliomyelitis virus into the "traumatized" site.

It would be my suggestion that therapeutic and immunizing substances be injected well into the periphery of the upper, outer quadrant, avoiding the hip joint capsule, so as to avoid proximity to the sciatic nerve. In the arm, similar consideration of the anatomy of the radial nerve should be given. Medical judgment is being influenced by the hysteria produced by indiscriminate association of injections with poliomyelitic paralysis. It would seem obvious to those of us who are constantly injecting that, in many instances, such paralysis is purely coincidental, occurring with no correlation with localizing poliomyelitic paralysis.

Joseph H. Fries, M.D.
2035 Lakeville Rd.
New Hyde Park, L. I., N. Y.

CLIMATE AND CORONARY DISEASE

To the Editor:—*The reply to the question on climate and coronary disease on page 1211 of* The Journal, *July 21, 1956, contains, in my opinion, a misleading remark. Persons with coronary disease who reside permanently in low elevations should not be encouraged to change to high altitudes. Despite the lower humidity in such locations, the strain on the cardiovascular system during the period of acclimatization may add further damage to the already existing disease. In this age of fast transportation, the impact of the high mountain climate is sudden and profound. Full acclimatization at an altitude of 1 mile may take as long as 6 to 14 days for middle-aged persons in good health. This applies to all tourists and visitors who lack experience and advice pertaining to their activities in high elevations. Older people or patients with such conditions as cardiovascular disease, hypertension, renal insufficiency, or pulmonary tuberculosis with tendency to hemoptysis should be advised against a sojourn in the mountains without adequate preparation. Short stops of a few days duration in step-like increase of altitude would greatly minimize the danger. The same precaution should be observed on the return trip. It is deplorable that general interest in bioclimatology is at a low ebb to the disadvantage of all those who could substantially profit in terms of good health and comfort from an appropriate change of climate.*

Igho H. Kornblueh, M.D.
University of Pennsylvania
The Graduate Hospital
Philadelphia 46.

LOW GAMMA GLOBULIN LEVEL

To the Editor:—*In the March 10, 1956, issue of* The Journal, *page 920, was a query concerning a patient with a "low gamma globulin level." We should like to offer a clarifying statement. It is not apparent from the query whether the patient has the rare syndrome of acquired agammaglobulinemia. If she does, then the gamma globulin dosage recommended in the answer is far too low. There is abundant evidence and reasonable agreement that ideal therapy in these cases consists of monthly injections of 0.1 gm. of gamma globulin or 0.6 cc. of gamma globulin solution per kilogram of body weight. Some patients may also require continuous prophylactic antibiotic therapy. Since, by these recommendations, the management of hypogammaglobulinemia may be painful and expensive, prophylaxis should not be initiated unless the diagnosis of agammaglobulinemia is established on a firm basis. It has been our experience that most of the patients referred to us as having hypogammaglobulinemia after the performance of a single electrophoretic study have normal amounts of gamma globulin in their serums and a completely normal immunologic mechanism.*

If the patient referred to in the query merely has frequent upper respiratory infections, with a gamma globulin level near the lower limits of normal, then there is as yet no convincing evidence that gamma globulin will be of any therapeutic value. Indeed, there is evidence that such repeated injections may be harmful, as well as being a deplorable waste of precious human resources.

Robert A. Good, M.D.
University of Minnesota Medical School
Minneapolis 14.

Christopher M. Martin, M.D.
National Institute of Allergy and Infectious Diseases
Bethesda 14, Md.

PRICE OF NEW DRUGS

To the Editor:—*In* The Journal, *June 23, 1956, page 772, a letter from a physician in Pennsylvania appeared questioning the cost of new drugs and medicaments. As a pharmacist, I also had often questioned the failure of the large pharmaceutical houses to reduce the price of their products after they had obtained the original cost of research. My questions were answered, however, on a recent tour of one of the larger pharmaceutical plants in the United States. I saw a tremendous amount of research, both time-consuming and expensive, being conducted by a host of top scientists. The future of this company, like many others, is tied in with the development of new products. Millions are spent yearly on pharmaceutical research, and the cost is partially defrayed by the profits from recent products. The prices of today's so-called miracle drugs cannot be reduced, because they are financing the miracle drugs of tomorrow.*

Alvin Jay Fainberg
7054 Marlboro Pike
Washington 28, D. C.

HEADACHES

To the Editor:—*I am writing in regard to the answer to a question on headaches in* The Journal, *July 7, page 1033. The answer did not include the possibility that this patient's headache was on the basis of functional hyperinsulinism. Unless a six-hour glucose tolerance test were done, an isolated blood chemistry study might never show the hypoglycemia. The failure to recognize the possibility of functional hyperinsulinism has been the greatest source of error in my 20 years of specialization in the field of neuropsychiatry. The questioner is referred to the work of Seale Harris on dysinsulinism and hyperinsulinism (J. A. M. A. 83:729 [Sept. 6] 1924;* Ann. Int. Med. *10:514 [Oct.] 1936) and the book "Body, Mind and Sugar" by E. M. Abrahamson and A. W. Pezet (New York, Henry Holt & Company, Inc., 1951) and also to a letter by Stephen Gyland that appeared in* The Journal *(152:1181 [July 18] 1953) in Queries and Minor Notes.*

Harry M. Salzer, M.D.
6056 Montgomery Rd.
Cincinnati 13.

« Washington News »

President Hails New Medicare Program • •
Meeting Scheduled to Negotiate State Contracts • •
Salk Vaccine Purchases Discussed at House Hearing
Oren Harris Likely to Head Key House Committee • •

DEPENDENT MEDICAL CARE

In approving regluations to govern the new military dependent medical care program, President Eisenhower said he did so with "great satisfaction," principally because it will benefit the 40% of the service families who now do not receive adequate medical care from the government. The new act goes into effect on Dec. 8. The President noted that these families will be allowed to use civilian hospitals and facilities, at a cost of only \$1.75 per day or the first \$25, whichever is the greater. President Eisenhower added: "I have been personally interested in this important program since its inception. I feel strongly that this important measure will have a far-reaching effect on service morale at home and on our widely flung posts, ships and bases around the world and thus effectively strengthen the defense of our country." He said the "important improvement" provided by the act "removes one of the greatest sources of worry to our servicemen and service-women around the world."

Meanwhile, the Defense Department has scheduled meetings with representatives of all state societies to work out state contracts. Representatives of the first group of six were called to Washington Oct. 24. They were Michigan, California, Washington, Colorado, New York, and Minnesota. The next session is scheduled for Oct. 29 with Indiana, North Carolina, Oregon, Connecticut, Wisconsin, and Massachusetts. On Oct. 31, negotiations are planned with Maryland, New Jersey, New Hampshire, Vermont, Rhode Island, and Iowa.

Representatives of the Defense Department also will interview, in the field, the agents selected by societies as their disbursing contractors to handle payment of physicians' fees. In some cases the state societies will be their own disbursing agents, in others Blue Shield has been selected. The department is asking answers to 36 questions pertaining to the disbursing agents. In these interviews the department will ask for information on cost accounting systems, their total charges paid in the last year if the organization operated a health plan, extent of their coverage as compared with total health insurance coverage in the state, and the total number and categories of employees of the disbursing agent and their salaries. Also, the department wants to ascertain whether the disbursing agents' equipment and staff are adequate to handle medicare responsibilities, or if additions will be needed. A copy of a recent balance sheet will be requested. The disbursing agency also will be asked whether it is prepared financially to handle the program for the first two months before government payments are received, or will expect an advance from the department.

POLIOMYELITIS VACCINE HEARING

A two-day hearing of a House government operations subcommittee on the pricing of the poliomyelitis vaccine has produced charges and countercharges on the question of whether the government paid a reasonable price for the vaccine. The hearings halted with no final conclusion and with the prospect that they may be reopened later. At the outset the Republican member of the three-man group charged that the sessions were politically motivated. Rep. Chet Holifield (D., Calif.), subcommittee chairman, declared on the second day that there was prima facie evidence that the antitrust laws have been violated by five drug firms in the sale of 13 million dollars worth of the vaccine to the government. He proposed that the Justice Department and the Federal Trade Commission look into the situation.

Dr. David E. Price, assistant surgeon general of the Public Health Service, testified that, in attempting to make cost estimates for the federal grant program, the Department of Health, Education, and Welfare asked each manufacturer individually what its price to public agencies would be. He said four gave a tentative list price of about \$15 for 9 cc., which with the usual discounts to public agencies would net about \$7.12. Two manufacturers indicated that it was impossible to quote prices pending further clarification of testing requirements and new safety standards. In presenting department estimates to Congress, the figure of \$7 for 9 cc. was used, Dr. Price added.

"It is virtually always the case with new biologics that initial costs tend to be high, with reductions coming along later as production expands and becomes more efficient," Dr. Price testified. "Experience with the Salk vaccine has followed this normal pattern. . . . As the companies gained production experience and were able to produce on a greater volume basis, they voluntarily lowered their price, first to \$6.33 in May, and then to \$5.70, the current price." The assistant surgeon general said that, thus far, over \$32,500,000 out of a total of \$53,600,000 allocated to the states has been paid out, either in cash or in vaccine. Five states have used their full federal allotment. The remaining 51 states and territories are drawing on the fund at the rate of almost \$750,000 a week.

DRUG REACTIONS

In a program sponsored by the Food and Drug Administration, 11 large public and private hospitals are making prompt reports on unusual or adverse reactions to drugs. The American Medical Association is collaborating in the project, as are the American Association of Medical Record Librarians, the American Society of Hospital Pharmacists, and the American Hospital Association.

The objective is to obtain specific information regarding effects appearing in some patients when drugs are administered to large numbers of people. The FDA explained: "This problem has been magnified by the increasing number of potent new drugs. Even the

---

From the Washington Office of the American Medical Association.

most extensive clinical studies cannot forecast all types of drug reaction which may develop throughout the population. Hospitals provide an ideal site for observing the effects of drugs and obtaining essential information that is not available from other sources.

Hospitals participating are George Washington University Hospital, Washington, D. C.; Grace Hospital, Detroit; Hartford Hospital, Hartford, Conn.; Oakwood Hospital, Dearborn, Mich.; Lakewood Hospital, Lakewood, Ohio; Medical College of Virginia Hospital, Richmond, Va.; St. Joseph's Hospital, Providence, R. I.; U. S. Naval Hospital, Bethesda, Md.; U. S. Public Health Service Hospital, Baltimore; Walter Reed Army Hospital, Washington, D. C.; Western Pennsylvania Hospital, Pittsburgh.

HEALTH LEGISLATION

The House committee responsible for most health and medical legislation will have a new chairman next year, following the unexpected death of Rep. Percy Priest (D., Tenn.). If the Democrats retain control of the House, the chairman of the Interstate and Foreign Commerce Committee will likely be Rep. Oren Harris of Arkansas, who has served since 1941, one year after Mr. Priest began his uninterrupted service in Congress. Mr. Harris, a lawyer, has been interested particularly in transportation, communications, and natural gas rather than in health bills. If the Republicans take over, the chairmanship reverts to Rep. Charles Wolverton (R., N. J.), who was chairman in the Republican 83rd Congress. His interest in health and medical legislation is well known.

In commenting on the passing of Mr. Priest, President Eisenhower said: "The Congress . . . and the people of the nation have lost a valuable member. . . . Congressman Priest served with distinction. . . . Mrs. Eisenhower and I join with his many friends in Washington and the people of his district and state in extending our sympathy to his family." House Republican Leader Martin declared: "Percy Priest was a great able man. He had no enemies. He was a splendid legislator and a great gentleman." Before coming to Congress Mr. Priest had been a schoolteacher and a newspaperman. For several years he has served as Democratic whip in the House.

SURPLUS PROPERTY DISPOSAL

To dispose of federal surplus property for the benefit of state and local civil defense organizations, the Federal Civil Defense Administration has established a new office. In charge is John Thomas, former head of personal property utilization for the General Services Administration. The program will be operated through FCDA's regional offices, in close coordination with state and territorial civil defense directors. Action by the last Congress makes possible allocation of surplus goods for civil defense work. Prior to that, the material could be given only to health and educational institutions. Some ambulances, stretchers, and trucks are expected to be made available for medical civil defense work.

Another FCDA development is production of a new kit designed to explain the threat of biological warfare and to tell how to counteract effects of biological warfare on people, livestock, and crops. Four film strips with accompanying sound records, six pamphlets, and a special instruction leaflet make up the kit. The FCDA has also issued a new set of "planning assumptions" that estimates damage that might be done and medical and other problems created by an enemy attack. While these are in no sense predictions, the FCDA says the assumptions were drafted "through appraisal of available intelligence and information on the most recent known or estimated capabilities of potential aggressors to attack the United States." In contrast to earlier efforts in this field, the new planning assumptions are not restricted to a certain year but will be amended or replaced as more information in the field becomes available.

RESEARCH FOR MENTAL ILLNESS

Carrying out the instructions of Congress, which this year voted 2 million dollars for the work, the Public Health Service is establishing a new unit to assist in developing scientifically sound research programs on tranquilizing and other drugs used in the treatment of mental illness. The new project, to be directed by Dr. Jonathan O. Cole, will be known as the Psychopharmacology Service Center in the National Institutes of Mental Health in Bethesda, Md. The center will develop a nationwide research program designed to stimulate support for basic research and preclinical and early screening and testing of tranquilizing and other such drugs. Among other things, the center will provide technical assistance and research advisory services to scientists.

PERSONNEL

The initial operation of the construction grants program for federal water pollution control will be directed by Curtiss M. Everts of Portland, Ore. . . . William C. Fitch has been named director of the special staff on aging in the Department of Health, Education, and Welfare. It is a new job created by the expansion of the department's activities relating to older persons. . . . Mary Jenney, senior nurse officer in the Public Health Service, will head the first federal program to further education of qualified graduate nurses. . . . Dr. H. Max Houtchens has been named chief of the Veterans Administration clinical psychology division in Washington, D. C. He succeeds Dr. H. M. Hildreth, who has accepted a position in the PHS. . . . Dr. John R. Lindsay, professor of otolaryngology at the University of Chicago, has been appointed to the National Advisory Neurological Diseases and Blindness Council for a four-year term. . . . George Washington University has selected Rear Adm. Lamont Pugh, former Navy surgeon general, as university physician.

MISCELLANY

The Arkansas State Board of Health has received a grant of $38,780 from the Children's Bureau for a special project for mentally retarded children, the first money allocated from a special million-dollar fund voted by Congress. . . . The Red Cross Blood Program, which supplies about 40% of the blood used by U. S. hospital patients, received 2,073,000 voluntary blood donations in the past year. . . . Public Health Service scientists have found that excess aldosterone is secreted by the adrenal glands of dogs with edema. Aldosterone was previously implicated as an important factor in edema.